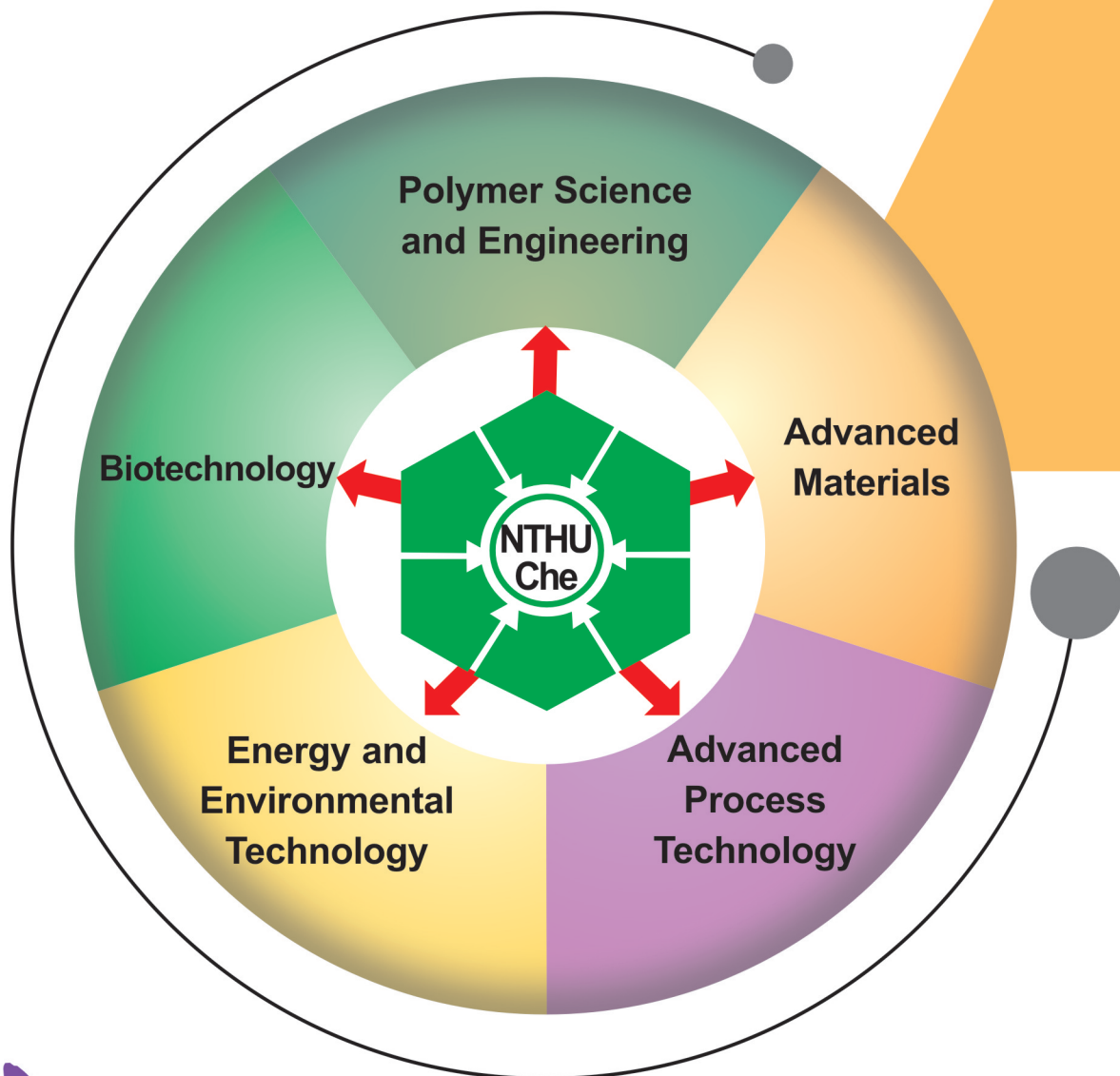




National Tsing Hua University  
Department of Chemical Engineering  
國立清華大學化學工程學系



清大化工

教授著作目錄

(2020 ~ 2024)

Publication List of Faculty Members



August, 2025

## Faculty Members

1. Hsin-Lung Chen	陳信龍 .....	1
2. Show-An Chen	陳壽安 .....	6
3. Sinn-Wen Chen	陳信文 .....	11
4. Ching-Tien Chen	陳靖天 .....	21
5. Ho-Hsiu Chou	周鶴修 .....	24
6. Rong-Ming Ho	何榮銘 .....	41
7. Masaki Horie	堀江正樹 .....	47
8. Chi-Chang Hu	胡啟章 .....	55
9. Yu-Chen Hu	胡育誠 .....	71
10. Jen-Huang (Tony) Huang	黃振煌 .....	85
11. Shi-Shang Jang	鄭西顯 .....	100
12. U-Ser Jeng	鄭有舜 .....	105
13. Ying-Ling Liu	劉英麟 .....	112
14. Yu-Jeng Lin	林育正 .....	118
15. Kun-Han Lin	林昆翰 .....	121
16. Shih-Yuan Lu	呂世源 .....	126
17. Claire Roa-Pu Shen	沈若樸 .....	139
18. Yung-Tin Pan	潘詠庭 .....	143
19. Hsing-Wen Sung	宋信文 .....	149
20. De-Hao Tsai	蔡德豪 .....	158
21. Hsing-Yu Tuan	段興宇 .....	167
22. Jane Wang	王 潔 .....	173
23. Tzu-Chien Wei	衛子健 .....	176
24. David Shan Hill Wong	汪上曉 .....	181
25. Yuan Yao	姚 遠 .....	188
26. Tung-Han Yang	楊東翰 .....	201



## Publications of Hsin-Lung Chen (陳信龍)

### A. Journal Papers (\* Corresponding author)

#### 2024

1. Siboro, P. Y.; Sharma, A. K.; Lai, P.-J.; Jayakumar, J.; Mi, F.-L.; **Chen, H.-L.**; Chang, Y.; Sung, H.-W. Harnessing HfO<sub>2</sub> Nanoparticles for Wearable Tumor Monitoring and Sonodynamic Therapy in Advancing Cancer Care, *ACS Nano* 2024, 18, 2485.
2. Lee, C.; Ree, B. J.; Chen, K.; Komaki, R.; Katsuhara, S.; Yamamoto, T.; Borsali, R.; Tajima, K.; **Chen, H.-L.\***; Satoh, T\*.; Isono, T\*. Ultrasmall 3D network morphologies from biobased sugar–terpenoid hybrid block co-oligomers in the bulk and the thin film states, *Giant*, 2024, 17, 100211.
3. Tung, C.-H.; Hsiao, Y.-J.; **Chen, H.-L.\***; Huang, G.-R.; Porcar, L.; Chang, M.-C.; Carrillo, J.-M.; Wang, Y.; Sumpter, B. G.; Shinohara, Y.; Taylor, J.; Do, C.; Chen, W.-R.\*, Unveiling mesoscopic structures in distorted lamellar phases through deep learning-based small angle neutron scattering analysis, *Journal of Colloid and Interface Science*, 2024, 659, 739.
4. Hsu, C.-C., Lin, Y.-T., Hong, S.-H., Jeng, U., **Chen, H.-L.**, Yu, J., Liu, C.-L., 3D Printed Gelatin Methacrylate Hydrogel-Based Wearable Thermoelectric Generators, *Adv. Sustainable Syst.* 2024, 8, 2400039.
5. Nouri, B., **Chen, H.-L.\***, Building blocks of order: block copolymer micelles and colloidal particles in complex packing structures, *J Polym Res* 2024, 31, 120.
6. Hong, S.-H., Hsu, C.-C., Liu, T.-H., Lee, T.-C., Tung, S.-H., **Chen, H.-L.**, Yu, J., Liu, C.-L., Extremely large Seebeck coefficient of gelatin methacryloyl (GelMA)-based thermogalvanic cells by the dual effect of ion-induced crystallization and nanochannel control, *Mater. Today Energy* 2024, 42, 101546.
7. Chen, K., Lee, C., Chen, C.-Y., Satoh, T., Isono, T.\*, **Chen, H.-L.\***, Phase Behavior of Sugar-based Block Co-oligomer Modulated by Molecular Chirality, *Giant* 2024, 19, 100308.
8. Chiu, W.-C., Cheng, Y.-H., Lin, J.-H., Tung, C.-H., Nishimura, T., Chen, C.-Y., Isono, T.\*, Satoh, T., **Chen, H.-L.\***, Tuning the Complex Spherical Phase of Sugar-Based Block Co-Oligomer via Single-Monomer-Mediated Composition Variation, *Macromolecules*, 2024, 57, 6076.



9. Lin, Y.-T., Hsu, C.-C., Hong, S.-H., Lee, L.-C., Jeng, U., **Chen, H.-L.**, Tung, S.-H., Liu, C.-L., Highly conductive triple network hydrogel thermoelectrochemical cells with low-grade heat harvesting, *J. Power Sources* 2024, 609, 234647.
10. Chen, C.-Y.; Chen, Y.; Chang, T.-Y.; Lee, M.-T.; Liu, S.-Y.; Yu, Y.-C.; Lin, Y.-H.; Lee, C.-H.; **Chen, H.-L.**; Wu, K.-Y., Thermophilic artificial water channels of a lipid-like dendron stabilized by water containing hydrogen-bonded network. *Giant* 2024, 17, 100220.
11. Tung, C.-H., Chen, M.-Z., **Chen, H.-L.**, Huang, G.-R., Porcar, L., Chang, M.-C., Carrillo, J.-M., Wang, Y., Sumpter, B. G., Shinohara, Y., Do, C., Chen, W.-R., Inferring effective electrostatic interaction of charge-stabilized colloids from scattering using deep learning, *J. Appl. Cryst.* 2024, 57, 1047.

## 2023

12. Lai, Y.-C.; Mansel, B. W.; Chen, C.-Y.; Liu, C.-Y.; Chen, Y.-H.; Chun-Jen Su, C.-J.; Jeng, U.-S.; **Chen, H.-L.\*** Helical micelle of an achiral surfactant from the template interaction with dendrimer, *Giant*, 2023, 14, 100147.
13. Lin, P.-Y.; Chuang, E.-Y.; Chiu, Y.-S.; **Chen, H.-L.**; Lin, K.-J.; Juang, J.-H.; Chiang, C.-H.; Mi, F.-L.; Sung, H.-W. Corrigendum to “Safety and efficacy of self-assembling bubble carriers stabilized with sodium dodecyl sulfate for oral delivery of therapeutic proteins, *Journal of Ophthalmology Clinics and Research*, 2023, 362, 764.
14. Chen, M.-Z.; Tung, C.-H.; Chen, C.-Y.; **Chen, H.-L.\*** Expanding the window of the Frank-Kasper  $\sigma$  phase of block copolymer/homopolymer blend by selective incorporation of metal salt, *Phys. Rev. Materials*, 2023, 7, 115604.
15. Chen, K.; Chen, C.-Y.; **Chen, H.-L.\***; Komaki, R.; Kawakami, N.; Isono, T.; Satoh, T.; Hung, D.-Y.; Liu, Y.-L. Self-Assembly Behavior of Sugar-Based Block Copolymers in the Complex Phase Window Modulated by Molecular Architecture and Configuration, *Macromolecules*, 2023, 56, 28.

## 2022

16. Tung, C.-H.; Chang, S.-Y.; **Chen, H.-L.**; Wang, Y.-Y.; Hong, K.-L.; Carrillo, J. C.; Sumpter, B. G.; Shinohara, Y.; Do, C.-W.; Chen, W.-R. Small angle scattering of diblock copolymers profiled by machine learning, *The Journal of Chemical Physics*, 2022, 156, 131101.
17. Siboro, P. Y.; Nguyen, V. K. T.; Miao, Y.-B.; Sharma, A. K.; Mi, F.-L.; **Chen, H.-L.**; Chen, K.-H.; Yu, Y.-T.; Chang, Y.; Sung, H.-W. Ultrasound-Activated,



- Tumor-Specific In Situ Synthesis of a Chemotherapeutic Agent Using ZIF-8 Nanoreactors for Precision Cancer Therapy, *ACS Nano*. 2022, 16, 12403.
18. Lin, P.-Y.; Chuang, E.-Y. Chiu, Y.-H.; **Chen, H.-L.**; Lin, K.-J.; Juang, J.-H.; Chiang, C.-H.; Mi, F.-M.; Sung, H.-W. Safety and efficacy of self-assembling bubble carriers stabilized with sodium dodecyl sulfate for oral delivery of therapeutic proteins, *Journal of Controlled Release*, 2022, 259, 168.
  19. Isono, T.; Komaki, R.; Kawakami, N.; Chen, K.; **Chen, H.-L.**; Lee, C.-H.; Suzuki, K.; Ree, B. J.; Mamiya, H.; Yamamoto, T.; Borsali, R.; Tajima, K.; Satoh, T. Tailored Solid-State Carbohydrate Nanostructures Based on Star-Shaped Discrete Block Co-Oligomers, *Biomacromolecules*, 2022, 23, 3978.
  20. Wong, C.-C.; Lu, C.-X.; Cho, E.-C.; Lee, P.-W.; Chi, N.-W.; Lin, P.-Y.; Jheng, P.-R.; **Chen, H.-L.**; Mansel, B. W.; Chen, Y.-M.; Chen, C.-H.; Chuang, E.-Y. Calcium peroxide aids tyramine-alginate gel to crosslink with tyrosinase for efficient cartilage repair, *International Journal of Biological Macromolecules*, 2022, 208, 299.
  21. Shi, Z.-H.; Hsu, F.-M.; Mansel, B. W.; **Chen, H.-L.**; Fruk, L.; Chuang, W.-T.; Hung, Y.-C. Kinetics and Mechanism of In Situ Metallization of Bulk DNA Films, *Nanoscale research letters*, 2022, 17, 1.
  22. Nouri, B.; Chen, C.-Y.; Lin, J.-M.; Chen; **Chen, H.-L.\*** Phase Control of Colloid-like Block Copolymer Micelles by Tuning Size Distribution via Thermal Processing, *Macromolecules*, 2022, 55, 9820.
  23. Chen, M.-Z.; Huang, Y.-T.; Chen, C.-Y.; **Chen, H.-L.\*** Accessing the Frank–Kasper  $\sigma$  Phase of Block Copolymer with Small Conformational Asymmetry via Selective Solvent Solubilization in the Micellar Corona, *Macromolecules*, 2022, 55, 10812.

## 2021

24. Young, C.-M.; Chang, C.-L.; Chen, Y.-H.; Chen, C.-Y.; Chang, Y.-F.; **Chen, H.-L.\*** Dendrimer-mediated Columnar Mesophase of Surfactant. *Soft Matter*, 2021, 17, 397.
25. Mansel, B.W.; **Chen, H.-L.\*** Structure of DNA-PAMAM Dendrimer Complexes Studied Using Small-angle Scattering Techniques. *Current Medicinal Chemistry*, 2021, 28, 7529.
26. Chiu, Y.-L.; Chen, S.-C.; Su, C.-J.; Hsiao, C.-W.; Chen, Y.-M.; **Chen, H.-L.**; Sung, H.-W. pH-triggered injectable hydrogels prepared from aqueous N-



- palmitoyl chitosan: In vitro characteristics and in vivo biocompatibility. *BIOMATERIALS*, 2021, 30, 4877.
27. Mansel, B.W.; Su, C.-J.; Chen, C.-Y.; Young, C.-M.; Huang, Y.-C.; Yang, C.-C.; **Chen, H.-L.\*** Superhelical DNA liquid crystals from dendrimer-induced DNA compaction. *Soft Matter*, 2021, 17, 7287.
  28. Lin, Y.-H.; Shiu, C.-C.; Chen, T.-L.; **Chen, H.-L.\***; Tsai, J.-C. Solubilization Behavior of Homopolymer in Its Blend with the Block Copolymer Displaying the Feature of Lower Critical Ordering Transition. *Polymers*, 2021, 13, 3415.
  29. Chen, L.-T.; Huang, Y.-T.; Chen, C.-Y.; Chen, M.-Z.; **Chen, H.-L.\*** Thermodynamically Originated Stacking Fault in the Close-Packed Structure of Block Copolymer Micelles. *Macromolecules*, 2021, 54, 8936.
  30. Nouri, B.; Chen, C.-Y.; Huang, Y.-S.; Mansel, B.W. Chen; **Chen, H.-L.\*** Emergence of a Metastable Laves C14 Phase of Block Copolymer Micelle Bearing a Glassy Core. *Macromolecules*, 2021, 54, 9195.
  31. Bolouki, N.; Hsu, Y.-N.; Hsiao, Y.-C.; Jheng, P.-R.; Hsieh, J.-H.; **Chen, H.-L.**; Mansel, B.W.; Yeh, Y.-Y.; Chen, Y.-H.; Lu, C.-X.; Lee, J.-W.; Chuang, E.-Y. Cold atmospheric plasma physically reinforced substances of platelets-laden photothermal-responsive methylcellulose complex restores burn wounds. *International Journal of Biological Macromolecules*, 2021, 192, 506.
  32. Chen, Y.-H.; Chuang, E.-Y.; Jheng, P.-R.; Hao, P.-C.; Hsieh, J.-H.; **Chen, H.-L.**; Mansel, B.W.; Yeh, Y.-Y.; Lu, C.-X.; Lee, J.-W.; Hsiao, Y.-C.; Bolouki, N. Cold-atmospheric plasma augments functionalities of hybrid polymeric carriers regenerating chronic wounds: In vivo experiments. *Materials Science and Engineering: C*, 2021, 131, 112488.
  33. Chu, C.-Y.; Chen, M.-Z.; Li, W.-H.; Tsai, J.-C.; **Chen, H.-L.\*** Confined crystallization in the binary blends of diblock copolymers bearing stereoisomeric isotactic and syndiotactic polypropylene. *Polymer Crystallization*, 2021, 4, 10213.

## 2020

34. Hsu, N.-W.; Nouri, B.; Chen, L.-T.; **Chen, H.-L.\*** Hexagonal Close-Packed Sphere Phase of Conformationally Symmetric Block Copolymer. *Macromolecules*, 2020, 52, 9665.
35. Mansel, B.W.\*; Ryan, T.M.; **Chen, H.-L.**; Williams, M.A.K. Polysaccharide conformations measured by solution state x-ray scattering. *Chemical Physics Letters*, 2020, 739, 136951.



36. Mansel, B.W.; **Chen, H.-L.\***; Structure of DNA-PAMAM Dendrimer Complexes Studied Using Small-angle Scattering Techniques. *Current Medicinal Chemistry*, 2020, 28, 7529.
37. Young, C.-M.; Chang, C.-L.; Chen, Y.-H.; Chen, C.-Y.; Chang, Y.-F.; **Chen, H.-L.\*** Dendrimer-mediated Columnar Mesophase of Surfactant. *Soft Matter*, 2020, 17, 397.
38. Lin, Y.-J.; Chen, C.-C.; Nguyen, D.; Su, H.-R.; Lin, J.-J.; **Chen, H.-L.**; Hu, Y.-J.; Lai, P.-L.; Sung, H.-W.\* Biomimetic Engineering of a Scavenger-Free Nitric Oxide-Generating/Delivering System to Enhance Radiation Therapy. *Small*, 2020, 16, 2000655.
39. Nhien, P.Q.; Cuc, T.T.K.; Khang, T.M.; Wu, C.H.; Hue, B.T.B.; Wu, J.I.; Mansel, B.W.; **Chen, H.-L.**; Lin, C.-H.\* Highly Efficient Förster Resonance Energy Transfer Modulations of Dual-AIEgens between a Tetraphenylethylene Donor and a Merocyanine Acceptor in Photo-Switchable [2]Rotaxanes and Reversible Photo-Patterning Applications. *ACS Applied Materials & Interfaces*, 2020, 12, 47921.



## Publications of Show-An Chen (陳壽安)

### A. Journal Papers (\* Corresponding author)

#### 2024

1. Kuan-Hsun Lu, Wei-Ru Wu, Chun-Jen Su, Po-Wei Yang, Norifumi L. Yamada, Hong-Jun Zhuo, **Show-An Chen**, Wei-Tsung Chuang, Yi-Kang Lan, An-Chung Su\* and U-Ser Jeng\*, “Modulating phase segregation during spin-casting of fullerene-based polymer solar-cell thin films upon minor addition of a high-boiling co-solvent”, *J. Appl. Cryst.* 2024, 57, 1871–1883.
2. Yi-Hen Mao, Miao-Ken Hung, Shang-Ting Chung, Sunil Sharma, Kuen-Wei Tsai, and **Show-An Chen\***, “Interacting Emission Species among Donor and Acceptor moieties in Donor-Grafted Polymer Host/TADF-Guest System and their Effects on Photoluminescence and Electroluminescence”, *ACS Applied Materials and Interfaces*, 2024, 16, 60715–60731.

#### 2023

3. Wei-Chih Cheng and **Show-An Chen\***, “Creation of Dual Thermally Activated Delayed Fluorescence Exciplexes in Bulk Emitting Layer and Its Interface with Electron Transport Layer for Promoting Performance of TADF Organic Light-Emitting Diodes Fabricated by Solution Process”, *ACS Appl. Mater. Interfaces*, 2023, 15, 31692–31702.
4. Yi-Hen Mao, Miao-Ken Hung, Shang-Ting Chung, Sunil Sharma, Kuen-Wei Tsai, and **Show-An Chen\***, “Interacting Emission Species among Donor and Acceptor moieties in Donor-Grafted Polymer Host/TADF-Guest System and their Effects on Photoluminescence and Electroluminescence”, *ACS Applied Materials and Interfaces*, under revision, 2024.

#### 2022

5. Miao-Ken Hung, Shang Ting Chung, Kuen-Wei Tsai, Sunil Sharma, Jun-Yi Wu, and **Show-An Chen\***, Poly(Acridan Grafted Biphenyl Germanium) as Universal Host for High-Efficiency Thermally Activated Delayed Fluorescence Full-Color and their Hybrid with Phosphor for White Light Electroluminescence, *ACS Appl. Mater. Interfaces*, 2022, 14, 55873–55885.



6. Shuo En Wu, Sunil Sharma, Hsin-Lung Chen, **Show-An Chen\***, Pavel V. Komarov, Viktor A. Ivanov, and Alexei R. Khokhlov, “Effective Hole Injection to Core-Shell Quantum Dot for Electroluminescence Across Large Barrier 1.4 eV Through Single Conjugated Polymer with Four Stepwise HOMO Levels in Inverted QLED”, *Advanced Optical Materials*, 2022, 1~6, 2102508.

### 2021

7. Dang-Trung Nguyen, Sunil Sharma, **Show-An Chen\***, Pavel V. Komarov, Viktor A. Ivanov, and Alexei R. Khokhlov, “Polymer-quantum dot composite hybrid solar cells with bi-continuous network morphology by using the block copolymer Poly(3-hexylthiophene)-b-polystyrene or its blend with Poly(3-hexylthiophene) as donor”, *Materials Advances*, 2021, 2, 1016-1023.

### 2020

8. Pavel V. Komarov,\* Pavel O. Baburkin, Viktor A. Ivanov, Yi-Lun Li, **Show-An Chen**, and Alexei R. Khokhlov, “Mesoscale Simulations on Morphology Design in Conjugated Polymers and Inorganic Nanoparticles Composite for Bulk Heterojunction Solar Cells”, *Solar Rapid Research Letter*, 2020, 2000352.

## B. Conference Presentations

### 2023

1. **Show-An Chen\***, “Molecular Design on Semiconductive Polymers for Opto-Electronics with High Device Performance: Single Polymer Approach”, The 4<sup>th</sup> International Conference on Materials Science & Nanotechnology is scheduled for October 23- 27, 2023, in Valencia, Spain (**Featured Speaker**)

### 2020

2. **Show-An Chen\***, “Conjugated polymer/nanoparticle hybrid systems for opto-electronic interconversion: experiment, theory and computer simulation”, 2020 MOST Science and Technology International Cooperation Research Symposium, North America - Asia Pacific – Europe, 2020-10-20~21, Taipei (**Invited Speaker**)



## C. Patents

1. 一種可溶性自身酸摻雜聚苯胺衍生物之結構及其製法  
(A water Soluble Self-Doped Polyaniline Derivatives and process for preparing the same)  
發明人：(inventors)：陳壽安 (Show-An Chen), 林顯光  
(中華民國發明專利(ROC Patent), 第 472069 號 (2002.1.11-2018.3.10)  
(U.S. Patent, 5,891,970 (1998.7.2~2018.7.1))
2. 可發射近白光寬頻光譜之高分子發光二極體之製作方法  
(Fabrication of Polymer Light-Emitting Diodes with Broad Emission Spectra Near White Light)  
發明人：(inventors)：陳壽安 (Show-An Chen), 張恩崇, 莊坤儒  
(中華民國專利(ROC Patent), 第 115288 號 (2000.6.1-2018.3.10))  
(日本發明專利(Japanese Patent) 審查中, 1997 年)  
(US. Patent 6, 127, 693 (1995.6.8-2015.6.7))
3. 高陰電性雜環基團改質之電致發光共軛高分子製備方法及其在發光二極體上之應用  
(Electroluminescent Conjugated Polymers Modified with High Electronegative Heterocyclic Moieties and Their Applications in Polymeric Light Emitting Diodes)  
發明人：(inventors)：陳壽安 (Show-An Chen), 李裕正  
(中華民國專利(ROC Patent), 第 143285 號 (2001.10.21-2019.5.12))  
(US Patent 6,495,644 B1 (2002.10.15-2020.12.29))
4. 非水溶液之有機二次電池  
(Non-aqueous organic secondary battery)  
發明人：(inventors)：陳壽安 (Show-An Chen), 梁凱閔, 楊蘭生, 李仁傑  
(中華民國專利(ROC Patent), 第 173442 號 (2003.03.01-2021.10.4))
5. 適合作為二次電池之隔離膜的化學交聯聚丙烯腈高分子電解質的製作方法  
(Method for preparation of chemically crosslinked polyacrylonitrile polymer electrolyte as separator for secondary battery)  
發明人：(inventors)：陳壽安 (Show-An Chen), 薛淵傑, 李仁傑, 王博生  
(中華民國專利(ROC Patent), 第 I 237643 號 (2005.08.11-2022.05.13))
6. 含磷光發光基團之發光共軛高分子及其在發光二極體上之應用  
(Electroluminescent conjugated polymers containing phosphorescent moieties and the application thereof in LED)  
發明人：(inventors)：陳壽安 (Show-An Chen), 陳希文, 廖金龍, 梁永民  
(中華民國專利, 第 I 267545 號)(2006.12.1-2023.6.16)  
(US. Patent, 7,098,295 B2 (2003.12.16-2020.12.15))



7. 側鏈帶有兩種以上相對於主鏈具階梯式離子化位能(或電子親和性)載子傳輸基團之發光共軛高分子及其在發光二極體上之應用  
(Conjugated polymers grafted with graded charge transporting moieties and their application in light-emitting diodes)  
發明人(inventors)：**陳壽安 (Show-An Chen)**, 黃智偉, 彭剛勇, 劉景洋  
(中華民國專利: 第 I 362409 號 (2012-04-21~2027-09-05))
8. 以濕式浸潤擴散法進行高分子發光二極體光色調控、效能提升以及多色元件製作(Method of increasing  $\beta$ -phase content in a conjugated polymer useful as a light emitting layer in a polymer light emitting diode)  
發明人(inventors)：**陳壽安 (Show-An Chen)**, 盧信宏  
(US patent, US 8287941 B2 (2012.10.16-2028.8.7))
9. 一種可應用於高分子發光二極體之由具有電子注入/傳遞功能的金屬離子鑲嵌入冠醚側鏈之共軛高分子與具有電洞阻擋功能的高分子組成之具水/醇類可溶解性電子注入/電洞阻擋複合層 (A water/alcohol soluble composite layer consisting of electron-injection/electron-transport crown ether/metal-ion grafted conjugated polymer and hole-blocking polymer and their application in organic light-emitting diode and organic solar cell)  
發明人(inventors)：**陳壽安 (Show-An Chen)**, 盧信宏, 廖思豪  
(中華民國專利: 第 I 480309 號 (2012.06.29-2032.06.28))  
( US Patent:9,105,851 B2 (2015.08.11-2032.06.05))

#### D. Other

1. Educational Ministry: Academic Award in Engineering (one person, 1984); National Chair in engineering and applied science (1999.8-2002.7; 2002.8-2005.7; life-time National Chair).
2. National Science Council, Outstanding Research Award (1985-1995); Distinguished Researcher (1995-2001).
3. Chung-Shan Academic Foundation, Academic Research Award (1982).
4. Outstanding Scholarship Award, Foundation for the Advancement of Outstanding Scholarship, (1995-2000; 2006-2010).
5. Science and Technology Award offered, Executive Yuan of ROC, (Dec. 22, 2003).
6. Teco Technology Foundation, TECO technology award received (Nov. 10, 2004).
7. Pan Wen-Yuan Foundation, Outstanding Research Award received (June 2007).
8. Asian-Pacific Academy of Advanced Materials, Fellow (2000-date).
9. Chairman, Macro Congress 2008, International Union of Pure and Applied Chemistry (IUPAC), Taipei, Taiwan, June 29-July 4, 2008.



10. Life-time Achievement Award, The Polymer Society, Taipei, (2009).
11. National Tsing Hua University: Honorary Chair (2010.8-2016.7); Tsing Hua Hou Jin-Duei Senior Chair (2010.8-2013.7);
12. Alumni Outstanding Achievement Award, National Chung-Kung University, (2011.7.19).
13. Fellow, Taiwan Institute of Chemical Engineers (First Time) , 2013.
14. Fellow, The Polymer Society, Taipei, (First Time) , 2015.
15. Honorary Doctor Degree (*Doctor Honoris Causa*), Russian Academy of Sciences (RAS), December 13, 2016.
16. Member of EU Academy of Sciences (2017-date)
17. 台湾石化合成公司「學術貢獻獎」, December 21, 2019.



## Publications of Sinn-wen Chen (陳信文)

### A. Journal Papers (\* Corresponding author)

#### 2024

1. **\*S.-W. Chen**, P.-S. Huang, Y.-C. Tsai and Y. Hutabalian, “Liquidus projection and miscibility gap of the Ag-Cu-Te ternary system”, *Calphad-Computer Coupling of Phase Diagrams and Thermochemistry*, Vol. 87, 102765, (2024). (MOST-111-2221-E-007-014-MY3)
2. Y. Hutabalian, **\*S.-W. Chen** and W. Gierlotka, “Phase equilibria of binary Ag-Se and ternary Ag-Pb-Se systems”, *Calphad-Computer Coupling of Phase Diagrams and Thermochemistry*, Vol. 86, 102709, (2024).
3. J.-R. Chang, **\*S.-W. Chen**, H.-C. Yang and C.-H. Ho, “Co/Bi<sub>2</sub>Te<sub>3</sub> interfacial reactions and Bi-Co-Te phase equilibria”, *Journal of Taiwan Institute of Chemical Engineers*, Vol. 161, 105531, (2024). (MOST 111-2221-E-007-014-MY3) and (NSTC 111-2634-F-007-008).
4. **\*S.-W. Chen**, P.-S. Huang, Y.-C. Tsai, Y. Hutabalian and J.-Y. Lin, “Ag and Cu whisker formation in Ag-Cu-Te alloys”, *Journal of Materials Science*, Vol. 59 (20), pp.9091-9106 (2024). (MA-tek 2021-T-012), MOST 111-2221-E-007-014-MY3, NSTC 111-2634-F-007-008).
5. Y.-D. Guo, Y. Hutabalian and **\*S.-W. Chen**, “Phase diagram of ternary Co-Fe-Ge system (I): Experimental”, *Calphad-Computer Coupling of Phase Diagrams and Thermochemistry*, Vol. 85, 102682, (2024). (MOST 107-2923-E-007-005-MY3).
6. \*Y. Hutabalian, G. N. Hermana, A. D. Laksono, **S.-W. Chen**, “Phase equilibria and thermodynamics assessment of the Co-Fe-Nb ternary system”, *Intermetallics*, Vol. 168, 108243, (2024)
7. Y.-F. Tsai, Y.-C. Chao, C.-R. Hsing, K.-K. Wang, Y.-H. Tung, C.-C. Yang, **S.-W. Chen**, G. J. Snyder, H.-W. Yen, C.-M. Wei, P.-C. Wei, \*H.-J. Wu, “From stoichiometric to off-stoichiometric GeTe: Phase diagram reconstruction and thermoelectric performance reassessment”, *Acta Materialia*, Vol. 265, 119644, (2024).
8. H.-C. Yang, **\*S.-W. Chen**, J.-R. Chang, and H.-D. Chiang, “Co/Bi<sub>2</sub>Se<sub>3</sub> interfacial reactions and Bi-Co-Se phase equilibria”, *Journal of the Taiwan Institute of Chemical Engineers*, Vol. 155, 105291, (2024). (MOST 111-2221-E-007-014-MY3) and (MOE 112QR001J4).



9. Y.-T. Lee, E. J.-W. Liou\* and **S.-W. Chen**, “Comparison between microporous and nanoporous orthodontic miniscrews: An experimental study in rabbits”, *Journal of Orofacial Orthopedics*, Vol. 85, pp. 1-12 (2024).

## 2023

10. **\*S.-W. Chen**, Y. Chen, H.-C. Yang and C.-H. Ho, 2023, “Ni/GeTe interfacial reactions and Ni-Ge-Te phase equilibria”, *Journal of Electronic Materials*, Vol. 52, pp. 8019–8029. (MOST 111-2221-E-007-014-MY3) and (MOST 111-2634-F-007-008).
11. Y.-H. Lai, H.-C. Yang and **\*S.-W. Chen**, 2023, “Co-Sb-Te phase equilibria and Co/Sb<sub>2</sub>Te<sub>3</sub> interfacial reactions”, *Journal of Phase Equilibria and Diffusion*, Vol. 44, pp. 468–482. (MOST 107-2923-E-007-005-MY3) and (MOST 111-2634-F-007-008).
12. C.-Y. Liu, Y.-Y. Liu, S.-H. Chen, **S.-W. Chen**, A. Dębski, W. Gąsior and \*W. Gierlotka, 2023, “Thermodynamic modeling of the Sb-Te system supported by DSC measurement and ab initio calculations”, *Journal of Materials Research*, Vol. 38, pp. 4287–4302.
13. \*Y. T. Lee, E. J. W. Liou, L. L. Huang, H.-J. Wu and **S.-W. Chen**, 2023, “Effect of anodization on friction behavior of β-titanium orthodontic archwires”, *Journal of Orofacial Orthopedics-Fortschritte der Kieferorthopadie*, Vol. 84(4), pp. 225-234.
14. **\*S.-W. Chen**, C.-C. Ching, Y. Hutabalian, and C.-C. Chen, 2023, “Phase diagrams of Bi-Sb-Se-Te system”, *Calphad*, Vol. 81, 102560 (MOST-104-2221-E-007-090-MY3) and (MOST 111-2634-F-007-008).
15. C.-C. Ching, Y. Hutabalian, C.-C. Chen and **\*S.-W. Chen**, 2023, “Phase diagrams of thermoelectric Bi-Sb-Se system”, *Calphad*, Vol. 81, 102559 (MOST-104-2221-E-007-090-MY3) and (MOST 111-2634-F-007-008)
16. **\*S.-W. Chen**, Y.-H. Lai and J.-R. Chang, 2023, “Interfacial reactions in Ni/Sb<sub>2</sub>Te<sub>3</sub> and Co<sub>0.2</sub>Ni<sub>0.8</sub>/Sb<sub>2</sub>Te<sub>3</sub> couples”, *Journal of Electronic Materials*, Vol. 52, pp. 3685–3697 (MOST 107-2923-E-007-005-MY3) and (NSTC 111-2634-F-007-008).
17. **\*S.-W. Chen**, C.-H. Wang, J.-R. Chang, H.-C. Yang, Y.-H. Lai and Y. Chen, 2023, “Unexpected interfacial reactions in Co/Sb<sub>2</sub>Te<sub>3</sub> and Co/GeTe couples”, *Journal of the Taiwan Institute of Chemical Engineers*, Vol. 147, 104936, (MOST 107-2923-E-007-005-MY3) and (MOST 110-2634-F-007-024-).



18. **\*S.-W. Chen**, Y. Chen, J.-R. Chang and H.-J. Wu, 2023, “Co/GeTe interfacial reactions and Co-Ge-Te phase equilibria”, Journal of the Taiwan Institute of Chemical Engineers, Vol. 146, 104890, (MOST-107-2923-E-007-005-MY3) and (MOST 110-2634-F-007-024)
19. Y. Hutabalian, **\*S.-W. Chen** and W. Gierlotka, 2023, “Phase Equilibria of the Cu-Se-Te Ternary System”, Journal of Phase Equilibria and Diffusion, Vol. 44(2), pp. 181-199.
20. T. A. Kumaravelu, A. Ramakrishnan, Y. R. Lu, J. L. Chen, **S.-W. Chen**, C. H. Du, M. Y. Chen, P. H. Yeh, A. Kandasami, C. H. Chen and \*C. L. Dong, “Activation-induced layered structure in NiCoAl by atomic modulation for energy storage application”, Materials Today Chemistry, Vol. 27, DOI10.1016/j.mtchem.2022.101265.
21. **\*S.-W. Chen**, H.-H. Chen and Y. T. Kuo, 2023, “Ni/SnSe<sub>2</sub> interfacial reactions and Ni-Se-Sn phase equilibria”, Materials Chemistry and Physics, Vol. 293, 126826, (MOST 107-2923-E-007-005-MY3 and MOST 111-2634-F-007-008-).

## 2022

22. **\*S.-W. Chen**, H.-H. Chen and Y. T. Kuo, 2022, “Co/SnSe<sub>2</sub> and (Co,Ni)/SnSe<sub>2</sub> interfacial reaction”, Journal of the Taiwan Institute of Chemical Engineers, Vol. 139, 104491, (MOST 107-2923-E-007-005-MY3 and MOST 111-2634-F-007-008-).
23. Y.-T. Lee, E. J.-W. Liou\* and **S.-W. Chen**, 2022, “Comparison between microporous and nanoporous orthodontic miniscrews: An experimental study in rabbits”, Journal of Orofacial Orthopedics, DOI10.1007/s00056-022-00398-3.
24. \*O. Zobač, A. Zemanova, **S.-W. Chen** and A. Kroupa, 2022, “CALPHAD-type assessment of the Pb-Se-Sn system”, Journal of Phase Equilibria and Diffusion, Vol. 43, pp. 243–255. (MOST 107-2923-E-007-005-MY3).
25. Y. Hutabalian, C.-M. Chen, H.-H. Chen, Z.-K. Hu and **\*S.-W. Chen**, 2022, “Interfacial reactions in Ni/Se-90at%Te and Ni/Pb<sub>1-x</sub>Sn<sub>x</sub>Se couples”, Materials Chemistry and Physics, Vol.282, 125959. (MOST 107-2923-E-007-005-MY3) and (MOST 110-2634-F-007-024).
26. **S.-W. Chen**, \*Aleš Kroupa, J.-Y. Du, A. Zemanová, Y. Hutabalian, J. Vřešťál and K.-C. Chiu, 2022, “Experimental and theoretical study of the Ag-Sn-Te phase diagram”, Journal of Phase Equilibria and Diffusion, Vol. 43, pp. 139–163 (2022 (MOST 107-2923-E-007-005-MY3).
27. **\*S.-W. Chen**, Z.-K. Hu and C.-C. Ching, 2022, “Ni-Pb-Te phase equilibria and



interfacial reactions in Ni/PbTe couples”, Journal of the Taiwan Institute of Chemical Engineers, Vol. 133, 104194 , (MOST 107-2923-E-007-005-MY3 and MOST 110-2634-F-007-024-).

28. A. Ramakrishnana and **\*S.-W. Chen**, 2022, “Interfacial reactions in Sn/Cu<sub>2</sub>Se couples”, Journal of Electronic Materials, Vol. 51, pp. 2475–2484, (MOST 106-2221-E-007-094-MY3 and MOST-109-2811-E-007-052).
29. Z.-K. Hu and **\*S.-W. Chen**, 2022, “Interfacial reactions in Cu/PbTe and Cu/PbSe couples”, Journal of Alloys and Compounds, Vol. 899, 163299, (MOST 107-2923-E-007-005-MY3) and (MOST 110–2634-F-007–024-).

## 2021

30. Y. Hutabalian and **\*S.-W. Chen**, 2021, “Interfacial reactions in Ag/Se, Ag/Se-30at%Te and Ag<sub>2</sub>Te/Se couples and the phase equilibria of the Ag-Se-Te ternary system”, Journal of Alloys and Compounds, Vol. 889, 161580, (MOST 107-2923-E-007-005-MY3).
31. Y.-T. Lee, \*E. J.-W. Liou, L.-L. Huang, H.-J. Wu and **S.-W. Chen**, 2021, “Effect of anodization on friction behavior of  $\beta$ -titanium orthodontic archwires”, Journal of Orofacial Orthopedics, <https://doi.org/10.1007/s00056-021-00347-6>.
32. O. Fikar, J. Vrestal, A. Kroupa\*, and **S.-W. Chen**, 2021, “The Study of the Pb-Se-Te Phase Diagram: Part 2 – The Thermodynamic Assessment of the Se-Te and Pb-Se-Te systems”, Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, Vol. 74, 102309, (MOST 107-2923-E-007-005-MY3).
33. **\*S.-W. Chen**, T.-Y. Huang, Y.-H. Hsu, J.-X. Liu, A. Zemanova and A. Kroupa, 2021, “Phase diagram of Pb-Se-Te system I: Experimental study”, Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, Vol. 74, 102310, (MOST 107-2923-E-007-005-MY3)
34. A. F. Musa and **\*S.-W. Chen**, 2021, “Interfacial reactions in Ni/Se-Sn, Ni/Se-Te, Ni/Sn-Te and Ni/Se-Sn-Te couples”, Journal of Electronic Materials, Vol. 50, pp. 4346-4357 (MOST-107-2923-E-007-005 -MY3).
35. \*W. Gierlotka, I.-T. Lin, **S.-W. Chen**, W. Gąsior and A. Dębski, 2021, “Re-optimization of the binary Sb-Se system aided by ab-initio calculations”, Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, Vol. 73, 102257.
36. **\*S.-W. Chen**, T.-N Kuo, J.-X. Liu, P.-C. Lo and Y.-W. Yen, 2021, “Phase equilibria and wetting of Al–Co–Cu and Al–Co–Ni quasicrystals”, Materials Chemistry and Physics, Vol. 263, pp. 124409 (1-19). (MOST106-2221-E-007 -094 -MY3)



37. **\*S.-W. Chen**, Y.-H. Hsu, H.-W. Shih and H.-C. Huang, 2021, “Ag-Sb/Cu interfacial reactions and Ag-Cu-Sb phase equilibria”, *Journal of Alloys and Compounds*, Vol. 855, 157239. (MOST 107-2923-E-007-005-MY3).

## 2020

38. J.-Y. Du, A. Zemanová, Y. Hutabalian, A. Kroupa and **\*S.-W. Chen**, 2020, “Phase diagram of Ag-Pb-Sn system”, *Calphad: Computer Coupling of Phase Diagrams and Thermochemistry*, *Calphad*, Vol. 71, 101997. (MOST 107-2923-E-007-005-MY3).
39. A. Ramakrishnan, K. K. Kesavan, S. Chavhan, M. R. Nagar, J.-H. Jou\*, **S.-W. Chen\***, H.-Wen Hsiao, J.-M. Zuo and L.Y. Hung, 2020, "Liquid Exfoliation of Decagonal Quasicrystal and Its Light Out Coupling Performance in Organic Light Emitting Devices", *Advanced Photonics Research*, pp. 2000042 (1-7). (MOST 106-2221-E-007-094-MY3 and MOST-109-2811-E-007-052).
40. A. F. Musa and **\*S.-W. Chen**, 2020, “Interfacial reactions in Ni/PbSe”, *Journal of Electronic Materials*, Vol. 49(10), pp. 6068-6072. (MOST-107-2923-E-007 - 005 -MY3).
41. **\*S.-W. Chen**, Y. Hutabalian, Z.-K. Hu, H.-H. Chen, H.-W. Shih and W. Wang, 2020, “Liquation phenomena in Sn/Bi<sub>2</sub>Te<sub>3</sub>, In/Bi<sub>2</sub>Te<sub>3</sub> and Cu/Bi<sub>2</sub>Te<sub>3</sub> couples”, *Acta Materialia*, Vol. 196, pp. 418-429. (MOST 104-2221-E-007-090-MY3)
42. **\*S.-W. Chen**, T.-Y. Huang, Y.-H. Hsu and A. Kroupa, 2020, “Phase diagram of Pb-Se-Sn system”, *Journal of Electronic Materials*, Vol. 49(8), pp. 4714-4729. (MOST 107-2923-E-007 -005 -MY3)
43. A. Ramakrishnan, **\*S.-W. Chen**, and Y. Hutabalian, 2020, “Ag-Se-Sn phase diagrams and Sn/Ag<sub>2</sub>Se interfacial reactions”, *Journal of Alloys and Compounds*, Vol. 816, 152670. (MOST 106-2221-E-007-094-MY3).
44. **\*S.-W. Chen**, Y. Hutabalian, W. Gierlotka, C.-H. Wang and S.-T. Lu, 2020, “Phase diagram of Bi-In-Se ternary system”, *Calphad: Computer Coupling of Phase Diagrams and Thermochemistry*, Vol. 68, 101744 (1-16). (MOST104-2221-E-007-090-MY3 and MOST107-2221-E-259 -011).

## B. Conference Presentations

## 2024

1. Y. C. Tsai, Y. J. Chuang and **S.-W. Chen**, 2024, “Miscibility gaps in the Ag-Cu-



- Se-Te quaternary system”, MRS-Taiwan Annual Meeting 2024, Taichung, Taiwan.
2. 莊詠任, 蔡永濬, **陳信文**, 2024, “Ag-Se-Te 和 Cu-Se-Te 三元系統的混溶間隙與液相線投影圖”, 2024 年中國材料科學學會年會, 中興大學.
  3. 林翰辰, 蔡永濬, **陳信文**, 2024, “Ag-Sn-Te / Co 與 Ag-Sn-Te / Ni 的界面反應”, 2024 年中國材料科學學會年會, 中興大學.
  4. Y. C. Tsai, P. S. Huang and **S. -W. Chen**, 2024, “Ag and Cu whiskers in the Ag-Cu-Se ternary system”, 153rd TMS Annual Meeting & Exhibition, Orlando, Florida, USA.
  5. **S. -W. Chen\***, Y. C. Tsai, P. S. Huang and Y. Hutabalian, 2024, “Phase diagram, whisker and miscibility gap of the Ag-Cu-Te ternary system”, 153rd TMS Annual Meeting & Exhibition, Orlando, Florida, USA.
  6. Y. C. Tsai, H. C. Yang, C. H. Ho and **S. -W. Chen**, 2024, “Co/Bi<sub>2</sub>(Se,Te)<sub>3</sub> interfacial reactions and Bi-Co-Se-Te phase equilibria”, 153rd TMS Annual Meeting & Exhibition, Orlando, Florida, USA.
  7. 林德威, **陳信文**, 2024, “Liquidus and invariant temperatures of Sn-based Sn-Ag-Cu-Bi and Sn-In-Ni-Zn alloys.”, 2024 年第 12 屆台灣相圖會議, 清華大學.
  8. C.-H. Ho, H.-C. Yang, Y. C. Tsai and **S.-W. Chen**, 2024, “Co/Bi<sub>2</sub>Se<sub>3</sub> interfacial reactions and Bi-Co-Se phase equilibria”, 153rd TMS Annual Meeting & Exhibition, Orlando, Florida, USA.
  9. C.-H. Ho, J.-R. Chang, H.-C. Yang and **S.-W. Chen**, 2024, “Co/Bi<sub>2</sub>Te<sub>3</sub> interfacial reactions and Bi-Co-Te phase equilibria”, 153rd TMS Annual Meeting & Exhibition, Orlando, Florida, USA.
  10. C.-H. Ho, J.-R. Chang, H.-D. Chiang and **S.-W. Chen**, 2024, “Unexpected interfacial reactions in Co/Bi<sub>2</sub>Te<sub>3</sub> and Ni/Bi<sub>2</sub>Te<sub>3</sub> couples”, MRS-Taiwan Annual Meeting 2024, Taichung, Taiwan.
  11. H.-C. Huang, C.-H. Ho and **S.-W. Chen**, 2024, “Sn-Bi-Cu 三元系統液相線投影圖與無變度反應之探討”, MRS-Taiwan Annual Meeting 2024, Taichung, Taiwan.

## 2023

12. Y. C. Tsai, Y. Hutabalian and **S. -W. Chen**, 2023, “Liquidus projections of Ag-Cu-Te and Ag-Cu-Se systems”, 2023 TwICHÉ, Taipei, Taiwan.
13. 張文俞, **陳信文**, 2023, “Phase diagrams of the Al-Cu-Ni-Zn system”, 2023 年中國材料科學學會年會, 清華大學.



14. 林德威, 陳信文, 2023, “Thermal analysis, solidification and microstructures of Sn-based Sn-In-Ni-Zn alloys.”, 2023 年中國材料科學學會年會, 清華大學.
15. C.-H. Ho and S.-W. Chen, 2023, “Stability diagram of Co-Ni-Sb and Co-Ge-Sb systems”, 2023 TwIChE, Taipei, Taiwan.
16. 陳信文, 2023, “AI 快速發展, 化工教育是否需要變化?以化工熱力學為例”, presented at the 2023 TwIChE annual meeting, Taipei, Taiwan.
17. S.-W. Chen, Y.-C. Liu and S.-K. Lin, 2023, “Phase diagrams in the modern age: changed and unchanged”, presented at the 2023 MRS-T International Conference, Hsinchu, Taiwan.
18. S.-W. Chen, J.-R. Chang and H.-C. Yang, 2023, “Interfacial stabilities in thermoelectric devices”, presented at the AIChE conference, Orlando, USA.
19. S.-W. Chen, J.-R. Chang and H.-C. Yang, 2023, “Interfacial reactions in Co/Bi<sub>2</sub>Te<sub>3</sub> and Co/Bi<sub>2</sub>Se<sub>3</sub> couples”, presented at the MS&T 23 conference, Columbus, USA.
20. S.-W. Chen, P.-S. Huang and J.-Y. Lin, 2023, “Ag and Cu whiskers”, presented at the 4th Annual Meeting of Taiwan Thermoelectric Society, Hualien, Taiwan.
21. S.-W. Chen, Y. A. Lee and T.-W. Lin, 2023, “Eutectic and liquidus temperatures of Sn-based alloys”, presented at the 50th International Conference on Computer Coupling of Phase Diagrams and Thermochemistry, Boston, USA.
22. S.-W. Chen, 2023, “Understanding peculiar behaviors of electronic materials through phase diagrams”, presented at the 2023 International Conference on Electronic Packaging, Kumamoto, Japan.
23. S.-W. Chen, C.-H. Wang, J.-R. Chang and H.-C. Yang, 2023, “Unexpected reactions observed in Ni/SnSe<sub>2</sub> couples”, presented at the 152nd TMS annual meeting, San Diego, USA.
24. S.-W. Chen, P.-S. Huang and Y. Hutabalian, 2023, “Ag and Cu Whisker Formation”, presented at the 152nd TMS annual meeting, San Diego, USA.

## 2022

25. 李怡安、陳信文, 2022, “錫-銀-鈹-銅四元系統中錫基合金液相線溫度量測”, 2022 台灣化學工程學會年會, 淡江大學.
26. 張家瑞、陳信文, 2022, “Co/Bi<sub>2</sub>Te<sub>3</sub> 的界面反應”, 2022 台灣化學工程學會年會, 淡江大學.
27. 楊賀程、陳信文, 2022, “Co/Bi<sub>2</sub>Se<sub>3</sub> 界面反應與 Bi-Co-Se 相平衡”, 2022 台灣化學工程學會, 淡江大學.



28. Y. Hutabalian and **S.-W. Chen**, 2022, "Thermodynamics assessments of Cu-Pb-Te system by Calphad method", 2022 台灣化學工程學會, 淡江大學.
29. **S.-W. Chen**, 2022, "Expected and unexpected whisker formation", 60 KICHe annual meeting, Korea.
30. Y. Hutabalian and **S.-W. Chen**, 2022, "Liquidus projection of the ternary Ag-Cu-Te thermoelectric material system", 2022 中國材料科學學會年會, 聯合大學.
31. 黃品碩、**陳信文**, 2022, "Ag-Cu-Se-Te 四元系統晶鬚成長之分析", 2022 中國材料科學學會年會, 聯合大學.
32. **S.-W. Chen**, 2022, "Phase equilibria of thermoelectric Bi-Sb-Se-Te quaternary system", 2022 CHISA, Prague, Czech.

## 2021

33. **S.-W. Chen**, 2021, "Unexpected phenomena observed in metallurgical studies", presented at the 150th TMS annual meeting, (virtual).
34. **S.-W. Chen**, Y.-H. Hsu, H.-W. Shih and S.-K. Lin, "Interfacial reactions in the Bi<sub>2</sub>Te<sub>3</sub> thermoelectric modules", presented at the 150th TMS annual meeting, (virtual).
35. Y. Hutabalian and **S.-W. Chen**, 2021, "Interfacial Reaction in Ag/Se, Ag/Te, Ag<sub>2</sub>Te/Se and Ag<sub>2</sub>Te/Se-30at.%Te couples and their Related Phase Diagram", presented at the 150th TMS annual meeting, (virtual).
36. Y. Hutabalian, Z.-K. Hu, H.-H. Chen and **S.-W. Chen**, 2021, "Ni/Pb-Te and Ni/Se-Sn Interfacial Reactions and Their Related Phase Diagrams", presented at the 150th TMS annual meeting, (virtual).
37. Y. Hutabalian and **S.-W. Chen**, 2021, "Diffusion Couples in Cu/Se, Cu<sub>2</sub>Se/Te, and Cu<sub>2</sub>Te/Se at 300°C and phase equilibria in the Cu-Se-Te ternary system", presented at the Materials Research Society-Taiwan International Conference, (virtual).
38. Y. Hutabalian and **S.-W. Chen**, 2021, "Liquidus projection and isothermal section of the Cu-Se-Te ternary system" presented at the 69th TwICHe annual meeting, Kaohsiung, Taiwan.
39. C.C. Ching and **S.-W. Chen**, 2021, "Bi-Sb-Se-Te quaternary system: Experimental measurement and Calphad calculation" presented at the 69th TwICHe annual meeting, Kaohsiung, Taiwan.
40. 賴運宏、**陳信文**、2021、"(Cu-Ni)/Sb-Ge-Te 界面反應與其相關系統相圖", 2021 台灣化學工程學會 69 周年年會、高雄。



41. 陳奕、陳信文、2021、“(Cu-Ni)/GeTe 界面反應與其相關系統相圖”，2021 台灣化學工程學會 69 周年年會、高雄。
42. 郭耀德、陳信文、2021、“Co-Fe-Ge 三元系統相圖:實驗量測與 Calphad 計算”，110 中國材料科學學會、台北。

## 2020

43. S.-W. Chen, H.-W. Shih, W. Wang, Y. Hutabalian, Z.-K. Hu and H.-H. Chen, 2020, "Interfacial reactions between Bi<sub>2</sub>Te<sub>3</sub> substrate with Cu, In, Sn and Ni", presented at the 149th TMS annual meeting, San Diego, CA, USA.
44. Y. Hutabalian and S.-W. Chen, 2020, "Phase Diagrams of Ag-Cu-Te Ternary System and Ag<sub>2</sub>Te/Cu Interfacial Reaction", presented at the 149th TMS annual meeting, San Diego, CA, USA.
45. S.-W. Chen, J.-Y. Du, Y. Hutabalian, and A. Kroupa, 2020, "Phase diagrams of Ag-Pb-Sn-Te system", presented at the 149th TMS annual meeting, San Diego, CA, USA.
46. Y. Hutabalian, S.-W. Chen, 2020, "Interfacial reactions in Ag/Se, Ag/Se-30at%Te and Ag<sub>2</sub>Te/Se couples and Ag-Se-Te phase equilibria", presented at the 9th TaPhaD conference, Hsinchu, Taiwan.
47. 胡智凱、陳信文、2020、“(Cu-Ni)/Pb-Te-Se 界面反應與其相關系統相圖” 2020 第 9 屆台灣相圖會議、新竹。
48. 陳栩輝、陳信文、2020、“Ni 阻障層與 SnSe<sub>2</sub> 熱電材料之界面反應”，2020 第 9 屆台灣相圖會議、新竹。
49. 劉君翔、陳信文、2020、“錫-銀-銅-銦-鈹五元合金相平衡探討”，2020 第 9 屆台灣相圖會議、新竹。
50. 郭耀德、陳信文、2020、“含具觸媒應用潛力之 Co-Fe-Ge 材料系統相圖” 2020 中國工程師學會、台北。
51. A. Ramakrishnan, K. Thanigai Arul, C.L. Dong, S.-W. Chen, 2020, "Enhanced electrochemical performance of dealloyed decagonal Al-Co-Ni quasicrystals", presented at the 67th TwICHe annual meeting, Hsinchu, Taiwan.
52. Y.-D. Guo, Y. Hutabalian, S.-W. Chen, 2020, "Phase diagram of Co-Fe-Ge system" presented at the 67th TwICHe annual meeting, Hsinchu, Taiwan.
53. H.-H. Chen, S.-W. Chen, 2020, "Ni/SnSe<sub>2</sub> interfacial reaction", presented at the 67th TwICHe annual meeting, Hsinchu, Taiwan.
54. 胡智凱、陳信文、2020、“(Cu-Ni)/Pb-Te-Se 界面反應與其相關系統相圖”，2020 台灣化學工程學會 67 周年年會、新竹。



55. Y. Hutabalian, **S.-W. Chen**, 2020, “Study the Ag-Se-Te phase diagram and its reaction couples”, presented at the MRS-Taiwan annual meeting, Taipei, Taiwan.
56. 劉君翔、**陳信文**、2020、“錫-銀-銅-銻-鉍五元合金相平衡探討”、109 中國材料科學學會、台北。

#### C. Invited Articles (受邀期刊專稿)

1. **陳信文**、林士剛，2020，“材料與化學工程整合計算專輯前言”，化工，Vol. 67(6), p. 105.
2. 陳志銘、劉博韜、郭修伯、陳炳宏、陳嘉明、王銘忠、呂春美、**陳信文**，2020，“培育化工人才策略與建議”，化工，Vol. 67(6), pp. 246-266.

#### D. Award and service

1. 中國材料學會理事長，2024/01/01-2025/12/31
2. 國立清華大學教師會理事長，2023/01/01-2024/12/31
3. 陸志鴻獎 (Tse-Hong Loh award)，中國材料科學學會 (Materials Research Society-Taiwan)，(2023)。
4. 石延平教授論文獎，台灣化學工程學會，(2023)
5. 特約研究計畫(Special research project)，國家科學及技術委員會(National Science and Technology Council) (2022/8/1 起).
6. 中技社化工學術獎，台灣化學工程學會(CTCI foundation Chemical Engineering Academic Award, Taiwan Institute of Chemical Engineers), (2022)
7. 108 年度科技部傑出研究獎，科技部 (Outstanding Research Award, Ministry of Science and Technology) (2020)
8. 台灣化學工程學會會士 (Fellow of Taiwan Institute of Chemical Engineers).
9. 亞太材料學院院士 (Asia Pacific Academy of Materials (APAM) Academician).
10. 中國材料科學學會會士 (Materials Research Society-Taiwan Fellow).
11. 美國金屬學會會士 (Fellow, ASM International).
12. 台灣化工學會理事長 2019/1/1~2020/12/31
13. 中國材料學會副理事長 2017/1/1~2018/12/31
14. (理)監事: 中國工程師學會新竹分會, 2010~迄今
15. 理事: 中國材料學會, 2009~迄今
16. 理事: 台灣化工學會, 2017~迄今
17. Committee Member: Alloy Phase Diagram Committee, ASM, 2006/8~now
18. Education committee member, TMS, 2017/2~2020/12
19. Editorial committee member: Journal of Phase Equilibria and Diffusion, 2010/1~now
20. Associate editor: Journal of Electronic Materials, 2006/8 ~now



## Publications of Ching-Tien Chen (陳靖天)

### A. Journal Papers (\* Corresponding author)

#### 2025

1. **Ching-Tien Chen**, Anna Sviripa, Sugandha Verma, Christopher Paolucci\*, David W. Flaherty\*, “Reactions of Surface Peroxides Contribute to Rates and Selectivities for C<sub>2</sub>H<sub>4</sub> Epoxidation on Silver” *ACS Catal.* 15, 1387-1398 (2025).

#### 2024

2. Jyun-Yi Yeh, **Ching-Tien Chen**, Yi-Lin Yang, Jing-Chun Chen, Wen-Yueh Yu, Yi-Pei Li\*, Kevin C.-W. Wu\* “Reductive amination of furfural and furfurylamine with methoxides and MIL-53-NH<sub>2</sub> (Al)-derived Ru catalyst”, *J. Taiwan Inst. Chem. Eng.* 158, 104884 (2024).

#### 2023

3. Phuc Khanh Lam, Jian-Jie Liao, Miao-Chun Lin, Yu-Hsiu Li, Tsu-Hao Wang, Hsin-Kai Huang, Yu-An Hsu, Hao-Ying Patterson Hsieh, Pu-Yun Kuan, **Ching-Tien Chen**, Guo-Xiu Hao, Chia-Kuang Tsung, Kevin C.-W. Wu, Andris Sutka, Martynas Kinka, Lien-Yang Chou\*, Fa-Kuen Shieh\* “Controlled Encapsulation of Gold Nanoparticles into Zr-Metal–Organic Frameworks with Improved Detection Limitation of Volatile Organic Compounds via Surface-Enhanced Raman Scattering”, *Inorg. Chem.* 62, 14896–14901 (2023).
4. Raquel Simancas, Masamori Takemura, **Ching-Tien Chen**, Kenta Iyoki, Tatsuya Okubo, Toru Wakihara\* “Amorphous Aluminosilicates as Efficient Ion-Exchangers for Ammonium Cation Removal from Aqueous Solutions”, *J. Non-Cryst. Solids* 605, 122172 (2023).

#### 2022

5. Ren-Xuan Yang\*, Kalsoom Jan, **Ching-Tien Chen**, Wan-Ting Chen\*, and Kevin C.-W. Wu\* “Thermochemical Conversion of Plastic Waste into Fuels, Chemicals, and Value-Added Materials: A Critical Review and Outlooks”, *ChemSusChem* 15, e202200171 (2022).



## 2021

6. Pei-Hsiang Hsu, Chien-Chun Chang, Tsu-Hao Wang, Phuc Khanh Lam, Ming-Yu Wei, **Ching-Tien Chen**, Chin-Yu Chen, Lien-Yang Chou\*, and Fa-Kuen Shieh\* “Rapid Fabrication of Biocomposites by Encapsulating Enzymes into Zn-MOF-74 via a Mild Water-Based Approach”, *ACS Appl. Mater. Interfaces* 13, 52014-52022 (2021).
7. Babasaheb M. Matsagar, Hsiang-L. Sung, Jyun-Yi Yeh, **Ching-Tien Chen**, and Kevin C.-W. Wu\* “One-Step Hydrogenolysis of 5-Hydroxymethylfurfural to 1,2,6-Hexanetriol using a Pt@MIL-53-Derived Pt@Al<sub>2</sub>O<sub>3</sub> Catalyst and NaBH<sub>4</sub> in Aqueous Media”, *Sustain. Energy Fuels* 5, 4087-4094 (2021).
8. Keita Yamashita, Zhendong Liu\*, Kenta Iyoki, **Ching-Tien Chen**, Shoko Miyagi, Yutaka Yanaba, Yusuke Yamauchi, Tatsuya Okubo, and Toru Wakihara\* “Synthetic and Natural MOR Zeolites as High-Capacity Adsorbents for the Removal of Nitrous Oxide”, *ChemComm* 57, 1312-1315 (2021).
9. **Ching-Tien Chen**, Kenta Iyoki\*, Peidong Hu, Hiroki Yamada, Sohei Sukenaga, Mariko Ando, Hiroyuki Shibata, Koji Ohara, Tatsuya Okubo, and Toru Wakihara\*, “Reaction Kinetics-Regulated Formation of Short-Range Order in an Amorphous Matrix During Zeolite Crystallization”, *J. Am. Chem. Soc.* 143, 10986-10997 (2021).

## 2020

10. **Ching-Tien Chen**, Kenta Iyoki\*, Yasuo Yonezawa, Tatsuya Okubo, and Toru Wakihara\*, “Understanding the Nucleation and Crystal Growth of Zeolites: A Case Study on the Crystallization of ZSM-5 from a Hydrogel System Under Ultrasonication.” *J. Phys. Chem. C* 124, 11516-11524 (2020).

### B. Conference Presentations

## 2025

1. (Oral Presentation) 6<sup>th</sup> Euro-Asia Zeolite Conference (EAZC2025). Title: Reactions Kinetics Between Ingredients Affect the Structure of Amorphous Aluminosilicates and the Crystallization of Zeolites. January 20<sup>th</sup>, 2025, Hotel Alicante Golf, Alicante, Spain.
2. (Invited Speaker) 18<sup>th</sup> Taiwan-Japan Joint Symposium on Catalysis (18<sup>th</sup> TJJSC). Title: Reactive Forms of Oxygen in Ethylene Epoxidation: Insights from



Operando Raman Spectroscopy and DFT Calculations. January 10<sup>th</sup>, 2025, Kyushu University Tsukushi Campus, Fukuoka, Japan.

## 2024

3. (Invited Speaker) 2<sup>nd</sup> International HCMUS-Chemistry Conference on Emerging Trends in Sustainable Chemistry (ESTC2024). Title: Critical Factors for Regulating the Crystallization of Zeolites. November 18<sup>th</sup>, 2024, Ho Chi Minh City University of Science, Ho chi Minh City, Vietnam.
4. (Invited Speaker) 台灣化學工程學會71週年年會。 Title: Amorphous Aluminosilicates with Higher Degree of Short-Range Order Facilitate the Crystallization of Zeolites. 2024年11月10日於中原大學。
5. (Poster Presentation) 18<sup>th</sup> International Congress on Catalysis (ICC2024). Title: Operando Raman Spectroscopy Revealing Reactive Forms of Oxygen in Ethylene Epoxidation. July 15<sup>th</sup>, Lyon Convention Center, Lyon, France.

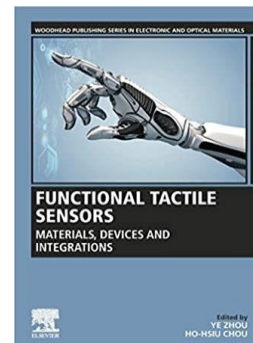


## Publications of HO-HSIU CHOU (周鶴修)

### A. Book Chapters (\* Corresponding author)

#### Functional Tactile Sensors: Materials, Devices and Integrations (Woodhead Publishing Series in Electronic and Optical Materials)

- 作者: Ye Zhou, Ho-Hsiu Chou
- 出版者: Woodhead Publishing; 第 1 版 (8 2 月 2021)
- 語言: English
- Paperback: 314 頁
- ISBN-10: 0128206330
- ISBN-13: 978-0128206331



### B. Journal Papers (\* Corresponding author)

#### 2024

1. Wei-Cheng Lin, Yu-En Sun, Ying-Rang Zhuang, Tse-Fu Huang, Kuei-Jhong Lin, Mohamed M Elsenety, Jui-Chen Yen, Hung-Kai Hsu, Bo-Han Chen, Chen-Yu Chang, Je-Wei Chang, Hsin-Ni Huang, Bing-Heng Li, Siriporn Jungsuttiwong, Toton Haldar, Shin-Huei Wang, Wan-Chi Lin, Tien-Lin Wu, Chin-Wen Chen, Chi-Hua Yu, An-Chung Su, Kun-Han Lin\*, U-Ser Jeng\*, Shang-Da Yang\*, **Ho-Hsiu Chou\***, “ Optimally Miscible Polymer Bulk-Heterojunction-Particles for Nonsurfactant Photocatalytic Hydrogen Evolution” *Journal of the American Chemical Society*, 2024, <https://doi.org/10.1021/jacs.4c13856> (IF=14.5)
2. Ming-Jaan Ho\*, Kuan-Ying Chen\*, Minsi Yan\*, Yun-Ting Chen\*, Wei-Syuan Jhuang\*, **Ho-Hsiu Chou\***, Jui-Ming Yeh\*, “Effect of three distinctive crosslinking agents on the dielectric properties of as-prepared polyimide aerogels prepared from super-critical fluid technique” *Microporous and Mesoporous Materials*, 2025, 383, 113406 (IF=4.8)
3. Islam Mekhemer, Yi-Chieh Chiu, Mohamed M Elsenety, Ahmed M Elewa, Dalia M Dorrah, Khanh Do Gia Huynh, Dung Chau Kim Hoang, Chia-Chih Chang, **Ho-Hsiu Chou\***, “Solar-driven photocatalytic hydrogen production thiophene-quinoxaline-based polymer dots with tunable molecular weight” *Polymer Journal*, 2024, 56, 1079-1088 (IF=2.3)



4. Pei-En Jan, Hao-Chi Liang, Ren-Wei Cheng, Christopher R Greve, Yung-Tang Chuang, Yung-Ling Chiu, Guang-Hsun Tan, Mohamed M Elsenety, Chih-Li Chang, Dalia M Dorrah, Hoong-Lien Lai, Po-Wei Chiu, Sheng-Yuan Sun, Yun-Li Li, Eva M Herzig\*, **Ho-Hsiu Chou\***, Hao-Wu Lin\*, “Molecular Design Strategy for Meta-Substituted Aromatic Organic Halides in Zero-Lead-Release Halide Perovskites with Efficient Waterproof Light Emission” *Advanced Functional Materials*, 2024, <https://doi.org/10.1002/adfm.202408323> (IF=18.5)
5. Islam MA Mekhemer, Ahmed M Elewa, Mohamed M Elsenety, Maha Mohamed Samy, Mohamed Gamal Mohamed, Ahmed Fouad Musa, Tse-Fu Huang, Tzu-Chien Wei, Shiao-Wei Kuo, Bo-Han Chen, Shang-Da Yang, **Ho-Hsiu Chou\***, “Self-condensation for enhancing the hydrophilicity of covalent organic polymers and photocatalytic hydrogen generation with unprecedented apparent quantum yield up to 500 nm” *Chemical Engineering Journal*, 2024, 154280 (IF=13.3)
6. Yi-An Chen, Rou-Han Lai, Wan-Chi Lin, Hung-Yi Huang, Szu-Jou Chen, Chun-Ming Yeh, Hsiang-Ling Huang, Mohamed M Elsenety, Chi-Chang Hu, Chi-Hua Yu\*, **Ho-Hsiu Chou\***, “Enhancing Self-Healing and Mechanical Robustness through Aluminum Acetylacetonate-Driven Metal–Ligand Coordination for Skin-Inspired Sensing” *ACS Applied Polymer Materials*, 2024, 6, 6976–6987 (IF=4.4)
7. Wei-Cheng Lin, Yi-Hsiang Wu, Yu-En Sun, Mohamed M Elsenety, Wan-Chi Lin, Jui-Chen Yen, Hung-Kai Hsu, Bo-Han Chen, Hung-Yi Huang, Chia-An Chang, Tse-Fu Huang, Ying-Rang Zhuang, Yuan-Ting Tseng, Kun-Han Lin, Shang-Da Yang, Chi-Hua Yu, **Ho-Hsiu Chou\***, “Symmetry-breaking of Dibenzo[b,d]thiophene Sulfone Enhancing Polaron Generation for Boosted Photocatalytic Hydrogen Evolution” *Angewandte Chemie International Edition*, 2024, 136, e202407702 (IF=16.1)
8. Shih-Yuan Chen\*, Li-Yu Wang, Kai-Chun Chen, Cheng-Hsi Yeh, Wei-Chih Hsiao, Hsin-Yu Chen, Masayasu Nishi, Martin Keller, Chih-Li Chang, Chien-Neng Liao, Takehisa Mochizuki, Hsin-Yi Tiffany Chen\*, **Ho-Hsiu Chou\***, Chia-Min Yang\*, “Ammonia synthesis over cesium-promoted mesoporous- carbon-supported ruthenium catalysts: Impact of graphitization degree of the carbon support” *Applied Catalysis B: Environment and Energy*, 2024, 346, 123725 (IF=20.2)
9. Ahmed M. Elewa, Islam M. A. Mekhemer, Ahmed F. M. EL-Mahdy, Amr Sabbah, Shih-Yuan Chen, Li-Yu Ting, Shima Abdelnaser, **Ho-Hsiu Chou\***,



- “Room-Temperature Synthesis of Covalent Organic Frameworks using Gamma-Irradiation in Open-Air Conditions” *Small*, 2024, 2311472 (IF=13)
10. Islam M. A. Mekhemer, Mohamed M. Elsenety, Ahmed M. Elewa, Khanh Do Gia Huynh, Maha Mohamed Samybd, Mohamed Gamal Mohamed, Dalia M. Dorrah, Dung Chau Kim Hoang, Ahmed Fouad Musa, Shiao-Wei Kuo, **Ho-Hsiu Chou\***, “Push–pull–pull interactions of 2D imide–imine-based covalent organic framework to promote charge separation in photocatalytic hydrogen production” *Journal of Materials Chemistry A*, 2024, 12, 10790-10798 (IF=10.7)
  11. Tse-Fu Huang, Ying-Rang Zhuang, Chih-Li Chang, Ching-Li Huang, Wei-Cheng Lin, Zi-Cheng Jiang, Li-Yu Ting, Islam M. A. Mekhemer, Yu-En Sun, Pinit Kidkhunthod, Jeng-Lung Chen, Yi-Chan Huang, Hung-Kai Hsu, Yuan-Ting Tseng, Yi-Hsiang Wu, Bing-Heng Li, Shang-Da Yang, Yen-Ju Cheng, **Ho-Hsiu Chou\***, “Indanone-based conjugated polymers enabling ultrafast electron transfer for visible light-driven hydrogen evolution from water” *Journal of Materials Chemistry A*, 2024, 12, 3633-3643 (IF=10.7)
  12. Verner Sääsk\*, Yi-An Chen, Tse-Fu Huang, Li-Yu Ting, Ting-An Luo, Saki Fujii, Dr. Kaija Pöhako-Esko, Dr. Masaki Yoshida, Masako Kato\*, Tien-Lin Wu\*, **Ho-Hsiu Chou\***, “Photophysical Tuning of Imidazolium Tetrahalidomanganate (II) Complexes towards Highly Efficient Green Emitters with Near-Unity Quantum Yield” *European Journal of Inorganic Chemistry*, 2024, 27, e202300562 (IF=2.2)
  13. Ahmed E Hassan, Ahmed M Elewa, Mai SA Hussien, Ahmed FM El-Mahdy, Islam MA Mekhemer, Ibrahim S Yahia, Tarek A Mohamed\*, **Ho-Hsiu Chou\***, Zhenhai Wen\*, “Designing of covalent organic framework/2D g-C<sub>3</sub>N<sub>4</sub> heterostructure using a simple method for enhanced photocatalytic hydrogen production” *Journal of Colloid and Interface Science*, 2024, 653, 1650-1661 (IF=9.4)
  14. Islam M. A. Mekhemer, Ying-Sheng Wu, Ahmed M. Elewa, Wen-Chang Chen, Chu-Chen Chueh\*, **Ho-Hsiu Chou\***, “Naphthalenediimide-Based Polymer Dots with Dual Acceptors as a New Class of Photocatalysts for Photocatalytic Hydrogen Generation under Visible Light Irradiation” *Solar RRL*, 2024, 8, 2300994 (IF=6)
  15. Li-Yu Ting, Bing-Heng Li, Qian-Ci Huang, An-Rong Chen, Yu-En Sun, Chih-Li Chang, Wei-Cheng Lin, Ahmed M. Elewa, Zong-Hong Lin, Tzu-En Lin, **Ho-Hsiu Chou\***, “3D-Printable and Robust All-in-One Polymer-Entangled



- Photocatalytic Microreactors for Visible-Light-Driven Hydrogen Evolution” *ACS Applied Energy Materials*, 2024, 7, 657-664 (IF=5.4)
16. Mohamed Hammad Elsayed, Mohamed Abdellah, Ahmed Zaki Alhakemy, Islam M. A. Mekhemer, Ahmed Esmail A. Aboubakr, Bo-Han Chen, Mohamed Gamal Mohamed, Chih-Hsuan Lu, Shang-Da Yang, Shiao-Wei Kuo, Chen-Hsiung Hung, Li-Chyong Chen, Kuei-Hsien Chen, **Ho-Hsiu Chou\***, “Overcoming Small-Bandgap Charge Recombination in Visible and NIR-Light-Driven Hydrogen Evolution by Engineering the Polymer Photocatalyst Structure” *Nature Communications*, 2024, 15, 707 (IF=14.7)
  17. Zihao Feng, Ahmed M Elewa, Islam MA Mekhemer, Wenbiao Niu, Xin-Qi Ma, Ziqi Jia, JiYu Zhao, Su-Ting Han, **Ho-Hsiu Chou\***, Ye Zhou\*, “A covalent organic polymer-based transistor with multifunctional memory and synaptic functions” *Journal of Materials Chemistry C*, 2024, 12, 1334-1340 (IF=5.7)
  18. Tse-Fu Huang, Jia-Jen Liu, Ze-Yu Lai, Je-Wei Chang, Ying-Rang Zhuang, Zi-Cheng Jiang, Chih-Li Chang, Wei-Cheng Lin, Yan-Heng Chen, Yi-Hsiang Wu, Yu-En Sun, Ting-An Luo, Yi-Kuan Chen, Jui-Chen Yen, Hung-Kai Hsu, Bo-Han Chen, Li-Yu Ting, Chia-Yeh Lu, Yu-Tung Lin, Ling-Yu Hsu, Tien-Lin Wu, Shang-Da Yang, An-Chung Su, U-Ser Jeng\*, **Ho-Hsiu Chou\***, “Performance and Solution Structures of Side-Chain-Bridged Oligo (Ethylene Glycol) Polymer Photocatalysts for Enhanced Hydrogen Evolution under Natural Light Illumination” *Small*, 2024, 20, 2304743 (IF=13)

## 2023

19. Chih-Li Chang, Tse-Fu Huang, Wei-Cheng Lin, Li-Yu Ting, Chin-Hsuan Shih, Yan-Heng Chen, Jia-Jen Liu, Yu-Tung Lin, Yuang-Ting Tseng, Yi-Hsiang Wu, Yu-En Sun, Mohamed Hammad Elsayed, Chin-Wen Chen\*, Chi-Hua Yu\*, **Ho-Hsiu Chou\***, “Synergistic Effect of Crown Ether and Main-Chain Engineering for Boosting Hydrogen Evolution of Polymer Photocatalysts in Seawater” *Advanced Energy Materials*, 2023, 13, 2300986 (IF=24.4) (Back cover) ( Covered by Liberty Times, AP, Boston Herald, FOX 40, KTTC, Telegraph, and more than ten other domestic and international news media outlets.)
20. Yi-An Chen, Szu-Jou Chen, Li-Yen Lee, Rou-Han Lai, Chun-Ming Yeh, Chia-An Chiu, Jhao-Yu Lai, Ying-Chih Lai\*, **Ho-Hsiu Chou\***, “Fluoro-based organic small molecules as sliding crosslinkers for boosting stretchability and self-healability of polymers for hybrid human-motion sensing and energy



- harvesting” *Nano Energy*, 2023, 117, 108882 (IF=16.8) (Front cover)
21. Wei-Ting Chung, Islam M.A. Mekhemer, Mohamed Gamal Mohamed, Ahmed M. Elewa, Ahmed F.M. EL-Mahdy, **Ho-Hsiu Chou\***, Shiao-Wei Kuo\*, Kevin C.-W. Wu\*, “Recent advances in metal/covalent organic frameworks based materials: Their synthesis, structure design and potential applications for hydrogen production” *Coordination Chemistry Reviews*, 2023, 484, 215066 (IF=20.3)
  22. Wei-Cheng Lin, Chih-Li Chang, Chin-Hsuan Shih, Wan-Chi Lin, Ze-Yu Lai, Je-Wei Chang, Li-Yu Ting, Tse-Fu Huang, Yu-En Sun, Hung-Yi Huang, Yu-Tung Lin, Jia-Jen Liu, Yi-Hsiang Wu, Yuan-Ting Tseng, Ying-Rang Zhuang, Bing-Heng Li, An-Chung Su, Chi-Hua Yu, Chin-Wen Chen, Kun-Han Lin, U-Ser Jeng, **Ho-Hsiu Chou\***, “Sulfide Oxidation on Ladder-Type Heteroarenes to Construct All-Acceptor Copolymers for Visible-Light-Driven Hydrogen Evolution” *Small*, 2023, 19, 2302682 (IF=13)
  23. Ahmed Fathi Saber, Ahmed M Elewa, **Ho-Hsiu Chou\***, Ahmed FM EL-Mahdy\*, “Donor to Acceptor Charge Transfer in Carbazole - based Conjugated Microporous Polymers for Enhanced Visible-Light-Driven Photocatalytic Water Splitting” *ChemCatChem*, 2023, 15, e202201287 (IF=3.8)

## 2022

24. Ahmed M. Elewa, Chuang-Yi Liao, Wei-Long Li, Islam M. A. Mekhemer, and **Ho-Hsiu Chou\***, “Benzo[d] [1,2,3] thiadiazole-Based Polymer Dots as Photocatalysts for Enhanced Efficiency and Stability of Photocatalytic Hydrogen Evolution under Visible Light Irradiation” *Macromolecules*, 2022, 56, 1352–1361 (IF=5.1) (Front cover)
25. Chih-Li Chang, Wei-Cheng Lin, Li-Yu Ting, Chin-Hsuan Shih, Shih-Yuan Chen, Tse-Fu Huang, Hiroyuki Tateno, Jayachandran Jayakumar, Wen-Yang Jao, Chen-Wei Tai, Che-Yi Chu, Chin-Wen Chen, Chi-Hua Yu, Yu-Jung Lu, Chi-Chang Hu, Ahmed M Elewa, Takehisa Mochizuki, **Ho-Hsiu Chou\***, “Main-chain engineering of polymer photocatalysts with hydrophilic non-conjugated segments for visible-light-driven hydrogen evolution” *Nature Communications*, 2022, 13, 5460 (IF=14.7)
26. Ahmed M Elewa, Ahmed FM EL-Mahdy, **Ho-Hsiu Chou\***, “Effective remediation of Pb<sup>2+</sup> polluted environment by adsorption onto recyclable hydroxyl bearing covalent organic framework” *Environmental Science and Pollution Research*, 2022, 32371–32382



27. Chih-Ling Chang, Ahmed M Elewa, Jing Han Wang, **Ho-Hsiu Chou\***, Ahmed FM EL-Mahdy\*, “Donor–acceptor conjugated microporous polymers based on Thiazolo [5, 4-d] thiazole building block for high-performance visible-light-induced H<sub>2</sub> production” *Microporous and Mesoporous Materials*, 2022, 345, 112258 (IF=4.8)
28. Dinesh Bhalothia, Zan-Xiang Wang, Li-Yu Ting, Yung-Tang Chuang, Jyh-Pin Chou, Hao-Wu Lin, Fan-Gang Tseng, **Ho-Hsiu Chou\***, Tsan-Yao Chen\*, “Electron Coupling between the Linear-Conjugated Polymer Nanocluster and TiO<sub>2</sub> Nanoparticle Enables a Quantum Leap for Visible Light-Driven Hydrogen Evolution” *Journal of Physical Chemistry C*, 2022, 44, 18596-18604 (IF=3.3)
29. Ahmed F Saber, Ahmed M Elewa, **Ho-Hsiu Chou\***, Ahmed FM EL-Mahdy\*, “Donor-acceptor carbazole-based conjugated microporous polymers as photocatalysts for visible-light-driven H<sub>2</sub> and O<sub>2</sub> evolution from water splitting” *Applied Catalysis B: Environmental*, 2022, 316, 121624 (IF=20.2)
30. Li-Yu Ting, Yves Ira A Reyes, Bing-Heng Li, Mohamed Hammad Elsayed, J Ching-Wen Chan, Jayachandran Jayakumar, Chih-Li Chang, Wei-Cheng Lin, Yu-Jung Lu, Carmine Coluccini, Hsin-Yi Tiffany Chen\*, **Ho-Hsiu Chou\***, “Mechanistic Understanding of Visible-Light-Driven Hydrogen Evolution on Pt Sites in Organic Nanohybrids Enhanced with Hydroxyl Additives” *ACS Applied Energy Materials*, 2022, 7, 7950-7955 (IF=5.4)
31. Maha Mohamed Samy, Islam MA Mekhemer, Mohamed Gamal Mohamed, Mohamed Hammad Elsayed, Kun-Han Lin, Yi-Kuan Chen, Tien-Lin Wu, **Ho-Hsiu Chou\***, Shiao-Wei Kuo\*, “Conjugated Microporous Polymers Incorporating Thiazolo [5, 4-d] thiazole Moieties for Sunlight-Driven Hydrogen Production From Water” *Chemical Engineering Journal*, 2022, 446, 137158 (IF=13.3)
32. Ahmed M. Elewa, Ahmed FM EL-Mahdy, Ahmed E. Hassan, Zhenhai Wen, Jayachandran Jayakumar, Tsung-Lin Lee, Li-Yu Ting, Islam M. A. Mekhemer, Tse-Fu Huang, Mohamed Hammad Elsayed, Chih-Li Chang, Wei-Cheng Lin, **Ho-Hsiu Chou\***, “Solvent Polarity Tuning to Enhance the Crystallinity of 2D-Covalent Organic Frameworks for Visible-light-driven Hydrogen Generation” *Journal of Materials Chemistry A*, 2022, 10, 12378-12390 (IF=10.7)
33. Shih-Yuan Chen\*, Chih-Li Chang, Masayasu Nishi, Wei-Chih Hsiao, Yves Ira A Reyes, Hiroyuki Tateno, **Ho-Hsiu Chou\***, Chia-Min Yang\*, Hsin-Yi Tiffany Chen\*, Takehisa Mochizuki, Hideyuki Takagi, Tetsuya Nanba, “Unraveling the



- active sites of Cs-promoted Ru/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> catalysts for ammonia synthesis” *Applied Catalysis B: Environmental*, 2022, 310, 121269 (IF= 20.2)
34. Mohamed Gamal Mohamed, Swetha V Chaganti, Meng-Syuan Li, Maha Mohamed Samy, Santosh U Sharma, Jyh-Tsung Lee, Mohamed Hammad Elsayed, **Ho-Hsiu Chou\***, Shiao-Wei Kuo\*, “Ultrastable Porous Organic Polymers Containing Thianthrene and Pyrene Units as Organic Electrode Materials for Supercapacitors” *ACS Applied Energy Materials*, 2022, 5, 6442–6452 (IF= 5.4)
  35. Wei-Cheng Lin, Jayachandran Jayakumar, Chih-Li Chang, Li-Yu Ting, Tse-Fu Huang, Mohamed Hammad Elsayed, Ahmed M Elewa, Yu-Tung Lin, Jia-Jen Liu, Yuan-Ting Tseng, **Ho-Hsiu Chou\***, “Sulfide oxidation tuning in 4,8-bis(5-(2-ethylhexyl)thiophen-2-yl)benzo[1,2-b:4,5-b']dithiophene based dual acceptor copolymers for highly efficient photocatalytic hydrogen evolution” *Journal of Materials Chemistry A*, 2022, 12, 6641-6648 (IF=10.7)
  36. Ahmed M Elewa, Jayachandran Jayakumar, Yen-Wen Huang, Mohamed Hammad Elsayed, Chih-Li Chang, Li-Yu Ting, Wei-Cheng Lin, Chu-Chen Chueh\*, **Ho-Hsiu Chou\***, “Biaxially extended side-chain conjugation of benzodithiophene-based polymer dots for superior photocatalytic stability under visible-light irradiation” *Journal of Environmental Chemical Engineering*, 2022, 10, 106927 (IF=7.4)
  37. Tzung-You Han, Chun-Hsiu Lin, Yu-Sheng Lin, Chun-Ming Yeh, Yi-An Chen, Hsin-Ya Li, Yu-Ting Xiao, Je-Wei Chang, An-Chung Su, U-Ser Jeng\*, **Ho-Hsiu Chou\***, “Autonomously self-healing and ultrafast highly-stretching recoverable polymer through trans-octahedral metal-ligand coordination for skin-inspired tactile sensing” *Chemical Engineering Journal*, 2022, 438, 135592 (IF=13.3)

## 2021

38. Mohamed Hammad Elsayed, Mohamed Abdellah, Yi-Hao Hung, Jayachandran Jayakumar, Li-Yu Ting, Ahmed M Elewa, Chih-Li Chang, Wei-Cheng Lin, Kuo-Lung Wang, Mahmoud Abdel-Hafiez, Hsiao-Wen Hung, Masaki Horie, **Ho-Hsiu Chou\***, “Hydrophobic and Hydrophilic Conjugated Polymer Dots as Binary Photocatalysts for Enhanced Visible-Light-Driven Hydrogen Evolution through Förster Resonance Energy Transfer” *ACS Applied Materials & Interfaces*, 2021, 13, 56554–56565 (IF=8.3)
39. Mohammed G Kotp, Ahmed M Elewa, Ahmed FM EL-Mahdy\*, **Ho-Hsiu Chou\***, Shiao-Wei Kuo\*, “Tunable pyridyl-based conjugated microporous



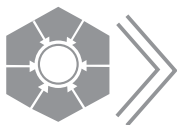
- polymers for visible light-driven hydrogen evolution” *ACS Applied Energy Materials*, 2021, 4, 13140–13151 (IF=5.4)
40. Meng-Ju Yu, Chih-Li Chang, Hao-Yu Lan, Zong-Yi Chiao, Yu-Chia Chen, Ho Wai Howard Lee, Yia-Chung Chang, Shu-Wei Chang, Takuo Tanaka, Vincent Tung, **Ho-Hsiu Chou\***, Yu-Jung Lu\*, “Plasmon-Enhanced Solar-Driven Hydrogen Evolution Using Titanium Nitride Metasurface Broadband Absorbers” *ACS Photonics*, 2021, 8, 3125–3132 (IF=6.5)
  41. Wei-Cheng Lin, Jayachandran Jayakumar, Chih-Li Chang, Li-Yu Ting, Mohamed Hammad Elsayed, Mohamed Abdellah, Kaibo Zheng, Ahmed M. Elewa, Yu-Tung Lin, Jia-Jen Liua, Wen-Shin Wang, Chia-Yeh Lu, **Ho-Hsiu Chou\***, “Effect of energy bandgap and sacrificial agents of cyclopentadithiophene-based polymers for enhanced photocatalytic hydrogen evolution” *Applied Catalysis B: Environmental*, 2021, 298, 120577 (IF=20.2)
  42. Ahmed M. Elewa, Ahmed F. M. EL-Mahdy\*, Mohamed Hammad Elsayed, Mohamed Gamal Mohamed, Shiao-Wei Kuo\*, **Ho-Hsiu Chou\***, “Sulfur-doped triazine-conjugated microporous polymers for achieving the robust visible-light-driven hydrogen evolution” *Chemical Engineering Journal*, 2021, 421, 129825 (IF=13.3)
  43. Mohamed Hammad Elsayed, Bing-Huang Jiang, Yi-Peng Wang, Po-Yen Chang, Yu-Cheng Chiu, Ru-Jong Jeng, **Ho-Hsiu Chou\***, Chih-Ping Chen\*, “Indacenodithiophene-based N-type conjugated polymers provide highly thermally stable ternary organic photovoltaics displaying a performance of 17.5%” *Journal of Materials Chemistry A*, 2021, 9, 9780-9790 (IF=10.7)
  44. Ming-Yun Liao, Mohamed Hammad Elsayed, Chih-Li Chang, Yun-Chi Chiang, Wen-Ya Lee, Wen-Chang Chen, **Ho-Hsiu Chou\*** and Chu-Chen Chueh\*, “Realizing Nonvolatile Photomemories with Multilevel Memory Behaviors Using Water-Processable Polymer Dots-Based Hybrid Floating Gates” *ACS Applied Electronic Materials*, 2021, 3, 4, 1708–1718 (IF=4.3)
  45. Ahmed M Elewa, Mohamed Hammad Elsayed, Ahmed FM EL-Mahdy, Chih-Li Chang, Li-Yu Ting, Wei-Cheng Lin, Chia-Yeh Lu, **Ho-Hsiu Chou\***, “Triptycene-based discontinuously-conjugated covalent organic polymer photocatalysts for visible-light-driven hydrogen evolution from water” *Applied Catalysis B: Environmental*, 2021, 285, 119802 (IF=20.2)
  46. Mohamed Hammad Elsayed, Jayachandran Jayakumar, Mohamed Abdellah, Tharwat Hassan Mansoure, Kaibo Zheng, Ahmed M. Elewa, Chih-Li Chang, Li-Yu Ting, Wei-Cheng Lin, Hsiao-hua Yu, Wen-Hsin Wang, Chih-Chia Chung,



- Ho-Hsiu Chou\***, “Visible-light-driven hydrogen evolution using nitrogen-doped carbon quantum dot-implanted polymer dots as metal-free photocatalysts” *Applied Catalysis B: Environmental*, 2021, 283, 119659 (IF=20.2)
47. Mohamed Gamal Mohamed, Mohamed Hammad Elsayed, Ahmed Elewa, Ahmed FM EL-Mahdy, Cheng-Han Yang, Ahmed AK Mohammed, **Ho-Hsiu Chou\***, Shiao-Wei Kuo\*, “Pyrene-Containing Conjugated Organic Microporous Polymers for Photocatalytic Hydrogen Evolution from Water” *Catalysis Science & Technology*, 2021, 11, 2229-2241 (IF=4.4)
48. Chun-Ming Yeh, Chun-Hsiu Lin, Tzung-You Han, Yu-Ting Xiao, Yi-An Chen, **Ho-Hsiu Chou\***, “Disulfide bond and Diels–Alder reaction bond hybrid polymers with high stretchability, transparency, recyclability, and intrinsic dual healability for skin-like tactile sensing” *Journal of Materials Chemistry A*, 2021, 9, 6109-6116 (IF= 10.7) (Back cover)
49. Jayachandran Jayakumar, Wei-Ling Wu, Chih-Li Chang, Tzung-You Han, Li-Yu Ting, Chun-Ming Yeh, Hsiao-Wen Hung, **Ho-Hsiu Chou\***, “Highly thermal stable electron-transporting materials using triptycene derivatives for OLEDs” *Organic Electronics*, 2021, 88, 106013 (IF=2.7)

## 2020

50. Mohamed Hammad Elsayed, Taha M. Elmorsi, Ahmed M. Abuelela, Ahmed E. Hassan, Ahmed Zaki Alhakemy, Mostafa F.Bakr, **Ho-Hsiu Chou\***, “Direct sunlight-active Na-doped ZnO photocatalyst for the mineralization of organic pollutants at different pH mediums” *Journal of Taiwan Institute of Chemical Engineers*, 2020, 115, 187-197 (IF=5.5)
51. Yi Ren, Wei-Cheng Lin, Li-Yu Ting, Guanglong Ding, Baidong Yang, Jia-Qin Yang, **Ho-Hsiu Chou\***, Su-Ting Han\* and Ye Zhou\*, “Iridium-based Polymer for Memristive Device with Integrated Logic and Arithmetic Applications” *Journal of Materials Chemistry C*, 2020, 8, 16845-16857 (IF=5.7)
52. Wei-Cheng Lin, Mohamed Hammad Elsayed, Jayachandran Jayakumar, Li-Yu Ting, Chih-Li Chang, Ahmed M. Elewa, Wen-Shin Wang, Chih-Chia Chung, Chia-Yeh Lu, **Ho-Hsiu Chou\***, “Design and synthesis of cyclometalated iridium-based polymer dots as photocatalysts for visible light-driven hydrogen evolution” *International Journal of Hydrogen Energy*, 2020, 45, 32072-32081 (IF=8.1)



53. Wen-Hsin Wang, Li-Yu Ting, Jayachandran Jayakumar, Chih-Li Chang, Wei-Cheng Lin, Chih-Chia Chung, Mohamed Hammad Elsayed, Chia-Yeh Lu, Ahmed M. Elewa, and **Ho-Hsiu Chou\***, “Design and synthesis of phenylphosphine oxide-based polymer photocatalysts for highly efficient visible-light-driven hydrogen evolution” *Sustainable Energy Fuels*, 2020, 4, 5264 (IF=5)
54. Ahmed F. M. EL-Mahdy, Ahmed M. Elewa, Sheng-Wen Huang, **Ho-Hsiu Chou\***, Shiao-Wei Kuo\*, “Dual-Function Fluorescent Covalent Organic Frameworks: HCl Sensing and Photocatalytic H<sub>2</sub> Evolution from Water” *Advanced Optical Materials*, 2020, 8, 2000642 (IF=8) (Front cover)
55. Jia-Qin Yang, Li-Yu Ting, Ruopeng Wang, Jing-Yu Mao, Yi Ren, Chih-Li Chang, Chun-Ming Yeh, **Ho-Hsiu Chou\***, Ye Zhou\*, Su-Ting Han\*, “Fluorenone/carbazole based bipolar small molecules for non-volatile memory devices” *Organic Electronics*, 2020, 78, 105584 (IF=2.7)
56. Chih-Li Chang, Wei-Cheng Lin, Chuan-Yu Jia, Li-Yu Ting, Jayachandran Jayakumar, Mohamed Hammad Elsayed, Yong-Quan Yang, Yang-Hsiang Chan, Wen-Shin Wang, Chia-Yeh Lu, Pei-Yu Chen, **Ho-Hsiu Chou\***, “Low-Toxic Cycloplatinated Polymer Dots with Rational Design of Acceptor Co-monomers for Enhanced Photocatalytic Efficiency and Stability” *Applied Catalysis B: Environmental*, 2020, 268, 118436 (IF=20.2)
57. Jayachandran Jayakumar, and **Ho-Hsiu Chou\***, “Recent Advances in Visible-Light-Driven Hydrogen Evolution from Water using Polymer Photocatalysts” *ChemCatChem*, 2020, 12, 689-704 (IF=3.8) (Invited review article)

### C. Conference Presentations

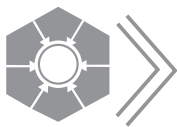
1. 2024/12 Invited Speaker: The 12th Singapore International Chemistry Conference (SICC-12), Singapore.
2. 2024/11 Invited Speaker: The 16th Asian Conference on Organic electronics (A-COE 2024), Osaka, Japan.
3. 2024/11 Invited Speaker: The 2024 International HCMUS-Chemistry Conference “Emerging Trends in Sustainable Chemistry (ETSC24)”, Ho Chi Minh, Vietnam.
4. 2024/11 Invited Speaker: International Conference on Smart Materials and Nanotechnology (SMARTMAT@2024), Chiang Mai, Thailand.



5. 2024/10 Invited Speaker: The 7th International Conference on Active Materials and Soft Mechatronics (AMSM 2024), Incheon, Korea.
6. 2024/09 Invited Speaker: Korea-Taiwan Joint Symposium: Recent Advances in Polymer Science and Engineering: From Fundamentals to Applications (PSK), Busan, Korea.
7. 2024/09 Plenary Speaker: International Symposium on Carbon Materials Breakthrough in the Next Generation (CMB-next2024), Miyazaki, Japan.
8. 2024/08 Invited Speaker: Special Seminar on Advanced Catalysts Applications and Characterizations, Bangkok, Thailand.
9. 2023/11 Invited Speaker: Nano Thailand 2023, Pattaya, Thailand.
10. 2023/11 Invited Speaker: TW-TH Bilateral Catalysis Symposium, Bangkok, Thailand.
11. 2023/7 Invited Speaker: 2023 Thailand-Taiwan bilateral symposium, Ayutthaya, Thailand.
12. 2023/7 Invited Speaker: The 13th SPSJ International Polymer Conference, Hokkaido, Japan.
13. 2023/3 Invited Speaker: MRS Thailand 2023, Ubon, Thailand.
14. 2022/12 Invited Speaker: The 17th Pacific Polymer Conference (PPC17), Brisbane, Australia.
15. 2022/11 Invited Speaker: The 13th Science Conference, Ho Chi Minh City, Vietnam.
16. 2022/8 Keynote Speaker: Chemical Engineering, Chemical Equipment Design and Automation (CHISA), Czech Republic.

#### D. Patents

類別	專利名稱	國別	專利號碼	發明人	專利權人
	Method of preparing covalent organic frameworks	US	18/242,802	<b>Ho-Hsiu Chou,</b> Ahmed Mahmoud Elewa	NTHU
	HEALABLE AND RECYCLABLE POLYIMIDE POLYMER RESIN, HEALING METHOD AND RECYCLING	US	18/151,924	<b>周鶴修, 莊貴貽</b>	NTHU



類別	專利名稱	國別	專利號碼	發明人	專利權人
	ASYMMETRIC FUSED AROMATIC RING DERIVATIVE CONTAINING SULFONYL GROUP, USE	US	17/864,723	周鶴修,林韋澄,曾圓婷	NTHU
	NON-FULLERENE ACCEPTOR POLYMER	US	17/698,771	周鶴修,埃爾賽德穆罕默德哈馬德,阮智暉,黃則傳	NTHU
	TERAHERTZ MODULATOR AND TERAHERTZ SPATIAL LIGHT MODULATOR	US	17/583,217	周鶴修,楊尚樺,麥家銘,埃爾賽德穆罕默德哈馬德	NTHU
	鹵化物材料及包含該鹵化物材料之光學單元和光電元件	US	17/384,884	周鶴修,林皓武,張之勵,陳建宇,楊琳	NTHU
	半導體化合物、其用途與產氫裝置	US	16/510,008	周鶴修,張之勵,林韋澄	NTHU
	Methods and Apparatus Concerning Sensitive (E-Skin) Pressure Sensors	US	15/222,529	Zhenan Bao, <b>Ho-Hsiu Chou</b> , Alex Chortos,	
	Methods and Apparatus Concerning Sensitive (E-Skin) Pressure Sensors, US Provisional	WO	2017/01988 7 A1	Zhenan Bao, <b>Ho-Hsiu Chou</b> , Alex Chortos	Stanford
	Methods and Apparatus Concerning Sensitive (E-Skin) Pressure Sensors, US Provisional	US	2017/00314 91 A1	Zhenan Bao, <b>Ho-Hsiu Chou</b> , Alex Chortos	Stanford



類別	專利名稱	國別	專利號碼	發明人	專利權人
A	Conjugated Compounds Containing Heteroatom-Center-Arylsilane Derivatives And Their Application	US	7,820,844	Cheng-Hong Cheng, Hung-Hsin Shih, <b>Ho-Hsiu Chou</b>	NTHU
A	Light-Emitting Material and Organic Light-Emitting Diode Including the Same	US	7,981,527	Cheng-Hong Cheng, <b>Ho-Hsiu Chou</b>	NTHU
	Imidazole Derivatives Having Vinyl Group and Its Use in Electroluminescent Element	US	8,471,037	Chien-Hong Cheng, He-Pei Hsu, <b>Ho-Hsiu Chou</b> , Yu-Han Chen,	NTHU
	Application of Triphenylene Derivatives in Organic Electroluminescent Devices	US	8,974,920	Chien-Hong Cheng, Yu-Han Chen, <b>Ho-Hsiu Chou</b>	NTHU
	Triptycene Derivatives and their Application	US	11/876,454	Chien-Hong Cheng, Hung-Hsin Shih, <b>Ho-Hsiu Chou</b> , Yu-Chen	NTHU
	Blue Light-Emitting Iridium Complex and Application for Organic Light Emitting Diode	US	13/729,877	Chien-Hong Cheng, <b>Ho-Hsiu Chou</b> , LI Yi-Kai	NTHU
	Triptycene Derivatives Having Symmetric or Asymmetric Substitutes and Organic Light Emitting Diode Using the Same	US	9,590,181	Chien-Hong Cheng, <b>Ho-Hsiu Chou</b> , Cheng-Chang Lai	NTHU
	含乙烯官能基之咪唑衍生物及其用于电致发光元件之用途	CN	2011102524 16.9	周鶴修,張之勵, 林韋澄	NTHU



類別	專利名稱	國別	專利號碼	發明人	專利權人
	低熱膨脹且可回收聚醯亞胺樹脂及其回收方法	TW	112148247	周鶴修,林宥彤,莊貴貽	NTHU
	低热膨胀且可回收聚酰亚胺树脂及其回收方法	CN	2023 11703661.6	周鶴修,林宥彤,莊貴貽	NTHU
	可修復且可回收之聚醯亞胺高分子樹脂及其修復與回收方法	KR	10-2023-00 87537	周鶴修,莊貴貽	NTHU
	修復可能かつリサイクル可能なポリイミドポリマー樹脂、その修復方法およびリサイクル方法	JP	2023-11059 4	周鶴修,莊貴貽	NTHU
	可修復且可回收之聚醯亞胺高分子樹脂及其修復與回收方法	CN	2023108104 84.5	周鶴修,莊貴貽	NTHU
	可修復且可回收之聚醯亞胺高分子樹脂及其修復與回收方法	TW	111126352	周鶴修,莊貴貽	NTHU
	含非對稱具磺醯基的稠環單元的衍生物、其用途、產氫裝置以及光電組件	CN	2022100646 80.8	周鶴修,林韋澄,曾圓婷	NTHU
	含非對稱具磺醯基之稠環單元的衍生物、其用途、產氫裝置以及光電組件	TW	111102361	周鶴修,林韋澄,曾圓婷	NTHU



類別	專利名稱	國別	專利號碼	發明人	專利權人
	太赫茲光調制器及太赫茲空間光調制器	TW	110131944	周鶴修,楊尚樺,麥家銘,埃爾賽德穆罕默德哈馬德	NTHU
	非富勒烯受體聚合物	TW	110117599	周鶴修,埃爾賽德,穆罕默德哈馬德,阮智暉,黃則傳	NTHU
	鹵化物材料及包含該鹵化物材料之光學單元和光電元件	TW	110108452	周鶴修,林皓武,張之勵,陳建宇,楊琳	NTHU
	半導體化合物、其用途與產氫裝置	TW	108122435	周鶴修,張之勵,林韋澄	NTHU
	發光材料以及包括此發光材料之有機發光二極體	TW	I388648	鄭建鴻, 周鶴修	NTHU
	三蝶烯衍生物及其在有機電子元件的應用	TW	I390007	鄭建鴻, 周鶴修, 施宏欣, 饒育禎	NTHU
	以矽主體具有異原子中心之芳香環衍生物及其在有機電子元件的應用	TW	096128503	鄭建鴻, 周鶴修, 施宏欣	NTHU
	聯三伸苯基衍生物在有機電致發光元件上之應用	TW	I461387	鄭建鴻, 陳昱翰, 周鶴修	NTHU



類別	專利名稱	國別	專利號碼	發明人	專利權人
	联三伸苯基衍生物在有机电致发光元件上之应用	CN	2011102540 05.3	鄭建鴻, 陳昱翰, 周鶴修	NTHU
A	含乙烯官能基之咪唑衍生物及其用於電致發光元件之用途	TW	100128992	鄭建鴻, 許邵珮, 周鶴修, 陳裕翰, 陳奕翔	ITRI
	含乙烯官能基之咪唑衍生物及其用于电致发光元件之用途	CN	2011102524 16.9	鄭建鴻, 許邵珮, 周鶴修, 陳裕翰, 陳奕翔	NTHU
A	對稱或不對稱雙取代三蝶烯衍生物及其有機發光二極體	TW	102141604	鄭建鴻, 周鶴修, 賴振昌	NTHU

## E. Other

### Editorial board membership

- Editorial Board Member & Guest Editor: Polymer (Rank=17/94, Q1 Journal) 2020-迄今
- Editorial Board Member: Cambridge Prisms: Carbon Technologies

### Honors & Awards

- 113 年度清華卓越傑出人才講座 (2025)
- 中華民國高分子學會傑出高分子學術研究獎 (2024)
- Rising Stars in Polymer Science (Polymer Journal) (2024)
- 台灣碳材料學會優秀年輕學者獎 (2024)
- 日本化學工程師學會 2024 年傑出亞洲研究員暨工程師獎 (2024)
- 台灣氫能與燃料電池學會優秀年輕學者獎 (2024)
- 台灣觸媒學會傑出研究論文獎(2024)
- 112 年度清華傑出人才講座 (2024)
- 國科會科創計畫拔尖計畫 (全台僅 2 團隊獲選) (2024)



- 李長榮學術研究傑出青年教授獎 (2022)
- 吳大猷先生紀念獎 (2021)
- 清華大學新進人員研究獎 (院、校級均獲獎) (2021)
- 材料學會華立材料創新獎 (2021)
- 中華民國高分子學會之傑出高分子青年科技獎 (2020)
- 國科會未來科技突破獎 (2020)
- 清華大學工學院傑出教學獎 (2020)
- 國科會展前記者會代表作品 (國科會僅 4 件獲選) (2020)
- 國際會議 AMSM 之 Best Paper Award (2019)
- MOST Young Scholar Fellowship (2018)



## Publications of Rong-Ming Ho (何榮銘)

### A. Journal Papers (\* Corresponding author)

#### 2024

- 1 S. K. Siddique, H. Sadek, T. L. Lee, G. M. Manesi, A. Avgeropoulos, C. W. Wang, C. C. Lee, E. L. Thomas, **R. M. Ho\*** “Topological Effect on Mechanical Properties of Self-Assembled Block Copolymer” *Giant*, **17**, 100205(2024) (SCI Impact Factor=5.4; SCI Rank Factor:56/231)
- 2 S. H. Lien, P. H. Lin, S. W. Shao, P. T. Chiu, C. Y. Chang, Y. C. Sung, J. C. Tsai\*, **R. M. Ho\***, “Peculiar Transition between Chiral and Achiral Networks in Self-Assembly of Chiral Block Copolymers” *Macromolecules*, (2024) (SCI Impact Factor=5.1; SCI Rank Factor:12/94)
- 3 G. M. Manesi, C. Y. Chang, I. Moutsios, **R. M. Ho\***, A. Avgeropoulos\* “Tuning the Morphology of Silicon Containing Copolymers via Macromolecular Architecture Effect” *Giant*, **16**, 100190(2023) (SCI Impact Factor=5.4; SCI Rank Factor: 64/230) (Google citation numbers:2)
- 4 J. Yuan, P. T. Chiu, X. Liu, J. Zhou, Y. Y. Wang, **R. M. Ho\***, T. Wen\*, “Cross-domain Chirality Transfer in Self-Assembly of Chiral Block Copolymers” *Angew. Chem. Int. Ed.*, **63**, e202317102(2024) (SCI Impact Factor=16.1; SCI Rank Factor:13/230) (Google citation numbers:1, WOS citation numbers:1)
- 5 C. Y. Chang, Y. H. Chen, **R. M. Ho\***, “Metastable Network Phases from Controlled Self-Assembly of High- $\chi$  Block Copolymers”, *Phys. Rev. Materials*, **8**, 030301(2024) (SCI Impact Factor=3.1; SCI Rank Factor: 204/438) (Google citation numbers:0, WOS citation numbers:0)
- 6 S. W. Shao, P. Puneet, M. C. Li, T. Ikai, E. Yashima, **R. M. Ho\***, “Chiral Luminophore Guided Self-Assembly of Achiral Block Copolymers for the Amplification of Circularly Polarized Luminescence” *ACS Macro Lett.*, **13**, 734-740(2024) (SCI Impact Factor=15.8; SCI Rank Factor: 12/94) (Google citation numbers:0, WOS citation numbers:0)
- 7 K. P. Liu, A. S. Panda, W. C. Huang, **R. M. Ho\***, “Vacuum-Driven Orientation of Nanostructured Polystyrene-block-Poly (L-lactide) Block Copolymer Thin Films for Nanopatterning” *Giant*, **19**, 100303(2024) (SCI Impact Factor=5.4; SCI Rank Factor: 64/230) (Google citation numbers:0, WOS citation numbers:5)



- 8 C. Y. Chang, G. M. Manesi, W. E. Wang, Y. C. Hung, A. Avgeropoulos, **R. M. Ho\***, “Frank-Kasper-like network phase from self-assembly of high- $\chi$  star-block copolymers” *Sci. Adv.*, **10**, eado4786(2024) (SCI Impact Factor=11.7; SCI Rank Factor:11/134)

## 2023

- 9 A. S. Panda, Y. C. Lee, T. Shastry, G. M. Manesi, A. Avgeropoulos, **R. M. Ho\*** “Controlled Orientation of Silicon-Containing Diblock Copolymer Thin Films by Substrate Functionalization under Vacuum” *Macromolecules*, **56**, 841-849(2023) (SCI Impact Factor= 5.5; SCI Rank Factor:11/86) (Google citation numbers:2, WOS citation numbers:1)
- 10 S. K. Siddique, H. Sadek, C. W. Wang, C. C. Lee, C. Y. Tsai, S. Y. Chang, C. L. Li, C. H. Hsueh, **R. M. Ho\*** “Diamond-structured nanonetwork gold as mechanical metamaterials from bottom-up approach” *NPG Asia Materials*, **15**, 36(2023) (SCI Impact Factor= 9.7; SCI Rank Factor:49/344) (Google citation numbers:1, WOS citation numbers:0)
- 11 T. C. Lin, C. Y. Yang, T. L. Lee\*, J. W. Lin, Y. T. Liang, Y. T. Xie, Z. H. Xie, Y. C. Hung\*, **R. M. Ho\*** “Gyroid-structured Nanoporous Chitosan from Block Copolymer Template for UVC Reflection” *NPG Asia Materials*, **15**, 13(2023) (SCI Impact Factor= 9.7; SCI Rank Factor:49/344)
- 12 C. J. Hung, A. S. Panda, Y. C. Lee, S. Y. Liu, J. W. Lin, H. F. Wang, A. Avgeropoulos, F. G. Tseng, F. R. Chen\*, **R. M. Ho\*** “Direct Visualization of the Self-Alignment Process for Nanostructured Block Copolymer Thin Films by Transmission Electron Microscopy” *ACS Macro Letters*, **12**, 570-576(2023) (SCI Impact Factor= 5.8; SCI Rank Factor:9/86) (Google citation numbers:1, WOS citation numbers:1)
- 13 H. Sadek, S. K. Siddique, C. W. Wang, P. T. Chiu, C. C. Lee, **R. M. Ho\*** “Starfish-Inspired Diamond-Structured Calcite Single Crystals from a Bottom-up Approach as Mechanical Metamaterials” *ACS nano*, **17**, 15678-15686(2023) (SCI Impact Factor= 17.1; SCI Rank Factor:12/108) (Google citation numbers:1, WOS citation numbers:0)
- 14 T. Shastry, A. S. Panda, G. M. Manesi, A. Avgeropoulos, **R. M. Ho\*** “Controlled Orientation of Plasma-Treated Diblock Copolymer Films from the Responsive Functionalized Substrate through Solvent Annealing” *Macromolecules*, **56**, 5651-5660(2023) (SCI Impact Factor= 5.5; SCI Rank Factor:11/86)
- 15 I. Moutsios, K. Ntetsikas, G. M. Manesi, G. Lontos, E. A. Nikitina, C. Y. Chang, L. Vidal, N. Hadjichristidis, **R. M. Ho**, D. A. Ivanov, A. Avgeropoulos\* “Defining Morphological Transformations of “Soft Nature” Diblock Viscoelastic Structured



- Polymers” *Macromolecules*, **56**, 6232-6246(2023) (SCI Impact Factor= 5.5; SCI Rank Factor:11/86) (Google citation numbers:1, WOS citation numbers:1)
- 16** S. K. Siddique, H. Sadek, T. L. Lee, G. M. Manesi, A. Avgeropoulos, C. W. Wang, C. C. Lee, E. L. Thomas, **R. M. Ho\*** “Topological Effect on Mechanical Properties of Self-Assembled Block Copolymer” *Giant*, 100205(2023) (SCI Impact Factor= 7; SCI Rank Factor: 12/93)
- 17** G. M. Manesi, C. Y. Chang, I. Moutsios, **R. M. Ho\***, A. Avgeropoulos\* “Tuning the Morphology of Silicon Containing Copolymers via Macromolecular Architecture Effect” *Giant*, **16**, 100190(2023) (SCI Impact Factor= 7; SCI Rank Factor: 12/93)

## 2022

- 18** Y. K. Chao, N. M. Praveema, K. C. Yang\*, E. B. Gowd\*, **R. M. Ho\*** “Crystallization of Poly lactides Examined by Vibrational Circular Dichroism of Intra- and Inter-chain Chiral Interactions” *Soft Matter*, **18**, 14 (2022). (SCI Impact Factor= 4.046; SCI Rank Factor:25/90)
- 19** P. T. Chiu, Y. C. Sung, K. C. Yang, J. C. Tsai\*, H. F. Wang\*, **R. M. Ho\*** “Curving and Twisting in Self-Assembly of Triblock Terpolymers Driven by a Chiral End Block” *Macromolecules*, **55**, 1185-1195 (2022). (SCI Impact Factor= 6.057; SCI Rank Factor:10/90)
- 20** S. K. Siddique, H. Sadek, T. L. Lee, C. Y. Tsai, S. Y. Chang, H. H. Tsai, T. S. Lin, G. M. Manesi, A. Avgeropoulos, **R. M. Ho\*** “Block Copolymer Modified Nanonetwork Epoxy Resin for Superior Energy Dissipation” *Polymers*, **14**, 9, 1891 (2022) (SCI Impact Factor= 4.967; SCI Rank Factor:16/90)
- 21** K. Gu, W. L. Yang, T. Wen, Q. Wang, W. Zhang, M. Han, Z. H. Shen\*, X. H. Fan, **R. M. Ho** “Co-Assembled Twisted Superstructures Formed by Disc-bent Core Amphiphiles” *Giant*, **9**, 100087 (2022) (SCI Impact Factor= 5.57)
- 22** C. Y. Chang, G. M. Manesi, A. Avgeropoulos\*, **R. M. Ho\*** “Superlattice Structure from Self-Assembly of High- $\chi$  Block Copolymers via Chain Interdigitation” *Macromolecules*, **55**, 3449-3457 (2022). (SCI Impact Factor= 6.057; SCI Rank Factor:10/90)
- 23** K. C. Yang, A. Reddy, H. W. Tsai, W. Zhao, G. M. Grason\*, **R. M. Ho\*** “Breaking mirror symmetry of double gyroids via self-assembly of chiral block copolymers” *ACS Macro Lett*, **11**, 930-934 (2022). (SCI Impact Factor= 7.015; SCI Rank Factor:7/90)
- 24** P. Puneet, S. W. Shao, **R. M. Ho\*** “Induced Circular Dichroism and Circularly Polarized Luminescence for Block Copolymers with Chiral Communications” *Macromolecular Rapid Communication*, 2200369 (2022). (SCI Impact Factor= 5.006; SCI Rank Factor:15/90)



- 25 K. C. Yang, P. Puneet, P. T. Chiu, **R. M. Ho\*** “Well-Ordered Nanonetwork Metamaterials from Block Copolymer Templated Syntheses” *Acc. Chem. Res*, **55**, 2033-2042 (2022). (SCI Impact Factor= 24.466; SCI Rank Factor:7/179)
- 26 A. S. Panda, Y. C. Lee, C. J. Hung, K. P. Liu, C. Y. Chang, G. M. Manesi, A. Avgeropoulos, F. G. Tseng, F. R. Chen, **R. M. Ho\*** “Vacuum-Driven Orientation of Nanostructured Diblock Copolymer Thin Films” *ACS Nano*, **16**, 12686-12694 (2022) (SCI Impact Factor= 18.027; SCI Rank Factor:11/109)
- 27 H. Sadek, S. K. Siddique, C. W. Wang, C. C. Lee, S. Y. Chang, **R. M. Ho\*** “Bioinspired Nanonetwork Hydroxyapatite from Block Copolymer Templated Synthesis for Mechanical Metamaterials” *ACS Nano*, **16**, 18298-18306 (SCI Impact Factor= 18.027; SCI Rank Factor:11/109)
- 28 M.-C. Li\*, M. Sato, F. C. Chen, W. T. Chuang, T. Hirai\*, A. Takahara\*, **R. M. Ho\*** “Circular Polarization Luminescence of Groove Anchor Driving Optically Active Poly(Methyl Methacrylate) Stereocomplexes”, *ACS Macro Letters*, **11**, 1306-1311
- 29 P. Puneet, P. T. Chiu, K. C. Yang, T. L. Lee, **R. M. Ho\*** “Topological Nanostructures with Preferred Helicity from Self-Assembly of Block Copolymers via Homochiral Evolution” *Macromolecules*, **55**, 10356-10365 (2022).
- 30 T. L. Lee, J. W. Lin, **R. M. Ho\*** “Controlled Self-Assembly of Polystyrene-block-Polydimethylsiloxane for Fabrication of Nanonetwork Silica Monoliths” *ACS Appl. Mater. Inter.*, **14**, 54194–54202 (2022). (SCI Impact Factor= 10.383; SCI Rank Factor: 49/345)

## 2021

- 31 K. C. Yang, P. T. Chiu, H. W. Tsai, **R. M. Ho\***, “Self-Assembly of Semiflexible-Coil Chiral Block Copolymers under Various Segregation Strengths with Multiple Secondary Interactions” *Macromolecules*, **54**, 9850 (2021). (SCI Impact Factor= 60156; SCI Rank Factor: 8/90)
- 32 C. C. Yang, P. Puneet, I. M. Lin, Y. W. Chiang, **R. M. Ho\***, “Self-assembled helical superstructures of polystyrene-b-poly(2-vinyl pyridine) with inversed helicity from induced chirality” *Giant*, **7**, 100059 (2021).
- 33 C. Y. Chang, G. M. Manesi, C.Y. Yang, Y. C. Hung, K. C. Yang, P. T. Chiu, A. Avgeropoulos\*, **R. M. Ho\***, “Mesoscale networks and corresponding transitions from self-assembly of block copolymers” *Proceedings of the National Academy of Sciences*, **118**, 11 (2021). (SCI Impact Factor= 12.291; SCI Rank Factor: 8/72)
- 34 P. T. Chiu, C. Y. Yang, Z. H. Xie, M. Y. Chang, Y. C. Hung, **R. M. Ho\***, “Gold Nanohelices for Chiral Plasmonic Films by Templated Electroless Plating”



- Advanced Optical Materials*, **9**, 2170036 (2021) (SCI Impact Factor= 9.926; SCI Rank Factor: 7/99)
- 35** Y. C. Chien, L.Y. Huang, K. C. Yang, M. R. Krishnan, W. S. Hung, J. C. Tsai, **R. M. Ho\***, “Fabrication of metallic nanonetworks via templated electroless plating as hydrogenation catalyst” *Emergent Materials*, **4**, 493-501 (2021).
- 36** S. K. Siddique, T. C. Lin, C. Y. Chang, Y. H. Chang, C. C. Lee\*, S. Y. Chang, P. C. Tsai, Y. R. Jeng, E. L. Thomas, **R. M. Ho\*** “Nanonetwork Thermosets from Templated Polymerization for Enhanced Energy Dissipation” *Nano letters*, **21**, 3355 (2021). (SCI Impact Factor=12.777 SCI Rank Factor: 20/178)
- 37** T. Wen\*, B. Ni, Y. C. Liu, W. Zhang, Z. H. Guo\*, Y. C. Lee, **R. M. Ho\***, S. Z. D. Cheng\* “Towards Achieving a Large-area and Defect-free Nano-line Pattern via Controlled Self-assembly by Sequential Annealing” *Giant*, **8**, 100078 (2021) (SCI Impact Factor= 5.57) (Google citation numbers:2, WOS citation numbers:0)
- 38** L. L. Deng, X. X. Zhan, J. W. Lin, **R. M. Ho**, L. S. Zheng, S. Y. Xie\* “Isomer-Dependent Photovoltaic Properties of the [6,6]-Phenyl-C-61 (or C-71)-Butyric Acid Methyl Esters” *Solar Rrl*, **5**, 7 (2021). (SCI Impact Factor= 9.173; SCI Rank Factor:61/345) (Google citation numbers:4, WOS citation numbers:4)

## 2020

- 39** K.C. Yang, P.T. Chiu, **R. M. Ho\*** “Mesochiral phases from the self-assembly of chiral block copolymers” *Polym. Chem.*, **11**, 1542 (2020). (SCI Impact Factor= 5.582; SCI Rank Factor: 10/90)
- 40** B. Yu, S. P. Danielsen, K. C. Yang, **R. M. Ho**, L. M. Walker, R. A. Segalman\* “Insensitivity of Sterically Defined Helical Chain Conformations to Solvent Quality in Dilute Solution” *ACS Macro Lett.*, **9**, 849-854 (2020) (SCI Impact Factor=6.903 SCI Rank Factor: 7/90)
- 41** K. C. Yang, P. Puneet, **R. M. Ho\*** “Reaction: Amplification of Macromolecular Helicity through Self-Assembly” *Giant*, 100015 (2020)
- 42** G. M. Manesi, C. Y. Chang, A. Avgeropoulos\*, **R. M. Ho\*** “Inter-domain Spacing Control via an Interdigitating Structure to Bilayers in Lamellae-Forming Star-Block Copolymers” *ACS Applied Polym. Mater.*, **2**, 3685-3695 (2020) (SCI Impact Factor=4.089 ; SCI Rank Factor: 22/90)
- 43** K. C. Yang, **R. M. Ho\*** “Spiral Hierarchical Superstructures from Twisted Ribbons of Self-Assembled Chiral Block Copolymers” *ACS Macro Lett.*, **9**, 1130-1134 (2020). (SCI Impact Factor=6.903 ; SCI Rank Factor: 7/90)
- 44** H. F. Wang, P. T. Chiu, C. Y. Yang, Z. H. Xie, Y. C. Hung, J. Y. Lee, J. C. Tsai,



- I. Prasad, H. Jinnai, E. L. Thomas, **R. M. Ho\*** “Networks with controlled chirality via self-assembly of chiral triblock terpolymers” *Sci. adv.*, **6**, 42 (2020). (SCI Impact Factor=16.45 ; SCI Rank Factor: 5/72)
- 45 C. Miskaki, I. Moutsios ,G.M. Manesi, K. Artopoiadis, C. Y. Chang, E. A. Bersenev, D. Moschovas, D. A. Ivanov, **R.M. Ho** ,A. Avgeropoulos\*“Self-Assembly of Low-Molecular-Weight Asymmetric Linear Triblock Terpolymers: How Low Can We Go?” *Molecules*, **25**, 5527 (2020) (SCI Impact Factor=4.588 ; SCI Rank Factor: 115/2950))

## B. Patents

### 中華民國專利

- 專利編號: I663198  
 專利名稱: 奈米多孔性高分子薄膜製備方法及奈米多孔性薄膜製備方法  
 METHOD FOR FABRICATING NANOPOROUS POLYMER THIN FILM  
 AND METHOD FOR FABRICATING NANOPOROUS THIN FILM  
 發明人: 何榮銘;孟哈;希蘇翰;簡佑丞  
 公告/公開日: 2019/06/21

### 美國專利

- 專利編號: 11,827,751  
 專利名稱: Nanonetwork with controlled chirality and manufacturing method thereof  
 公告/公開日: 2023/11/28
- 專利編號: 1,105,920,5  
 專利名稱: Method for fabricating nanoporous polymer thin film and corresponding method for fabricating nanoporous thin film  
 公告/公開日: 2021/07/13



## Publications of Masaki Horie (堀江正樹)

### A. Book Chapters

1. 高校化学宣言 Part 13, 高校化学グランドコンテストドキュメンタリー, 監修 中沢浩, 小嵯正敏, 笹森貴裕, 遊タイム出版, 2020年4月30日 第1刷発行, Chapter 11: 堀江正樹, 海外へ飛び出して12年、英国と台湾での研究生活を通して見えてきたもの, (ISBN: 78-4-86010-360-6).

### B. Journal Papers (\* Corresponding author)

#### 2024

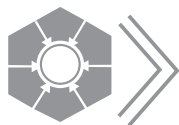
1. Tomohito Ide,\* Wei-Ci Huang, Masaki Horie,\* “Tris-Azo Triangular Paraphenylenes: Synthesis and Reversible Interconversion into Radial  $\pi$ -Conjugated Macrocycles”, *J. Am. Chem. Soc.* **2024**, *146*, 10246–10250.
2. Meng-Che Tsai, Kuo-Lung Wang, Satoshi Wada, Chu-Liang Hsieh, Liang-Chieh Tseng, Masaki Horie,\* Takafumi Sassa\* “Enhanced Photorefractive Performance by Controlling Ion-Assisted Charge Injection and Accumulation with Random Biphenyl Co-Polymerized Poly(Carbazolyl-Amine)”, *Adv. Funct. Mater.* **2024**, 2409659.
3. Fumi Nishino, Peter Krüger, Chi-Hsien Wang, Ryohei Nemoto, Yu-Hsin Chang, Takuya Hosokai, Yuri Hasegawa, Keisuke Fukutani, Satoshi Kera, Masaki Horie\*, Toyo Kazu Yamada,\* “Reversible Sliding Motion by Hole-Injection in Ammonium-Linked Ferrocene, Electronically Decoupled from Noble Metal Substrate by Crown-Ether Template Layer”, *Small* **2024**, 2408217.
4. Mizuho Yamagishi, Sonoka Yamamoto, Kentaro Okano, Yasuko Koshiba, Kenji Ishida, Shohei Horike, Masaki Horie, Atsunori Mori, “Thin-film fabrication of polythiophene block copolymer via friction transfer”, *Bull. Chem. Soc. Jpn.* **2024**, doi.org/10.1093/bulcsj/uoae095.
5. Rikuya Tanaka, Seiha Yamaoka, Shuichi Ikeda, Kentaro Okano, Masaki Horie, Hideto Minami, Nozomu Suzuki, Atsunori Mori,\* “High-Intensity Circular Dichroism of Head-to-tail Regioregular Poly(1,4-phenylene)s in the Aggregated State”, *Chem. Eur. J.* **2024**, e202400706.
6. Toyo Kazu Yamada,\* Ryohei Nemoto, Haruki Ishii, Fumi Nishino, Yu-Hsin Chang, Chi-Hsien Wang, Peter Krüger, Masaki Horie, “Designing 2D stripe



- winding network through crown-ether intermediate Ullmann coupling on Cu(111) surface”, *Nanoscale Horiz.* **2024**, 9, 718–730 (Selected as the Nanoscale Horizons Most Popular 2024 Article).
7. Atsunori Mori,\* Aruto Maruka, Kohei Tabuchi, Kentaro Okano, **Masaki Horie**, “Double winding vine-shaped biphenyl with molecular asymmetry. Synthesis, structure, and properties”, *Eur. J. Org. Chem.* **2024**, e202400192.
  8. Aika Kuwayama, Sonoka Yamamoto, Yuma Sakagami, Mizuho Yamagishi, Kentaro Okano, **Masaki Horie**, Masahiro Funahashi, Atsunori Mori,\* “Synthesis and properties of polythiophenes bearing alkylsulfonic acid esters at the side chain”, *Polym. Chem.*, **2024**, 15, 1635–1641.
  9. Naoki Noda, Seiha Yamaoka, Ukyo Ogi, **Masaki Horie**, Kentaro Okano, and Atsunori Mori,\* “Ni<sup>0</sup>(cod)(dq) (COD: 1,5-cyclooctadiene; DQ: duroquinone) complex as a catalyst precursor for oligothiophene and polythiophene”, *Org. Biomol. Chem.*, **2024**, 22, 2574–2579.

## 2023

10. Chi-Hsien Wang, Yi-Chia Lin, Surojit Bhunia, Yuanning Feng, Pramita Kundu, Charlotte L. Stern, Pei-Lin Chen, J. Fraser Stoddart, **Masaki Horie**,\* “Photosalience and Thermal Phase Transitions of Azobenzene- and Crown Ether-Based Complexes in Polymorphic Crystals”, *J. Am. Chem. Soc.* **2023**, 145, 21378–21386.
11. Chi-Hsien Wang, Hong-Kai Chang, Kai-Jen Chen, Dao-Hong Huang, Chiung-Ju Chang, Kuan-Hung Huang, Yao-De Chiu, **Masaki Horie**,\* “Facile photoresponsive actuators based on ferrocene-doped poly(butyl methacrylate)”, *ACS Appl. Mater. Interfaces* **2023**, 15, 38846–38856.
12. Toyo Kazu Yamada,\* Ryohei Nemoto, Fumi Nishino, Takuya Hosokai, Chi-Hsien Wang, **Masaki Horie**, Yuri Hasegawa, Satoshi Kera, Peter Krüger, “On-Surface Growth of Transition-Metal Cobalt Nanoclusters Using 2D Crown-Ether Array”, *J. Mater. Chem. C* **2023**, 12, 874–883.
13. Kohei Hosokawa, Kohei Tabuchi, Yuki Nakanishi, Kentaro Okano, **Masaki Horie**, Atsunori Mori,\* “Studies on the stereochemical behaviors of a winding vine-shaped molecular wire of a bithiophene dimer with molecular asymmetry”, *Mol. Syst. Des. Eng.* **2023**, 8, 1252–1256.
14. Seiha Yamaoka, Hiroyuki Fukuoka, Naoki Noda, Kentaro Okano, **Masaki Horie**, Atsunori Mori,\* “Nickel(II) Thiocyanate Complex as a Catalyst for Cross-Coupling Reactions”, *Synlett* **2023**, 34, 2401–2404.



15. Sonoka Yamamoto, Ryutaro Yamashita, Chihiro Kubota, Kentaro Okano, Masatoshi Kitamura, Masahiro Funahashi, Syu-Cheng Ye, Yung-Tin Pan, **Masaki Horie**, Takuji Shintani, Hironori Murata, Hideto Matsuyama, Atsunori Mori\*, “Orthogonal electric and ionic conductivities in the thin film of a thiophene–thiophene block copolymer”, *J. Mater. Chem. C* **2023**, *11*, 2484–2493.
16. Yuta Ihara, Hiroshi Yamagishi, Chen Lin, Cang-He Jhu, Meng-Che Tsai, **Masaki Horie**\*, Yohei Yamamoto\*, “Hydrothermal cross-linking of poly(fluorenylamine) with styryl side chains toward insoluble fluorescent micro-particles”, *Polym. J.* **2023**, *55*, 547–553.

## 2022

17. Atsunori Mori\*, Tomoki Inoue, Aika Kuwayama, Kentaro Okano, **Masaki Horie**, “Generation of sodium–thiophene species with metal amide-free approach toward polythiophene synthesis by cross-coupling polymerization”, *Asian J. Org. Chem.* **2022**, *11*, e202200253.
18. Chihiro Kubota, Masaki Kashimoto, Ryutaro Yamashita, Kentaro Okano, **Masaki Horie**, Masahiro Funahashi, Takuya Matsumoto, Takashi Nishino, Atsunori Mori\*, “Studies on the properties of poly(3-alkylthiophene) copolymerized by a small amount of thiophene derivative bearing a cyclic siloxane moiety at the side chain”, *Bull. Chem. Soc. Jpn.* **2022**, *95*, 882-888.
19. Pin-Rong Wu, Chi-Hsien Wang, Yi-Wen Chen, Yen-Jen Lin, Tomohito Ide, Yoshitaka Tsuchido, Yoshihisa Sei, **Masaki Horie**\*, “Cyclic and Linear Dithienyl-Anthryl Vinylenes: Synthesis, X-ray Crystallography, Spectroscopic Properties, and Photoinduced Mechanical Motions”, *J. Mater. Chem. C* **2022**, *10*, 4306-4316.
20. Chi-Hsien Wang, **Masaki Horie**\*, “Photo and thermal responsive pseudorotaxane crystals comprising ferrocene-containing ammonium salts and crown ethers”, A special issue dedicated to Sir Fraser Stoddart on the occasion of his 80th birthday, *Mater. Today Chem.* **2022**, *24*, 100852.
21. Yuji Suzaki, Tomoko Abe, Asami Takei, Yugo Fukuchi, Take-aki Koizumi, Kohtaro Osakada\*, **Masaki Horie**, “Ferrocene-containing Pseudorotaxanes in Crystals: Aromatic Interactions with Hammett Correlation”, *Molecules* **2022**, *27*, 1745.



## 2021

22. Chi-Hsien Wang, Kai-Jen Chen, Tsung-Huan Wu, Hung-Kai Chang, Yoshitaka Tsuchido, Yoshihisa Sei, Pei-Lin Chen, **Masaki Horie\***, “Ring rotation of ferrocene in interlocked molecules in single crystals”, *Chem. Sci.* **2021**, *12*, 3871-3875 (Selected as a front cover article).
23. Mohamed Elsayed, Mohamed Abdellah, Jayachandran Jayakumar, Yi-Hao Hung, Li-Yu Ting, Ahmed M. Elewa, Chih-Li Chang, Wei-Cheng Lin, Kuo-Lung Wang, Mahmoud Abdel-Hafiez, Hsiao-Wen Hung, **Masaki Horie**, Ho-Hsiu Chou\*, “Hydrophobic and Hydrophilic Conjugated Polymer Dots as Binary Photocatalysts for Enhanced Visible-Light-Driven Hydrogen Evolution Through Förster Resonance Energy Transfer”, *ACS Appl. Mater. Interfaces* **2021**, *13*, 56554-56565.
24. Tomoki Inoue, Sonoka Yamamoto, Yuma Sakagami, Masaki Horie, Kentaro Okano, Atsunori Mori\*, “Cross-coupling polymerization of organosodium for polythiophene synthesis”, *Organometallics* **2021**, *40*, 3506-3510.
25. Yen-Jen Lin, **Masaki Horie\***, “Dithienylethene-containing cyclic and linear conjugated molecules: synthesis, photochromism, and photoluminescence”, *Dyes Pigment.* **2021**, *195*, 109700.
26. Yuji Suzaki, Yugo Fukuchi, Hiroko Tadami, Take-aki Koizumi, Kohtaro Osakada,\* Tomohito Ide, **Masaki Horie**, Norihisa Hoshino, Tomoyuki Akutagawa, “Further Investigations of Crystal-to-Crystal Phase Transition of a [2]Pseudorotaxane Composed of Ferrocene-terminated Dialkylammonium and Dibenzo[24]crown-8-ether”, *CrystEngComm* **2021**, *23*, 5944-5952.
27. Masayasu Hayashi, Jiaqiang Cheng, Kohei Hosokawa, Takumi Hatta, Chi-Hsien Wang, **Masaki Horie**, Kentaro Okano, Atsunori Mori\*, “Synthesis and racemization studies of winding vine-shaped biphenyl derivatives”, *Eur. J. Org. Chem.* **2021**, 3465-3471.
28. Sonoka Yamamoto, Yushin Shibuya, Toyoko Suzuki, Kentaro Okano, **Masaki Horie**, Atsunori Mori\*, “One-shot Deprotonative Metalation / Transmetalation / Polymerization of Halothiophenes Catalyzed by Nickel Complex for Polythiophene Synthesis”, *Synthesis* **2021**, *53*, 3081-3084.
29. Chihiro Kubota, Daisuke Morita, Keisuke Fujita, Sonoka Yamamoto, Toyoko Suzuki, Kentaro Okano, Masahiro Funahashi, **Masaki Horie**, Atsunori Mori\*, “Thermally-Induced Doping of The Regioregular Polythiophene Bearing Alkylene Spaced Benzene Sulfonate Group at The Side Chain”, *Heterocycles* **2021**, *103*, 249-257.

**2020**

30. Kuo-Lung Wang, Jia-Cheng Jiang, Cang-He Jhu, Satoshi Wada, Takafumi Sassa\*, **Masaki Horie\***, “High-performance organic photorefractive materials containing 2-ethylhexyl plasticized poly(triarylamine)”, *J. Mater. Chem. C* **2020**, 8, 13357-13367.
31. Shao-Chi Cheng, Chi-Hsien Wang, Yi-Chia Lin, Yoshitaka Tsuchido, Yuji Suzuki, Ting-Shen Kuo, Yoshihisa Sei, **Masaki Horie\***, “Photoinduced Mechanical Motions of Pseudorotaxane Crystals Composed of Azobenzene and Ferrocenyl Groups on an Axle and a Crown Ether Ring”, *ACS Appl. Mater. Interfaces* **2020**, 12, 50002-50010.
32. Kuo-Lung Wang, Kuan-Ting Chen, Yuan-Hsing Yi, Yi-Hao Hung, Hsing-Yu Tuan\*, **Masaki Horie\***, “High-Performance Lithium Ion Batteries Combining Submicron Silicon and Thiophene–Terephthalic Acid-Conjugated Polymer Binders”, *ACS Sustainable Chem. Eng.* **2020**, 8, 1043-1049.
33. Atsunori Mori,\* Chihiro Kubota, Keisuke Fujita, Masayasu Hayashi, Tadayuki Ogura, Toyoko Suzuki, Kentaro Okano, Masahiro Funahashi, **Masaki Horie**, “Thermally Induced Self-Doping of  $\pi$ -Conjugated Polymers Bearing a Pendant Neopentyl Sulfonate Group”, *Macromolecules* **2020**, 53, 1171-1179.
34. Atsunori Mori,\* Keisuke Fujita, Chihiro Kubota, Toyoko Suzuki, Kentaro Okano, Takuya Matsumoto, Takashi Nishino, **Masaki Horie**, “Formal preparation of regioregular and alternating thiophene–thiophene copolymers bearing different substituents”, *Beilstein J. Org. Chem.* **2020**, 16, 317-324.
35. Atsunori Mori,\* Masayasu Hayashi, Mitsuru Matsuoka, Shiomi Ashida, Yukiko Ito, Kohei Hosokawa, Toyoko Suzuki, Kentaro Okano, Chi-Hsien Wang, **Masaki Horie**, “Formation of Seven-membered-ring Fused Bithiophene Derivatives by Nosyl Annulation”, *Heterocycles* **2020**, 101, 461-470.

**C. Conference Presentations****2024**

1. **Invited speech:** Photoresponsive Actuators Comprising of Ferrocene and Azobenzene, 2024 中華民國高分子學會年會, 成功大學, Jan 24, 2024.
2. The first-place poster prize: P1-A-01, Synthesis and applications of thiophene-based hydrophilic conjugated polymers, 黃于庭, 2024 中華民國高分子學會年會, 成功大學, Jan 24, 2024.



3. The second-place poster prize: P1-B-07, 以二茂鐵與蔥為色團的擬輪烷薄膜和晶體的光響應機械運動, 黃冠閔, 2024 中華民國高分子學會年會, 成功大學, Jan 24, 2024.

## 2023

4. **Invited speech**: Stimuli-responsive molecular machines, Hokkaido University-NTHU Bilateral Symposium 2023, Sapporo, Japan, Jul 25, 2023.
5. **Invited speech**: 結晶中で動く分子機械, 第 20 回六甲有機合成研究会, 神戸大学, Kobe, Japan, Jan 7, 2023.
6. Multifunctional azobenzene-based polymorphs achieved by non-covalent constraints, Chi-Hsien Wang, 17th International Symposium of Macrocyclic and Supramolecular Chemistry (2023 ISMSC), Reykjavik, Iceland, Jun 25-29, 2023.
7. The Rotation of Ferrocene Complexes in Crystals, Yu-Hsin Chang, Chi-Hsien Wang, Masaki Horie, 17th International Symposium of Macrocyclic and Supramolecular Chemistry (2023 ISMSC), Reykjavik, Iceland, Jun 25-29, 2023.
8. Development of high-performance organic photorefractive composites comprising hole transport poly(triarylamine) polymers, Meng-Che Tsai, Kuo-Lung Wang, Takafumi Sassa, Masaki Horie, Satoshi Wada, *The 13th SPSJ International Polymer Conference (IPC2023)*, Sapporo, Japan, Jul 18-21, 2023.

## 2022

9. Chi-Hsien Wang (王祺嫻), J. Fraser Stoddart, Masaki Horie, Stimuli-induced reversible rotation of ferrocene complexes in crystals, the poster prize award from Dalton Transactions, 16th International Symposium of Macrocyclic and Supramolecular Chemistry (2022 ISMSC), Eugene, Oregon, USA, June 19-24, 2022.

## 2021

10. **Invited speech**: Stimuli-responsive dynamic rotaxanes in crystal state, The 4th NYCU Conference on Advanced Organic Synthesis (CAOS-4), National Yang Ming Chiao Tung University (陽明交通大學), Hsinchu, Taiwan, Dec 3, 2021.
11. **Invited speech**: Synthesis of Conjugated Polymers and Molecular Machines for Optoelectronic Applications, the 2021 International Conference on Modern Challenges in Polymer Science and Technology (MCPST) and 2021 Annual Meeting of the Polymer Society (AMPS), Taipei, (2021 中華民國高分子學會



- 年會), Online-National Sun Yat-Sen University (Online-國立中山大學), Kaohsiung, Taiwan, Jul 9, 2021.
12. 王祺嫻, Tsung-Huan Wu, Masaki Horie, Reversible rotational motion of ferrocenyl group in interlocked molecules in crystal state, 2021 年中國化學會年會, 2021 Chemistry National Meeting, National Central University (國立東華大學), March 12-14, 2021.
  13. 花君瑜, Masaki Horie, Multi-Stimuli Responsive Pseudorotaxanes Comprising Diarylethene and Azobenzene Groups, 2021 年中國化學會年會, 2021 Chemistry National Meeting, National Central University (國立東華大學), March 12-14, 2021.
  14. 吳品蓉, Yi-Wen Chen, Masaki Horie, Synthesis and characterization of photo-responsive cyclic conjugated molecules, 2021 年中國化學會年會, 2021 Chemistry National Meeting, National Central University (國立東華大學), March 12-14, 2021.

## 2020

15. **Invited speech**: Conjugated molecules and molecular machines for use in organic optoelectronics, 2020 The Taiwan Institute of Chemical Engineers (TwIChE), 台灣化學工程學會 67 週年年會 and Taiwan-Japan-Kore Joint Symposium, National Tsing Hua University (清華大學), Hsinchu, Taiwan, Oct 23-24, 2020.

### D. Other

1. 堀江正樹、王祺嫻, "Photoscience and Thermal Phase Transitions of Azobenzene- and Crown Ether-Based Complexes in Polymorphic Crystals (*J. Am. Chem. Soc.* **2023**, *145*, 21378)", Highlighted by Chemistry Newsletter by MOST, 國科會圖書服務計畫化學中心總圖書室, 12 月號化學電子報, Dec. 2023. ([https://archive.benchmarkemail.com/beer\\_beer](https://archive.benchmarkemail.com/beer_beer))
2. Highlighted by Nikkei Business: Semiconductor education at our university was highlighted in articles of Nikkei Business Journal on October 16, **2023**, on page 30 and on October 20, **2023**. "つくるべきは次世代人材 TSMC 生んだ「台湾モデル」に学ぶ：日経ビジネス電子版", "TSMC 生んだ台湾モデルに学ぶ人材こそ半導体エコシステムの礎：日経ビジネス電子版". High-resolution photos and detailed descriptions are available online for purchase.
3. 堀江正樹「結晶中で動く、結晶を動かす、ロタキサン分子」日本応用物理学会, 有機分子・バイオエレクトロニクス分科会会誌, 特集: 分子のダ



イナミクスを活かした有機材料科学の新展開, The Japan Society of Applied Physics (JSAP), Molecular Electronics and Bioelectronics, **2021**, Vol. 32, No. 4, Pages 211(34)-211(39).

(<https://annex.jsap.or.jp/support/division/MandBE/journal/1192/>)

4. 堀江正樹、王祺嫻，”Ring rotation of ferrocene in interlocked molecules in single crystals (*Chem. Sci.* **2021**, *12*, 3871)”, Highlighted by Chemistry Newsletter by MOST, 科技部圖書服務計畫化學中心總圖書室, 七月號化學電子報, Jul. 2021. ([https://archive.benchmarkemail.com/beer\\_beer](https://archive.benchmarkemail.com/beer_beer))



## Publications of Chi-Chang Hu (胡啟章)

### A. Journal Papers

#### 2024

1. Yu-Chun Chen, Liang-Chieh Tseng, Yun Lin, Chen-Wei Tai, Hsiang-Sheng Wei, **Chi-Chang Hu\***, 2025, 02, “Microstructure Transformation of Electrochemically Activated Alkali-Treated Soft Carbons for Energy Storage Applications”, *Carbon*, in press.
2. Hsiang-Sheng Wei, Kuan-Ling Liu, Hsu Tsou, Hao-Yu Ku, **Chi-Chang Hu\***, 2025, 01, “Twin spacing manipulation of (111)-orientation nanotwinned copper via the aeration flow control in the high-speed direct-current electroplating system with thiol organic additives”, *J. Mater. Chem. A.*, (vol. 13), 5386-5399 (DOI: 10.1039/d4ta07905a).
3. Hsiang-Sheng Wei, Hsu Tsou, Hao-Yu Ku, Chi-Yu Lai, Shih-Hua Chen, Chun-Cheng Lin, Shang-Tzu Liu, Hung-Yi Huang, Ming-Kun Lu, Kuan-Ling Liu, **Chi-Chang Hu\***, 2025, 01, “Highly Efficient Electroplating of (220)-oriented Nano-twinned Copper in the Methanesulfonic Copper Baths”, *Materials Horizons*, in press (DOI: 10.1039/d4mh00680a).
4. Tien-Hung Chen, Chung-Sheng Ni, Chi-Yu Lai, Sanna Gull, Yun-Chen Chu, Wen-Yang Jao, **Chi-Chang Hu**, Shih-Fu Liu, Chong-Chi Chi, Tsung-Yi Chen, Jyh-Fu Lee, Chih-Wen Pao, Jeng-Lung Chen, Han-Yi Chen\*, Jin-Hua Huang\*, 2025, 02, “Enhanced oxygen evolution and power density of Co/Zn@NC@MWCNTs for the application of zinc-air batteries”, *Journal of Colloid and Interface Science*, (vol. 679, A) 119-131.
5. Wen-Yang Jao, Liang-Chieh Tseng, Yun Lin, Yu-Chun Chen, **Chi-Chang Hu\***, 2024, 10, “Stability Promotion of Carbon-based Quasi-reference Electrodes in Non-aqueous Calcium-ion Electrolytes”, *The Journal of Physical Chemistry C*, (vol. 128) 45, 19098-19108 (doi.org/10.1021/acs.jpcc.4c05509).
6. Chia-Yu Lee, Ching-Chieh Hsu, Chia-Hsin Wang, U-Ser Jeng, Shih-Huang Tung, **Chi-Chang Hu**, Cheng-Liang Liu\*, 2024, 10, “Exploring Pyrazine-Based Organic Redox Couples for Enhanced Thermoelectric Performance in Wearable Energy Harvesters” *small*, 2024, 2407622. (doi.org/10.1002/sml.202407622)
7. Hao-Yu Ku, Yun Ku, Chi-Yu Lai, Yi-Ting Lu, Hsiang Sheng Wei, Hung-Hsin Shih, Kun-Ping Huang, **Chi-Chang Hu\***, 2024, 09, “The Microwave Plasma



- Torch Chemical Vapor Deposition of Graphene Layers on Copper Foils for Facilitating Uniform Lithium Deposition in Lithium Metal Batteries”, *J. Mater. Chem. A.*, (**vol. 12**), 28985-28999.
8. Ming-Han Tsai, Yaju Juang, **Chi-Chang Hu\***, Shih-Hua Chen, Lap-Cuong Hua, Chihpin Huang\*, 2024, 08, “Novel Cu(200)/Ti cathode for the enhancement of N<sub>2</sub> selectivity in direct ammonia electrolysis: The controls of Cu cathode facet orientation”, *Electrochemistry Communications*, (**vol. 166**) 107793.
  9. Mozaffar Abdollahifar, Thierry Brousse, George Z. Chen, Masanobu Chiku, Olivier Crosnier, Bruce Dunn, Krzysztof Fic, **Chi-Chang Hu**, Paweł Jezowski, Adam Maćkowiak, Katsuhiko Naoi, Nobuhiro Ogihara, Naohisa Okita, Masashi Okubo, Wataru Sugimoto, Nae-Lih Wu, 2024, “Redox materials for electrochemical capacitors”, *Electrochemistry*, (**vol. 92**) 074002 (invited review; doi.org/10.5796/electrochemistry.24-70054).
  10. Yi-Heng Tu, Hung-Yi Huang, Yu-Hsiang Yang, Louis C. P. M. de Smet\*, **Chi-Chang Hu\***, 2024, 07, “Highly Stable Full-Polymer Electrochemical Deionization System: Dopant Engineering & Mechanism Study”, *Materials Horizons*, (**vol. 11**) 3792-3804 (**Front Cover**).
  11. Liang-Chieh Tseng, Chen-Wei Tai, Wen-Yang Jao, Yun Lin, Chih-Yu Ku, Yan-Shi Chen, and **Chi-Chang Hu\***, 2024, “A Novel Efficient Three-stage Electrochemical Pre-lithiation method for the Amorphous Carbon Negative Electrodes of Lithium-ion Capacitors”, *Electrochim. Acta*, (**vol. 497**) 144576.
  12. Chi-Yu Lai, Yin-Song Liao, Hao-Yu Ku, Wen-Yang Jao, Sanna Gull, Han-Yi Chen\*, Jyh-Pin Chou\*, **Chi-Chang Hu\***, 2024, 05, “Enhancing Zinc Electrode Stability through Pre-Desolvation and Accelerated Charge Transfer via a Polyimide Interface for Zinc-Ion Batteries”, *small*, (**vol. 20**) 2401713 (doi.org/10.1002/sml.202401713).
  13. Ming-Han Tsai, Shu-Ju Chao, Cai-lin Luo, Lap-Cuong Hua, **Chi-Chang Hu\***, Biplab Kumar Mahatae, Chihpin Huang\*, 2024, 05, “Selective dissolution of zinc and lead from duplex  $\beta$ -phase brasses in low and high conductivity water”, *Chemosphere*, (**vol. 355**) 141835 (doi.org/10.1016/j.chemosphere.2024.141835).
  14. Yu-Hsiang Yang, Yi-Heng Tu, Hung-Yi Huang, Yu-Hsiang Peng, Wei-Lin Lee, Meng-Fei Wu, Jen-Huang Huang, **Chi-Chang Hu\***, 2024, “Cell voltage control on ion selectivity of carbon nanotube-copper hexacyanoferrate with enhanced electrochemical deionization performance”, *Electrochim. Acta*, (**vol. 488**) 144157.



15. Ming-Han Tsai, Yaju Juang, **Chi-Chang Hu**, Lap-Cuong Hua, and Chihpin Huang\*, 2024, “Tuning Cu<sub>2</sub>O morphologies of Cu<sub>2</sub>O/Ni foam electrodes for the control of reactivity and nitrogen selectivity in direct ammonia electrooxidation reaction”, *J. Environ. Chem. Eng.*, (vol. 12) 112339.
16. Shang-Cheng Lin, Chun-Wei Chang, Meng-Hsuan Tsai, Chih-Hao Chen, Jui-Tai Lin, Chia-Ying Wu, I-Ting Kao, Wen-Yang Jao, Chia-Hsin Wang, Wen-Yueh Yu, **Chi-Chang Hu**, Kun-Han Lin\*, and Tung-Han Yang\*, 2024, “Decreasing the O<sub>2</sub>-to-H<sub>2</sub>O<sub>2</sub> Kinetic Energy Barrier on Dilute Binary Alloy Surfaces with Controlled Configurations of Isolated Active Atoms”, *Adv. Func. Mater.*, (vol. 34) 2314281 (<https://doi.org/10.1002/adfm.202314281>).
17. Hao-Yu Ku, Chien-Wei Chiang, Yi-Ting Lu, Chen-Wei Tai, Jui-Yu Pai, Ai-Ling Huang, Chi-Yu Lai, Hao-Yu Liu, Han-Yi Chen, **Chi-Chang Hu**\*, 2024, 03, 15, “Developing TiO<sub>2</sub>/polyacrylonitrile nanofibrous functional layer for the negative electrode of “zero-excess” lithium-metal batteries”, *J. Power Sources*, (vol. 596) 234094 ([doi.org/10.1016/j.jpowsour.2024.234094](https://doi.org/10.1016/j.jpowsour.2024.234094)).
18. Hung-Yi Huang, Yi-Heng Tu, Yu-Hsiang Yang, Yi-An Chen, Wei-Lin Lee, Meng-Fei Wu, Ho-Hsiu Chou, **Chi-Chang Hu**\*, 2024, 01, “Probing the Host-Dopant Interactions in Conducting Polymers for Improved Electrochemical Deionization Performance”, *J. Mater. Chem. A.*, (vol. 12) 4312-4324 (DOI: 10.1039/D3TA06973G).
19. Yi-Ting Lu, Wen-Yang Jao, Chen-Wei Tai, **Chi-Chang Hu**\*, 2024, 01, “A comprehensive review on the electrochemical activation for non-aqueous carbon-based supercapacitors”, *J. Tw. Inst. Chem. Engr.*, (vol. 154) 104978 ([doi.org/10.1016/j.jtice.2023.104978](https://doi.org/10.1016/j.jtice.2023.104978)).
20. Yu-Ren Peng, Shin-Yi Tang, Tzi-Yi Yang, Paul Albert Sino, Yuan-Chun Chen, Mayur Chaudhary, Chieh-Ting Chen, Ruei-Hong Cyu, Chia-Chen Chung, Bing-Ni Gu, Ming-Jing Liu, Che-Hao Hsu, Hung-Yi Huang, Ling Lee, Shu-Chi Wu\*, Yu-Yi Jen, You-Song Cheng, **Chi-Chang Hu**, Wen-Chien Miao, Hao-Chung Kuo, Yu-Lun Chueh\*, 2023, 12, 08, “Design of Electrocatalytic Janus WSeS/WSe<sub>2</sub> Heterostructure Nanowall Electrodes with High Selectivity and Faradaic Efficiency for Nitrogen Reduction”, *Advanced Energy Materials*, (vol. 13) 2301979 (DOI: 10.1002/aenm.202301979).



## 2023

21. Wen-Yang Jao, Chen-Wei Tai, Chia-Chin Chang, **Chi-Chang Hu\***, 2023, 11, “Non-aqueous Calcium-based Dual-ion Batteries with an Organic Electrode of High-rate Performance”, *Energy Storage Materials*, (vol. 63) 102990.
22. Yi-Heng Tu, Hung-Yi Huang, Yu-Hsiang Yang, Chi-Yu Lai, Chen-Wei Tai, **Chi-Chang Hu\***, 2023, “A comprehensive study on the ion-selective behavior of MnO<sub>x</sub> for electrochemical deionization”, *ACS Applied Materials & Interfaces*, in press. (DOI <https://doi.org/10.1021/acsami.3c08271>)
23. Chen-Wei Tai, Wen-Yang Jao, Liang-Chieh Tseng, Ping-Chieh Wang, An-Pang Tu, **Chi-Chang Hu\***, 2023, “Lithium-ion Storage Mechanism in Closed Pore-rich Hard Carbon with Ultrahigh Extra Plateau Capacity” *J. Mater. Chem. A*, in press. (DOI <https://doi.org/10.1039/D3TA03855F>).
24. Yi-Ting Lu, Wen-Yang Jao, Chen-Wei Tai, **Chi-Chang Hu\***, 2023, “A comprehensive review on the electrochemical activation for non-aqueous carbon-based supercapacitors”, *J. Tw. Inst. Chem. Engr.*, in press (<https://doi.org/10.1016/j.jtice.2023.104978>).
25. Yu-Ren Peng, Shin-Yi Tang, Tzi-Yi Yang, Paul Albert Sino, Yuan-Chun Chen, Mayur Chaudhary, Chieh-Ting Chen, Ruei-Hong Cyu, Chia-Chen Chung, Bing-Ni Gu, Ming-Jing Liu, Che-Hao Hsu, Hung-Yi Huang, Ling Lee, Shu-Chi Wu\*, Yu-Yi Jen, You-Song Cheng, **Chi-Chang Hu**, Wen-Chien Miao, Hao-Chung Kuo, Yu-Lun Chueh\*, 2023, “Design of Electrocatalytic Janus WSeS/WSe<sub>2</sub> Heterostructure Nanowall Electrodes with High Selectivity and Faradaic Efficiency for Nitrogen Reduction”, *Advanced Energy Materials*, in press (DOI: 10.1002/aenm.202301979).
26. Chun-Lung Huang, Zi-Fan He, Jui-Yu Pai, Yu-Hsiang Yang, Wen-Yang Jao, Chi-Yu Lai, Yi-Ting Lu, Hao-Yu Ku, **Chi-Chang Hu\***, 2023, 06, “Atomically well-mixed quad-metallic sulfide as multi-functional electrocatalyst for overall water electrolysis and zinc-air battery”, *Chemical Engineering Journal*, (vol. 469), 143855.
27. Chen-Wei Tai, Yi-Ting Lu, Tien-Yu Yi, Yu-Chien Liu, Yan-Shi Chen, **Chi-Chang Hu\***, 2023, 04, “A comprehensive study on the interactive effects of carbon crystallinity and electrochemical activation for KOH-modified soft carbons and their high-voltage supercapacitor application” *J. Electrochem. Soc.*, (vol. 170) 040526.
28. Zi-Fan He, Yi-Ting Lu, Tzu-Chien Wei\*, **Chi-Chang Hu\***, 2023, 04, 18, “Complementary Operando Electrochemical Quartz Crystal Microbalance and



- Ultraviolet–visible Spectroscopic Studies: Acetate Effects on Zinc-Manganese Batteries”, *ChemSusChem*, (vol. 16(12)), e202300259. (DOI: 10.1002/cssc.202300259)
29. Ming-Han Tsai, Yaju Juang, **Chi-Chang Hu**, Lap-Cuong Hua, Chihpin Huang\*, 2023, 04, 01, “The direct electrocatalytic oxidation of ammonia by copper-deposited nickel foam catalysts”, *Electrochim. Acta*, (vol. 446), 142130. (<https://doi.org/10.1016/j.electacta.2023.142130>)
  30. Chun-Cheng Lin, Zhen Chen, Holger Euchner, Tobias Eisenmann, Katrin Geng, Thomas Diemant, Shan Fang, Chih-Han Yen, Stefano Passerini\*, **Chi-Chang Hu\***, Dominic Bresser\*, 04, 2023, “Nanotwinned copper foil for “zero excess” lithium-metal batteries”, *ACS Applied Energy Materials*, (vol. 6) 2140-2150.
  31. Shao-Chi Lo, Tzu-Ming Cheng, **Chi-Chang Hu**, Chih-Huang Lai\*, 04, 2023, “Separation of tungsten and cobalt from cemented tungsten carbide by rapid breakdown anodization”, *Separation and Purification Technology*, (vol. 310) 123140.
  32. Hung-Yi Huang, Yi-Heng Tu, Yu-Hsiang Yang, Yi-Ting Lu, **Chi-Chang Hu\***, 02, 2023, “Dopant-designed conducting polymers for constructing a high-performance, electrochemical deionization system achieving low energy consumption and long cycle life”, *Chemical Engineering Journal*, (vol. 457) 141373.

## 2022

33. Yu-Hsiang Yang, Yi-Heng Tu, Hung-Yi Huang, **Chi-Chang Hu\***, 2022, “A high-capacity hybrid desalination system using battery type and pseudocapacitive type electrodes” *Desalination*, (vol. 545) 116160.
34. Sook Ting Chung, Yi-Heng Tu, Hung-Yi Huang, **Chi-Chang Hu\***, and De-Hao Tsai\*, 2022, “Aerosol Synthesis of Vanadium Oxide-Carbon Hybrid Nanoparticle Clusters for High-Performance Lithium Extraction via Electrochemical Deionization”, *ACS Sustainable Chem. Eng.* (vol. 10, 48) 15777-15790.
35. Chih-Han Yen, Alex R. Neale, Jungwoo Lim, Dominic Bresser, Laurence J. Hardwick\*, **Chi-Chang Hu\***, 2022, 11, “Corrosion suppression of aluminum current collectors within Li-ion cells using 3-methoxypropionitrile-based electrolytes”, *Electrochim. Acta*, (vol. 431) 141105.



36. Shang-Tzu Liu, Hao-Yu Ku, Chun-Lung Huang, **Chi-Chang Hu\***, 2022, 10, “Improvements in Li deposition and stripping induced by Cu (111) nanotwinned columnar grains”, *Electrochim. Acta*, (vol. 430) 141011.
37. Chih-Li Chang, Wei-Cheng Lin, Li-Yu Ting, Chin-Hsuan Shih, Shin-Yuan Chen, Tse-Fu Huang, Hiroyuki Tateno, Jayachandran Jayakumar, Wen-Yang Jao, Chen-Wei Tai, Che-Yi Chu, Chin-Wen Chen, Chi-Hua Yu, Yu-Jung Lu, **Chi-Chang Hu**, Ahmed M. Elewa, Takehisa Mochizuki, and Ho-Hsiu Chou\*, 2022, 09, “Main-chain engineering of polymer photocatalysts with hydrophilic non-conjugated segments for visible-light-driven hydrogen evolution”, *Nature Communications*, (vol. 13), 5460.
38. Julia, Fernández-Vidal, Ana Gómez-Marín, Leanne Jones, Chih-Han Yen, Tim Veal, Vinod Dhanak, **Chi-Chang Hu**, Laurence Hardwick, 2022, “Long-Life and pH Stable SnO<sub>2</sub> Coated Au Nanoparticles for SHINERS”, *J. Phys. Chem. C*, (vol. 126), 29, 12074-12081.
39. Yi-Heng Tu, Yen-Ching Tai, Jia-Yun Xu, Yu-Hsiang Yang, Hung-Yi Huang, Jen-Huang Huang\*, **Chi-Chang Hu\***, 2022, “Highly Efficient Water Purification Devices Utilizing the Microfluidic Electrochemical Deionization Technique”, *Desalination*, (vol. 538) 115928.
40. Chi-Yu Lai, Yi-Ting Lu, Wen-Yang Jao, Han-Yi Chen\*, **Chi-Chang Hu\***, 2022, “Near-neutral flexible zinc-air batteries with high power densities and long cycle life using chloride-based gel polymer electrolytes”, *Electrochem. Commun.*, (vol. 136) 107240.
41. Wen-Yang Jao, Yi-Ting Lu, Chi-Yu Lai, **Chi-Chang Hu\***, 2022, “Improved Oxygen Evolution and Oxygen Reduction Behavior of NiCo<sub>2</sub>O<sub>4</sub>: Revisiting the Use of Mesocarbon Microbeads”, *J. Electrochem. Soc.*, (vol. 169) 026515.

## 2021

42. Hao-Yu Ku, Yui-Ju Pai, Yi-Ting Lu, Li-Qian Wang, **Chi-Chang Hu\***, 2021, “Design of polyimide-based separators for effective suppression of self-discharge in non-aqueous electrical double layer capacitors”, *J. Power Sources*, (vol. 514) 230594. (<https://doi.org/10.1016/j.jpowsour.2021.230594>)
43. Zhi-Xiu Lin, Yi-Ting Lu, Chi-Yu Lai, **Chi-Chang Hu\***, 2021, “Polyvinyl alcohol-based gel electrolytes with high water content for flexible zinc-air batteries with high rate capability”, *J. Electrochem. Soc.*, (vol. 168) 100531.
44. Sook Ting Chung, Meng-Ting Chiang, Yiu Xuan Chin, **Chi-Chang Hu\***, De-Hao Tsai\*, 2021, “Controlled Aerosol-based Synthesis of Vanadium Oxides



- Nanoparticle for Supercapacitor Applications”, *J. Tw. Inst. Chem. Engr.*, (vol. 128) 220-226. (<https://doi.org/10.1016/j.jtice.2021.08.030>)
45. Jui-Yu Pai, Hao-Yu Ku, Chun-Cheng Lin, Chien-Wei Chiang, Laurence J. Hardwick\*, **Chi-Chang Hu\***, 2021, ”Porous polyimide separator promotes uniform lithium plating for lithium-free cells”, *Electrochemical Science Advances*, (vol. 1) in press. (<https://doi.org/10.1002/elsa.202100091>)
  46. Da-Je Hsu, Yu-Wen Chi, Kun-Ping Huang, **Chi-Chang Hu\***, 2021, “Synthesis and Characterization of Nitrogen-Doped Graphene Nanowalls by Plasma-Enhanced Chemical Vapor Deposition for High Voltage Supercapacitors: Effects of Carbon Sources”, *J. Electrochem. Soc.*, (vol. 168) 080505.
  47. Shu-Ju Chao, Ming-Han Tsai, Rui-Pei Yu, Lap-Cuong Hua, **Chi-Chang Hu**, Chihpin Huang\*, 2021, “Dezincification of brass water meters in a long term study: effects of anions, alkalinity, and residual chlorine”, *Environ. Sci.: Water Res. Technol.*, (vol. 7) 1666-1676. (DOI: 10.1039/d1ew00351h)
  48. Yi-Ting Lu, Alex R. Nealea, **Chi-Chang Hu\***, Laurence J. Hardwick\*, 2021, “Trapped interfacial redox introduces reversibility in the oxygen reduction reaction in a non-aqueous Ca<sup>2+</sup> electrolyte”, *Chemical Science*, (vol. 12) 8909-8919. (DOI: 10.1039/d0sc06991d).
  49. Tien-Yu Yi, Cheng-Wei Dai, **Chi-Chang Hu\***, 2021, 05, “A comparative study on binders for the expanded mesocarbon microbeads as the positive electrodes of lithium-ion capacitors”, *J. Power Sources*, (vol. 501) 230029 (<https://doi.org/10.1016/j.jpowsour.2021.230029>).
  50. Ren-Hao Guo, **Chi-Chang Hu\***, 2021, 05, 03, “The relationships among hydrogen adsorption, CO stripping, and selectivity of CO<sub>2</sub> reduction on Pd nanoparticles”, *J. Electrochem. Soc.*, (vol. 168) 054507.
  51. Ting-Hsuan You, **Chi-Chang Hu\***, Hui-Ching Chien, Tien-Yu Yi, 2021, 04, “A new methodology for evaluating the performances of electrocatalysts for rechargeable Li-O<sub>2</sub> batteries: (Ru-Sn)O<sub>2</sub>@graphene nanowalls/Ti electrodes as an example”, *Electrochem. Commun.*, (vol. 125) 107009 (<https://doi.org/10.1016/j.elecom.2021.107009>).
  52. Chih-Hung Lee, Yuan-Chang Huang, Uwe Kinzlinger, Daniel Esken, Yu-Han Lin, Ang-Ta Tsai, Hung-Chun Wu, Yen-Cheng Li, **Chi-Chang Hu\***, 2021, 04, “A Novel Cavity-Enhanced Polyethylene/Nanostructured-Alumina Separator with Long Cycle Life and High Rate Capability for Advanced Lithium-Ion Batteries”, *ACS Sustainable Chemistry & Engineering*, (vol. 9) 1590-1598 (<https://dx.doi.org/10.1021/acssuschemeng.0c06628>).



53. Tzu-Chien Chang, Yi-Ting Lu, Chih-Heng Lee, Jyoti Gupta, Laurence J. Hardwick, **Chi-Chang Hu**, Hsin-Yi Tiffany Chen\*, 2021, 03, “The Effect of Degrees of Inversion on the Electronic Structure of Spinel NiCo<sub>2</sub>O<sub>4</sub>: A DFT Study”, *ACS Omega*, (vol. 6) 9692-9699 (<https://doi.org/10.1021/acsomega.1c00295>).
54. Chi-Haw Chiang, Chun-Cheng Lin, **Chi-Chang Hu**\*, 2021, 03, “Effects of thiourea and allyl thiourea on the electrodeposition and microstructures of copper from methanesulfonic acid baths”, *J. Electrochem. Soc.*, (vol. 168) 032505.
55. Yi-Ting Lu, Alex Ryan Neale, **Chi-Chang Hu**\*, Laurence J. Hardwick\*, 2021, 02, “Divalent non-aqueous metal-air batteries”, *Frontiers in Energy Research*, (vol. 8) 602918 (<https://doi.org/10.3389/fenrg.2020.602918>).
56. Shi-Kung Chen, Kuo-Hsin Chang, Chun-Han Hsu, Zheng-Yi Lim, Fang-Yi Du, Kai-Wen Chang, Mong-Chen Chang, Hong-Ping Lin\*, **Chi-Chang Hu**, Chih-Yuan Tang, Ching-Yen Lin, 2021, 01, 15, “Synthesis of Mesoporous Carbon Platelets of High Surface Area and Large Porosity from Polymer Blends-Calcium Phosphate Nanocomposites for High-Power Supercapacitor”, *Journal of the Chinese Chemical Society*, (vol. 68) 462-468 (<https://doi.org/10.1002/jccs.202000510>).
57. Yi-Heng Tu, Yu-Hsang Yang, **Chi-Chang Hu**\*, 2021, 01, “A highly efficient faradaic desalination system utilizing MnO<sub>2</sub> and polypyrrole-coated titanium electrodes”, *Desalination*, (vol. 498) 114807 (<https://doi.org/10.1016/j.desal.2020.114807>).
58. Jui-Yu Pai, Cheng-Ta Hsieh, Chih-Hung Lee, Jeng-An Wang, Hao-Yu Ku, Chun-Lung Huang, Laurence J. Hardwick\*, **Chi-Chang Hu**\*, 2021, 01, “Engineering of electrospun polyimide separators for electrical double-layer capacitors and lithium-ion cells”, *J. Power Sources*, (vol. 482) 229054 (<https://doi.org/10.1016/j.jpowsour.2020.229054>).

## 2020

59. Saustin Dongmo, Julian Jakob Alexander Kreissl, Kohei Miyazaki, Takeshi Abe, Ting-Hsuan You, **Chi-Chang Hu**, Daniel Schröder\*, 2020, 11, “Reproducible and Stable Cycling Performance Data on Secondary Zinc-Oxygen Batteries”, *Scientific Data*, (vol. 7) 395 (<https://doi.org/10.1038/s41597-020-00728-3>).
60. Ren-Hao Guo, **Chi-Chang Hu**\*, Arumugam Manikandan, Yu-Lun Chueh, 2020, 08, “Electrochemical reduction of CO<sub>2</sub> to formate on glacial acetic acid-refluxed



- Pd nanoclusters”, *J. Electrochem. Soc.*, (vol. 167) 126507 (<https://doi.org/10.1149/1945-7111/abad65>).
61. Tien-Yu Yi, Cheng-Wei Dai, Jeng-An Wang, Chen-Chi M. Ma\*, **Chi-Chang Hu\***, 08, 2020, “Electrochemical Activation and Capacitance Enhancement of Expanded Mesocarbon Microbeads for High-Voltage, Symmetric Supercapacitors”, *Electrochim. Acta*, (vol. 359) 136941.
  62. Chun-Cheng Lin and **Chi-Chang Hu\***, 2020, “The ultrahigh-rate growth of nanotwinned copper induced by thiol organic additives”, *J. Electrochem. Soc.*, (vol. 167) 082505 (DOI: 10.1149/1945-7111/ab897c).
  63. Yun Wei, Ren-Hau Guo, **Chi-Chang Hu\***, 2020, “Enhancing the selectivity of CO formation for electrochemical reduction of CO<sub>2</sub> on tin(IV) oxide-based catalysts”, *J. Tw. Inst. Chem. Engr.*, (vol. 111) 337-345.
  64. Tzu-Ho Wu, Ivan Scivetti\*, Jia-Cing Chen, Jeng-An Wang, Gilberto Teobaldi, **Chi-Chang Hu\***, Laurence J. Hardwick\*, 2020, “Quantitative Resolution of Complex Stoichiometric Changes During Electrochemical Cycling by Density Functional Theory Assisted, Electrochemical Quartz Crystal Microbalance”, *ACS Applied Energy Materials*, (vol. 3) 3347-3357.
  65. Chun-Chia Hsu, Yi-Heng Tu, Yu-Hsiang Yang, Jeng-An Wang, **Chi-Chang Hu\***, 2020, “Improved performance and long-term stability of activated carbon doped with nitrogen for capacitive deionization”, *Desalination*, (vol. 481) 114362 (<https://doi.org/10.1016/j.desal.2020.114362>).
  66. Jeng-An Wang, Chen-Chi M. Ma\* and **Chi-Chang Hu\***, 2020, 02, “Constructing a high-performance quasi-solid-state asymmetric supercapacitor: Na<sub>x</sub>MnO<sub>2</sub>@CNT/WPU-PAAK-Na<sub>2</sub>SO<sub>4</sub>/AC-CNT”, *Electrochimica Acta*, (vol. 334) 135576.

## B. Conference Presentations

### 2024

1. **Chi-Chang Hu**, “Energy Storage Techniques in Laboratory of Electrochemistry & Advanced Materials at National Tsing Hua University in Taiwan”, Tohoku University-CRCGP-MSSP2024 & the International Joint Graduate Program in Materials Science, Sendai, Japan, Nov. 18-21, 2024 (**Keynote lecture**).
2. **Chi-Chang Hu**, Yi-Heng Tu, Yu-Hsiang Yang, Hung-Yi Huang, “Designs of Energy Storage Electrode Materials and Engineering of Faradaic Deionization



- Devices for Water Desalination”, TIChE Annual Meeting, Taoyuan, Taiwan, Nov. 9-10, 2024 (**Keynote lecture**).
3. **Chi-Chang Hu**, Hao-Yu Ku, Yun Ku, Chi-Yu Lai, Hsiang Sheng Wei, Hung-Hsin Shih, Kun-Ping Huang, “Vertically Grown Graphene Layers for Promoting Uniformity of Lithium Deposits on Copper Substrates for Lithium Metal Batteries”, The 2024 International Conference on Green Electrochemical Technologies, Taichung, Taiwan, Nov. 7-9, 2023 (**Conference chair & invited lecture**).
  4. **Chi-Chang Hu**, Yi-Heng Tu, Yu-Hsiang Yang, Hung-Yi Huang, “Constructing Membrane-Free Faradaic Deionization Systems with High Capacity and High Rate of Salt Removal/Recovery”, The PRiME 2024, Honolulu, Hawaii, USA, Oct. 6-11, 2024 (**Invited Lecture**).
  5. **Chi-Chang Hu**, Liang-Chieh Tseng, Chen-Wei Tai, Chih-Yu Ku, Yan-Shi Chen, “Novel Electrochemical Pre-lithiation Methods for Amorphous Carbon Negative Electrodes of Lithium-ion Capacitors”, ISEECAP2024, Vitoria-Gasteiz, Spain, July 8-12, 2024 (**Keynote lecture**).
  6. **Chi-Chang Hu**, “A Journey in Developing/Designing Pseudocapacitive Materials”, Asia Conference on Electrochemical Power Sources (ACEPS12), Osaka, Japan, May 19-22, 2024 (**Plenary lecture**).

## 2023

7. **Chi-Chang Hu**, Hao-Yu Ku, Jui-Yu Pai, Chien-Wei Chiang, “Designs of polymer fibrous functional layers for the negative electrode of “zero excess” lithium-metal batteries”, The 64th Japan Batteries Symposium, Osaka, Japan, Nov. 28-30, 2023.
8. **Chi-Chang Hu**, Yi-Heng Tu, Yu-Hsiang Yang, Hung-Yi Huang, “Electrode Materials Designs from Energy Storage to Water Desalination”, The 2023 Materials Research Society-Taiwan International Conference (2023 MRSTIC), Hsinchu, Taiwan, Nov. 17-20, 2023 (**Keynote lecture**).
9. **Chi-Chang Hu**, Chen-Wei Tai, Liang-Chieh Tseng, Yan-Shi Chen, “Amorphous Carbons for The High-Voltage Supercapacitor Application: Interactive Effects of Crystallinity and Electrochemical Activation”, The 2023 International Conference on Green Electrochemical Technologies, Taipei, Taiwan, Oct. 26-28, 2023 (**Conference Chair & Keynote Lecture**).
10. **Chi-Chang Hu**, Yi-Ting Lu, Wen-Yang Jao, Chen-Wei Tai, “Electrochemical Activation for Non-aqueous Carbon-based Supercapacitors”, The 7th



International Conference on Advanced Capacitors, 7th International Conference on Advanced Capacitors. Kamakura, Japan, Sept. 26–29, 2023 (**Keynote lecture & International Advisory Board**).

11. **Chi-Chang Hu**, Hung-Yi Huang, Yi-Heng Tu, Yu-Hsiang Yang, Yi-Ting Lu, “A High Performance Low Energy Consumption Electrochemical Deionization System Using Polypyrrole on Both Electrodes”, The 74th Annual ISE Meeting, Lyon, France, Sept. 3-8, 2023 (**Invited Lecture**).
12. **Chi-Chang Hu**, Yi-Heng Tu, Yu-Hsiang Yang, Hung-Yi Huang, Sook Ting Chung, Yi-Ting Lu, De-Hao Tsai, “How to construct electrochemical deionization systems with high capacity and high rate of salt removal but without membranes”, the 6th Battery Deionization & Electrochemical Separation (BDI&E 2023), Taipei, Taiwan, July 2-6, 2023.
13. **Chi-Chang Hu**, Chi-Yu Lai, Zhi-Xiu Lin, Yi-Ting Lu, “Engineering the Water Content of Polyvinyl Alcohol-Based Gel Electrolytes for High-Rate, Flexible Zinc-Air Batteries”, 35th Topical Meeting of the ISE, Gold Coast, Australia, May 7-10, 2023.
14. **Chi-Chang Hu**, Hao-Yu Ku, Chih-Han Yen, “Improvements in Li deposition/stripping induced by Cu (111) nanotwinned columnar grains & Al current collector corrosion suppression in Li-ion cells using 3-MPN co-solvent”, 2023 Taiwan-Germany Joint Workshop on Advanced Lithium-Ion Battery Technologies, New Taipei, Taiwan, May 01-03, 2023.
15. **Chi-Chang Hu**, Cheng-Wei Dai, Tien-Yu Yi, Da-Je Hsu, Ching-Fang Liu, Yu-Chien Liu, Yan-Shi Chen, Ping-Chieh Wang, “Design of Carbon Materials for High-Voltage Supercapacitors”, 1st International Symposium on Carbon Materials (2023 ISCM-1) for Energy, Environment, Sustainability, and Bio-applications, Tainan, Taiwan, Jan. 31-Feb. 3, 2023 (**Plenary Lecture & Organizing Committee**).

## 2022

16. **Chi-Chang Hu**, Hao-Yu Ku and Yui-Ju Pai, “Designs of Electrospun Polyimide-based Separators for Supercapacitors and Li-ion Batteries”, Asia Conference on Electrochemical Power Sources (ACEPS11), Singapore, December 11-14, 2022 (**Keynote lecture**).
17. Zi-Fan He, Tzu-Chien Wei, **Chi-Chang Hu**, “Complementary Operando Electro- chemical Quartz Crystal Microbalance and Ultraviolet–visible Spectroscopic Studies: Mechanistic Transition of Zinc-Manganese Batteries”,



- Asia Conference on Electro- chemical Power Sources (ACEPS11), Singapore, December 11-14, 2022.
18. **Chi-Chang Hu**, Chih-Han Yen, Chen-Wei Tai, Laurence Hardwick, “Novel electrode materials and electrolytes for the negative electrode of lithium batteries”, 2022 Taiwan-Germany Joint Workshop on Advanced Lithium-Ion Battery Technologies, Munster, Germany, November 14-25, 2022.
  19. Yi-Heng Tu, **Chi-Chang Hu**, “A highly efficient faradaic desalination system utilizing MnO<sub>2</sub> and polypyrrole-coated titanium electrodes”, The 2022 International Conference on Green Electro- chemical Technologies, Hsin-Chu, Taiwan, November, 10-12, 2022. (**Conference Chair**)
  20. Chih-Han Yen, Laurence Hardwick, **Chi-Chang Hu**, “Investigating dendrite suppression gel polymer layer for upgrading conventional electrolyte in lithium metal batteries”, The 2022 International Conference on Green Electrochemical Technologies, Hsin-Chu, Taiwan, November, 10-12, 2022.
  21. Zi-Fan He, Tzu-Chien Wei, **Chi-Chang Hu**, “Complementary operando electrochemical quartz crystal microbalance and ultraviolet–visible spectroscopic studies: acetate effects on zinc-manganese batteries”, The 2022 International Conference on Green Electro- chemical Technologies, Hsin-Chu, Taiwan, November, 10-12, 2022.
  22. **Chi-Chang Hu**, Chen-Wei Tai, Ping-Chieh Wang, An-Pang Tu, “Design of Hard Carbon Beads with a Large Plateau Capacity of Li-ion Storage for Li-ion Batteries and Li-ion Capacitors”, The 73rd ISE Annual Meeting, Xiamen, China, Sept. 11-16, 2022.
  23. **Chi-Chang Hu**, Hao-Yu Ku, Jui-Yu Pai, “Designs of Electrospun Polyimide-based Separators for Energy Storage Devices”, 2022 International Conference on Hierarchical Green Energy Materials, Tainan, Taiwan, Jan. 17-18, 2022 (**Keynote lecture**).

## 2021

24. **Chi-Chang Hu**, “Designs of Electrospun Polyimide-based Separators for Energy Storage Devices”, The International Conference on Clean Technology 2021, Gyeongsan, South Korea, December 23, 2021 (**Keynote lecture**).
25. **Chi-Chang Hu**, Chih-Han Yen, Shang-Tzu Liu, Hao-Yu Ku, Chih-Heng Lee, Hsing-Yi Tiffany Chen, Laurence Hardwick, “Crystal facet control of copper foils for anode-free LBs”, 2021 Taiwan-Germany Joint Workshop on Advanced Lithium-Ion Battery Technologies, Tainan, Taiwan, Dec. 14-15, 2021.



26. **Chi-Chang Hu**, Da-Je Hsu, Yu-Wen Chi, Kun-Ping Huang, “Hydrogen responses on graphene@platinum clusters electrodes with graphene prepared by plasma-enhanced chemical vapor deposition”, The 12th Asia-Pacific International Symposium on the Basics and Applications of Plasma Technology (APSPT-12), Taipei, Taiwan, Dec. 9-11, 2021.
27. **Chi-Chang Hu**, “Separator designs for energy storage devices”, 2021 International Seminar of Advanced Lithium-ion Battery and Hydrogen Fuel Cell Electrochemical Energy Storage, Tainan, Taiwan, Dec. 7-8, 2021 (**Invited Lecture**).
28. **Chi-Chang Hu**, “Development of bi-functional catalysts for rechargeable metal-air batteries”, National Tsing Hua University & University of Liverpool 10th Bilateral Workshop, Hsin-Chu, Taiwan, Dec. 6, 2021 (**Invited Lecture**).
29. **Chi-Chang Hu**, Chun-Cheng Lin, Shang-Tzu Liu, Siang-Sheng Wei, “Electroplating of Copper with Microstructure Control and The Applications to Energy Storage Systems”, The 30th Topical Meeting of the International Society of Electrochemistry, Taipei, Taiwan, Nov. 21-24, 2021.
30. **Chi-Chang Hu**, Shang-Tzu Liu, Chun-Cheng Lin, Siang-Sheng Wei, Jui-Yu Pai, “Crystalline Facet Control of Electroplated Copper Foils for Energy Storage Applications”, INTERFINISH2020, Nagoya, Japan, Sept. 6-8, 2021 (**Invited Lecture**).
31. **Chi-Chang Hu**, Jui-Yu Pai, Cheng-Ta Hsieh, Hao-Yu Ku, Laurence J. Hardwick, “Electrospun Polyimide-copolymer Separators Designed for Electrical Double-Layer Capacitors and Lithium-ion Cells”, The 72nd ISE Annual Meeting, Jeju Island, South Korea, Aug. 29th-Sept. 3rd, 2021 (**Coordinator of Symposium 25**).

## 2020

32. **Chi-Chang Hu**, “Design of a Novel Polymer as the Electrolyte and Binder for Flexible Supercapacitors”, Advanced Materials Lecture Series 2020, Stockholm, Sweden, December 11, 2020 (**International Association of Advanced Materials (IAAM) Fellow Lecture**).
33. **Chi-Chang Hu**, Tien-Yu Yi, Jeng-An Wang, Chen-Chi M. Ma, “Electrochemical Activation of Expanded Mesocarbon Microbeads Using Polyurethane-Crosslinked Polyacrylic Acid as a Binder for High-Voltage Symmetric Supercapacitors“, The 2020 International Conference on Green



Electrochemical Technologies, Taichung, Taiwan, November, 26-28, 2020  
(**Keynote lecture**).

34. **Chi-Chang Hu**, Chi-Feng Hsieh, Yi-Jing Chen, Chun-Chia Hsu, Ching-Fang Liu, “Porous carbon materials for electrochemical capacitive deionization”, Materials Engineering and Nanotechnology Conference, Singapore, November 26, 2020 (**Keynote lecture**).
35. **Chi-Chang Hu**, “Separator designs for energy storage devices”, 2020 Taiwan-Germany Joint Workshop, Taipei, November 10-12, 2020.

### C. Patents

1. Republic of China Patent, I703595, 用於高電壓超電容之軟碳材料的製備方法及非對稱式超級電容器 (2021)。
2. Japan Patent, Application number: 2023-004524 (優先權日(申請號): 2022/11/11 (111143226) 特許出願の番号 特願 2023-004524), 軟碳材料之負極的預鋰化方法及其超級電容(2024/2/19 獲證)。
3. US Patent 11,830,673B2, METHOD OF PREPARING SOFT CARBON MATERIAL FOR HIGH-VOLTAGE SUPERCAPACITOR AND ASYMMETRICAL SUPERCAPACITOR (Nov. 28, 2023 獲證).
4. Republic of China Patent, I763592, 硬碳微珠、其製法及包含其之儲能裝置 (2022)。
5. US Patent, APPLICATION NUMBER: 17/522,151, FILING DATE: 11/09/2021, “HARD CARBON BEADS, THEIR PREPARATION, AND ENERGY STORAGE DEVICE COMPRISING THE SAME” (2023 獲證).
6. PRC Patent, APPLICATION NUMBER: 202111120064.1, FILING DATE: 2021.11.12; 硬碳微珠、其製法及包含其之儲能裝置/HARD CARBON BEADS, THEIR PREPARATION, AND ENERGY STORAGE DEVICE COMPRISING THE SAME.
7. Republic of China Patent, Application No. 111101862 (January 17, 2022), 前驅溶液及包含其的改質膜與鋰系電池.
8. PRC Patent, 發明申請第 202210047582.3 號「前驅溶液及包含其的改質膜與鋰系電池」專利.
9. US Patent, Application No. 17/699,677, PRECURSOR SOLUTION, AND MODIFIED LAYER AND LITHIUM-BASED BATTERY PREPARED BY USING THE SAME. (2024 獲證)。
10. Republic of China Patent, Application No. 111101862 (January 17, 2022), NON-MEMBRANE DEIONIZATION AND ION-CONCENTRATING



APPARATUS AND NON-MEMBRANE DEIONIZATION AND ION-CONCENTRATING MODULE (2023 獲證).

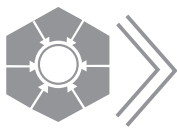
11. US Patent, Application number, 17/938,679; NON-MEMBRANE DEIONIZATION AND ION-CONCENTRATING APPARATUS AND NON-MEMBRANE DEIONIZATION AND ION-CONCENTRATING MODULE.

#### D. Other

1. 2021/12-present, President, The Electrochemical Society of Taiwan.
2. 2024 年獲侯金堆榮譽講座教授。
3. 2024 年獲國立清華大學「清華-信驛科技傑出人才講座教授」。
4. 2024 年獲「英國皇家化學會」(Royal Society of Chemistry)會士。
5. 2024 年獲「台灣化工學會」會士。
6. 2022-2024 年 Materials Science 領域 Taiwan Leader (Research.com)。
7. 2020-2024 名列全球 Top 2% Scientists (單年與整體研究生涯數據)。
8. 2023- Alumni Outstanding Achievement Award, Department of Chemical Engineering, National Cheng Kung University, Taiwan.
9. 2022 年獲台灣化工學會金開英先生獎。
10. 2022- Bronze medal Award, Wah Lee Innovative Materials Contest, Materials Research Society-Taiwan (MRS-T), Taiwan.
11. 2022 - Research.com Chemistry in Taiwan Leader Award (Research.com).
12. 2020 年獲中國工程師學會傑出工程教授
13. 2020, Fellow, The International Association of Advanced Materials (IAAM).
14. 2015-2020, Tajima Prize Evaluation Committee Member, International Society of Electrochemistry.
15. 2006-present, Member of the Editorial Board, Journal of the Taiwanese Institute of Chemical Engineers (indexed by SCI).
16. 2015-present, Editorial Advisory Board Member, Journal of Power Sources (indexed by SCI).
17. 2021 年指導博士生涂易恆獲第 58 屆台灣化工年會學生英文論文競賽口頭報告組優勝 (2022/1 月)。
18. 2021 年指導博士生饒文揚、碩士生劉上慈、碩士生江健瑋獲第 58 屆台灣化工年會學生壁報論文競賽優勝 (2022/1 月)。
19. 2020 年指導博士生涂易恆獲第 57 屆台灣化工年會學生英文論文競賽口頭報告組佳作 (10 月)。



20. 2022 年指導博士生涂易恆獲科技部千里馬國際訪問研究補助 11 個月，預計 2023/02 前往荷蘭 Wageningen University 訪問研究。
21. 2022 年指導碩士生陳雯華獲得國立清華大學國際交換生補助 6 個月，前往德國 KIT。(2022/02-2022/08)
22. 2021 年指導博士生顏志翰獲科技部-德國科技部訪問研究補助 9 個月，前往德國 HIU。
23. 2023 年指導博士生黃弘逸獲 2023 綠色電化學研討會英文論文競賽口頭報告組第一名、博士生饒文揚獲第二名；博士生戴呈瑋、賴祈佑、碩士生吳亞璇、李偉琳獲學生壁報論文競賽優勝，博士生何子凡、碩士生陳詩樺獲佳作。
24. 2024 年指導博士生魏祥昇、王廷鈺獲 2024 綠色電化學研討會英文論文競賽口頭報告組佳作；博士生黃弘逸、古昀、鄒旭，碩士生林昀、吳孟霏獲學生壁報論文競賽優勝。
25. 2025 年指導碩士生林昀獲 2025 台灣碳材料研討會英文論文競賽口頭報告組第一名、博士生古昀獲第四名；指導碩士生梁景程獲學生壁報論文競賽第一名。



## Publications of Yu-Chen Hu (胡育誠)

\*: Corresponding author; IF: 2023 Impact factor

### A. Journal Papers (\* Corresponding author)

#### Submitted and in press

1. Tien, T.-L, Chen, P.-Y., Chen, P.-H., Nguyen, N.T.K., Dang, Q.T., Truong, V.A., **Hu, Y.-C.\***. Engineering human PEG10-based nanoparticles for RNA self-packaging, delivery and cancer therapy. Submitted.
2. Yang, S.-W., Liao, M.-F., Wang, T.-W., Hung, Y.-H., Lee, Y.-L., Dang, Q.-T., Chen, P.-Y., Ro, L.-S\*, and **Y.-C. Hu\***. RNA-guided activation of IL-10 in adipose-derived stem cells regulates inflammation and attenuates neuropathic pain. Submitted to Cell Report Medicine.
3. Chiang, C.-W., Tung, Y.-T., Huang, S.-C., Chen, Y.-C., **Hu, Y.-C.\***. High-titer green synthesis of  $\omega$ -hydroxydodecanoic acid by engineering *C. viswanathii* with CRISPR/Cas13d. Submitted to Bioresource Technology (**IF 9.7**).

#### 2024

4. Truong, V.A., Chang, Y.H., Dang, T.Q., Tu, Y., Tu, J., Chang, C.-W., Chang, Y.H., **Hu, Y.-C.\***. 2024. Sep. Programmable editing of primary microRNA switches stem cell differentiation and improves tissue regeneration. Nature Communications. 15:8358 (**IF 14.7**).
5. Chang, C.-W., Truong, V.A., Pham, N.N, **Hu, Y.-C.\***. 2024. Aug. RNA-guided genome engineering: paradigm shift towards transposons. Trends in Biotechnology. 42: 970-985 (**IF 14.3**) **Review paper**
6. Nguyen, NTK, Lee, H.-S., P.-H. Chen, Truong, V.A., Chang, Y.-H., Pham, N.N., Chang, C.-W., Pham, D.-H., Ngo, DKT, Truong, V.A., Dang, Q.T., Chang, Y.-H., **Hu, Y.-C.\***. 2024 May. Enhanced calvarial bone repair using ASCs engineered with RNA-guided Split dCas12a system that co-activates Sox5, Sox6 and long non-coding RNA *H19*. Small. 20: 2306612 (**Invited paper, IF 13**).
7. Pham, N.N., Wu, Y.H., Dai, T.A. Tu, J., Liang, R.-M., Hsieh, H.-Y., Chang, C.-W., **Hu, Y.-C.\***. 2024 Sep. Auto-inducible synthetic pathway in *E. coli* enhanced sustainable indigo production from glucose. Metabolic Engineering. 85: 14-25 (**IF 6.8**).



## 2023

8. Nguyen, NTK, Tu, Y., Lee, H.-S., Truong, V.A., Chang, Y.-H., Pham, N.N., Chang, C.-W., Lin, Y.-H., Lai, P.-L., Chen, P.-H., Parfyonova, Y.V., Menshikov, M., Chang, Y.-H., **Hu, Y.-C.\***. 2023 June Split dCas12a activator for lncRNA H19 activation to enhance BMSC differentiation and promote calvarial bone healing. *Biomaterials*. 297:122106. (IF 12.8).
9. Pham, N. N., Chang, C.-W., Chang, Y.-H., Tu, Y., Chou, J.-J., Wang, H.Y. and **Hu, Y.-C.\***. 2023 May. Rational genome and metabolic engineering of *Candida viswanathii* by split CRISPR to produce hundred grams of dodecanedioic acid. *Metabolic Engineering*. 77:76-88. (IF 6.8).
10. Chang, C.-W., Huang, J.-W., Lu, Y.-H., Pham, N. N., Tu, J., Tung, Y.-T., Yen, C.-Y., Shen C.-C. Chien, M.-C. Tu, Y., Lin, Y.-H., Yang, S.-W., Nguyen, M.T.T. and **Hu, Y.-C.\***. 2023 March. Metabolic engineering of difficult-to-edit *E. coli* to enhance protein production by coupling ShCAST-based optimized transposon system and CRISPR interference. *Journal of the Taiwan Institute of Chemical Engineers*. 144: 104746 (IF 5.5).
11. Michurina, S., Stafeev, I., Boldyreva, M., Truong, V.A., Ratner, E., Menshikov, M., **Hu, Y.-C.**, Parfyonova, Y. 2023 Feb. Transplantation of adipose tissue-engineered constructs with CRISPR-mediated UCP1 activation. *International Journal of Molecular Sciences*. 24: 3844 (IF 4.9)

## 2022

12. Truong, A.V., Lin, Y.-H., Nguyen, TKN, Hsu, M.-N., Pham, N.N., Chang, Y.-H., Chang, C.-W., Shen, C.-C., Lai, P.-L., Parfyonova, Y.V., Menshikov, M., Wu, J.-C., Chang, Y.-H., **Hu, Y.-C.\***. 2022 Jan. Bi-directional gene activation and repression promote ASC differentiation and enhance bone healing in osteoporotic rats. *Molecular Therapy*. 30: 92-104. (IF 12.1).
13. Chang, C.-W., Wang, L.-S., Pham, N. N., Shen C.-C., Nguyen, TKN, Yen, C.-Y., Lin, M.-W., Hsu, M.N., Nguyen, M.T.T., Hwu, J.-R., Chang, Y.-H. and **Hu, Y.-C.\***. 2022. Feb. Synthetic biology approach to developing all-in-one baculovirus vector using mammalian introns and miRNA binding sites. *Journal of the Taiwan Institute of Chemical Engineers*. 131: 104175. (IF 5.5).
14. Li, H., Pham, N.N., Shen, C.R., Chang, C.-W., Tu, Y., Chang, Y.-H., Tu, J., Nguyen, M.T.T., **Hu, Y.-C.\***. 2022 June. Combinatorial CRISPR interference library for enhancing 2,3-BDO production and elucidating key genes in



- cyanobacteria. *Frontiers in Bioengineering and Biotechnology*, 10: 913820 (**IF 4.3**).
15. Makarevich, P.I\* and **Hu, Y.-C.** 2022. Editorial: Regulation of adult stem cells fate and function in natural and artificial microenvironments. *Frontiers in Cell and Developmental Biology*, 10:955568 (**IF 4.6**).
  16. Liu, Y.-C., **Hu, Y.-C.**, Chu, I.-M., Wei, Y.-H., Tsai, S.-L\*. 2022 Feb. Biodegradation of tetramethylammonium chloride wastewater and inorganic nitrogen removal by a mixed culture. *Journal of Environmental Chemical Engineering*. 10: 106931. (**IF 7.4**)
  17. Stafeev, I.S., Boldyreva, M.A., Michurina, S.S., Agareva, M.Y., Radnaeva, A.V., Menshikov, M.Y., **Hu, Y.-C.**, Makarevich, P.I., Parfyonova, Y. 2022 Nov. Impaired glucose tolerance and efficacy of HGF/VEGF gene therapy for limb ischemia: shift from angiogenesis to axonal growth and oxidative potential in skeletal muscle. *Cells*. 11: 3824 (**IF 5.1**).
  18. Hwu, J.-R., Kapoor, M., Gupta, N.K., Tsay, S.-C., Huang, W.-C., Tan, K.-T., **Hu, Y.-C.**, Lyssen, P., Neyts, J. 2022 Mar. Synthesis and antiviral activities of quinazolinamine–coumarin conjugates toward chikungunya and hepatitis C viruses. *European Journal of Medicinal Chemistry*. 232: 114164 (**IF 6.0**)

## 2021

19. Nguyen, TKN, Chang, Y.-H., Truong, A.V., Hsu, M.-N., Pham, NN, Chang, C.-W., Wu, Y.-H., Chang, Y.-H., Li, H., **Hu, Y.-C.\***. 2021 Aug. CRISPR activation of long non-coding RNA DANCR promotes bone regeneration. *Biomaterials*. 275: 120965 (**IF 12.8**).
20. Klionsky, D., Abdel-Aziz, A.K., **Hu, Y.-C.**, et al. 2021 Feb. Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition). *Autophagy*. 17:1-382. (**IF 14.6, High Cite Paper, WOS Hot paper**). **Review paper**.
21. Chang, Y.-H., Lin, M.-W., Chien, M.-C., Ke, G.-M., Wu, I.-E., Lin, R.-L., Lin, C.-Y., **Hu, Y.-C.\***. 2021 Oct. Polyplex nanomicelle delivery of self-amplifying RNA vaccine. *Journal of Controlled Release*. 338: 694-704. (**IF 10.5, Invited paper**).
22. Lin, M.-W., Shen, C.-C., Lin, Y.-J., Chou, M.-Y., Pham, N.-N., Chang, Y.-H., Chang, C.-W., Hwu, J.-R., Nguyen, M.T.T., **Hu, Y.-C.\***. 2021 April. Enhancing the yield and activity of defucosylated antibody produced by CHO-K1 cells using Cas13d-mediated multiplex gene targeting. *Journal of the Taiwan*



Institute of Chemical Engineers.121: 38-47. **(IF 5.5, selected as Best paper)**.

23. Hwu, J.-R., Panja, A., Gupta, N.K., Huang, W.-C., **Hu, Y.-C.**, Lin, C.-C., Hwang, K.-C., Chan, W.-J., Tsay, S.-C. 2021 April. Asymmetric synthesis of 3-pyrrolines through an aryne-induced domino process. *Asian Journal of Organic Chemistry*. 10: 803-815 **(IF 2.8)**.
24. Hwu, J.-R., Panja, A., Gupta, N.K., **Hu, Y.-C.**, Tan, K.-T., Lin, C.-C., Hwang, K.-C., Hsu, M.-H., Huang, W.-C., Tsay, S.-C. 2021 Jan. Domino Processes of Arynes Reacting with Three Classes of Nucleophiles for Organic Syntheses. *European Journal of Organic Chemistry*. 4: 683-693. **(IF 2.5)**.

## 2020

25. Hsu, M.-N., Yu, F.-J., Chang, Y.-H., Huang, K.-L., Pham, N. N., Troung, A.V., Lin, M.-W., Nguyen, N.T.K., Hwang, S.-M., **Hu, Y.-C.\*** 2020 Sep. CRISPR interference-mediated Noggin knockdown promotes BMP2-induced osteogenesis and calvarial bone healing. *Biomaterials*. 252: 120094. **(IF 12.8)**.
26. Hsu, M.-N., Huang, K.-L., Yu, F.-J., Lai, P.-L., Troung, A.V., Lin, M.-W., Nguyen, N.T.K., Shen, C.-C., Hwang, S.-M., Chang, Y.-H., **Hu, Y.-C.\*** 2020 Feb. Co-Activation of endogenous Wnt10b and Foxc2 by CRISPR activation enhances BMSCs osteogenesis and promotes calvarial bone regeneration. *Molecular Therapy* 28: 441-451 **(IF 12.1)**.
27. Pham, N. N., Chen, C.-Y., Li, H., Nguyen, M.T.T., Nguyen, K.P.P., Tsai, S.-L., Chou, J.-Y., Ramli, T.C., **Hu, Y.-C.\***. 2020 April. Engineering stable *Pseudomonas Putida* S12 by CRISPR for 2,5-furandicarboxylic acid (FDCA) production. *ACS Synthetic Biology*. 9: 1138-1149 **(IF 3.7)**.
28. Shen, C.-C., Lin, M.-W., Nguyen, B.K.T., Chang, C.-W., Shih, J.-R., Nguyen, M.T.T., Chang, Y.-H., **Hu, Y.-C.\***. 2020 Sep. CRISPR-Cas13d for gene knockdown and engineering of CHO cells. *ACS Synthetic Biology*. 9, 2808–2818 **(IF 3.7)**.
29. Srinivaas, M., Wu, C.-Y., Duh, J.-G., **Hu, Y.-C.**, Wu, J.-M. 2020 Jan. Multi-walled carbon nanotubes decorated tungsten ditelluride nanostars as anode material for lithium-ion batteries. *Nanotechnology* 31: 035406 **(IF 2.9)**.
30. Hwu, J.-R., Panja, A., Jayakumar, S., Tsay, S.-C., Tan, K.-T., Huang, W.-C., **Hu, Y.-C.**, Leyssen, P., Neyts, J. 2020 Aug. Enterovirus inhibition by hinged aromatic compounds with polynuclei. *Molecules*. 25: 3821. **(IF 4.2)**
31. Oh, M-K, Sakai, Y., **Hu, Y.-C.** 2020 June. Asian Congress on Biotechnology 2019. *Biotechnology Journal*. 2020, 15: 2000214. **(IF 3.2)**



32. Hwu, J.-R., Roy, A., Panja, A., Huang, W.-C., **Hu, Y.-C.**, Tan, K.-T., Lin, C.-C., Hwang, K.-C., Hsu, M.-H., Tsay, S.-C. 2020 Aug. Domino reaction for the synthesis of polysubstituted pyrroles and Lamellarin R. *Journal of Organic Chemistry*. 85: 9835-9843. (IF 3.3).

## 2019

33. Hsu, M.-N., Chang, Y.-H., Truong, V. A., Nguyen, N.T.K., **Hu, Y.-C.\*** 2019 Dec. CRISPR technology for stem cell engineering and regenerative medicine. *Biotechnology Advances* 37:107447. (IF 12.1). (review)
34. Hsu, M.-N., **Hu, Y.-C.\***. Local magnetic activation of CRISPR. 2019 Feb. **Nature Biomedical Engineering**. 3: 83-84. (IF 26.8).
35. Truong, V. A., Hsu, M.-N., Nguyen, N.T.K., Lin, M.-W., Shen, C.-C., Lin, C.-Y., **Hu, Y.-C.\*** 2019. July. CRISPRai for simultaneous gene activation and inhibition to promote stem cell chondrogenesis and calvarial bone regeneration. *Nucleic Acids Research*. 47: e74 (IF 16.6).
36. Shen, C.-C., Hsu, M.-N., Chang, C.-W., Lin, M.-W., **Hu, Y.-C.\***. 2019 Feb. Synthetic switch to minimize CRISPR off-target effects by self-restricting Cas9 transcription and translation. *Nucleic Acids Research*. 47: e13 (IF 16.6).
37. Hsu, M.-N., Liao, H.-T., Truong, V. A., Huang, K.-L., Yu, F.-J., Chen, H.-H., Nguyen, N.T.K., Makarevich P., Parfyonova, Y., **Hu, Y.-C.\*** 2019 Aug. CRISPR-based activation of endogenous neurotrophic genes in adipose stem cell sheets to stimulate peripheral nerve regeneration. *Theranostics*. 9: 6099-6111 (IF 12.4).
38. Wang, S.-Y., Chen, C.-L., **Hu, Y.-C.**, Chi, Y., Huang, Y.-H., Su, C.-W., Jeng, W.-J., Liang, Y.-J., Wu, J.-C\*. 2019 Oct. High expression of microRNA-196a is associated with progression of hepatocellular carcinoma in younger patients. *Cancers*. 11: 1549 (IF 4.5).
39. Sung, L.-Y., Wu, M.-Y., Lin, M.-W., Hsu, M.-N., Truong, V. A., Shen, C.-C., Tu, Y., Hwang, K.-Y., Tu, A. P., Chang, Y.-H., **Hu, Y.-C.\***. 2019 May. Combining orthogonal CRISPR and CRISPRi systems for genome engineering and metabolic pathway modulation in *E. coli*. *Biotechnology and Bioengineering*. 116: 1066-1079 (IF 3.5).
40. Hwu, J.-R., Huang, W.-C., Lin, S.-Y., Tan, K.-T., **Hu, Y.C.**, Shieh, F.-K., Bachurin, S.O., Ustyugov A, Tsay, S.-C. 2019 March. Chikungunya virus inhibition by synthetic coumarin-guanosine conjugates. *Eur J Med Chem* 166: 136-143. (IF 6.0).



41. Shevchenko M. B. E., Molokotina, Y. M., Makarevich, P., Beloglazova, I., Zubkova, E., Dergilev, K., Tsokolaeva, Z., Penkov, D., Hsu, M.-N., **Hu, Y.-C.**, Parfyonova, Y. 2019 June. Transplantation of adipose stromal cell sheet producing hepatocyte growth factor induces pleiotropic effect in ischemic skeletal muscle. *International Journal of Molecular Sciences*. 20: 3088. (IF 4.9).

## B. Conference Presentations

1. **Hu, Y.-C.** 2022 Oct. Keynote speaker and session chair, 2022 TERMIS-AP Meeting, Korea
2. **Hu, Y.-C.** 2022 Oct. Invited speaker, 2022 Kyungpook National University Hospital (KNUH) International Conference. Daegu, Korea.
3. Chang, C.-W.; **Hu, Y.-C.** 2022 June. 27th BEST Conference & International Symposium on Biotechnology and Bioengineering. BEST oral presentation award. Taoyuan, Taiwan
4. **Hu, Y.-C.** 2022 March. Invited speaker, Annual meeting of FARM. Taipei, Taiwan
5. **Hu, Y.-C.** 2021 Nov. Keynote speaker and session chair, AFOB virtual conference, Korea
6. **Hu, Y.-C.**, 2021 Oct. Keynote speaker. Annual Meeting of the Taiwan Neuroimmunology Medical Society and Society for Neurological Rare Disorders-Taiwan. Taipei, Taiwan.
7. **Hu, Y.-C.** 2021 July. Keynote speaker. The 26th BEST conference and International Symposium on Biotechnology and Bioengineering. Taichung. Taiwan.
8. **Hu, Y.-C.** 2021, June. Keynote speaker. 2021 Annual Meeting of Agricultural Chemical Society of Taiwan. Taipei, Taiwan.
9. **Hu, Y.-C.** 2020 Dec. Invited Speaker. Nanomicelle Delivery of Self-Amplifying mRNA as a Porcine Vaccine. International Conference on Emergent Functional Matter Science 2020. Suao, Taiwan.
10. **Hu, Y.-C.**, 2020 Aug. Gene Therapy for Tissue Regeneration. Keynote speaker. Annual Meeting of Biomaterials and Controlled Release Society in Taiwan. Taipei, Taiwan.
11. **Hu, Y.-C.**, 2019 Dec. CRISPR Technology for Tissue Regeneration. Keynote speaker. International Symposium of Gene Therapy for Hereditary Diseases. Taipei, Taiwan.
12. **Hu, Y.-C.**, 2019 Oct. CRISPR Technology for Tissue Regeneration. Keynote speaker. TERMIS-AP meeting. Brisbane, Australia.



13. **Hu, Y-C.**, 2019 July. CRISPR Technology for Tissue Regeneration. NTHU-SNU Bilateral Symposium. Seoul. Korea.
14. **Hu, Y-C.**, 2019 July. CRISPR Technology for Metabolic Engineering and Tissue Regeneration NTHU-VNU Bilateral Symposium. Ho Chi Minh City, Vietnam.

### C. Patents

1. **胡育誠**、陳品諺，田庭綸。自組裝奈米粒子、其製備方法及醫藥組合物 (SELF-ASSEMBLING NANOPARTICLE, PREPARATION METHOD THEREOF AND PHARMACEUTICAL COMPOSITION)。中華民國發明專利申請中。申請日: 2024/6/5.
2. **胡育誠**、范玉南,周俊彥。維斯假絲酵母的基因編輯系統、其基因編輯方法及其應用。中國發明專利申請中。申請日: 2022/9/29.
3. **胡育誠**，張晉維，黃靖雯，周俊彥。大腸桿菌基因編輯系統及其基因編輯方法。中華民國發明專利申請中。申請日: 2022年01月26日
4. **胡育誠**，張晉維，黃靖雯，周俊彥。大腸桿菌基因編輯系統及其基因編輯方法。中國發明專利申請中。申請日: 2022年01月26日.
5. **Yu-Chen Hu**, Ngoc-Nam Pham, Jun-Yen Chou, Hsing-Yun Wang, Jianan Liu. Gene Editing System of *Candida viswanathii*, gene editing method thereof. Transformant for producing dodecanedioic acid and method for producing dodecanedioic acid. **US patent filed on 2023/03/24.**
6. **Yu-Chen Hu**, Chin-Wei Chang, Chin-Wen Huang, Jun-Yen Chou. Gene editing system of *Escherichia coli* and gene editing method thereof. **US patent filed on 2022/08/04.** US-2023-0235338-A1.
7. **Yu-Chen Hu**, Yenlin Chen, Hung-Ming Chang. Microbial composition and processing method for wastewater. US patent application filed.
8. **Yu-Chen Hu**, Yenlin Chen, An-Banh Du. Black yeast *Aureobasidium melanogenum* strain and method of producing succinic acid using the same. US patent application filed.
9. **Yu-Chen Hu**, Chih-Che Shen. System for over-expressing target protein and method for over-expressing target protein. US patent application published (US-2018-0282759-A1).
10. **Yu-Chen Hu**, Hung Li, Jun-Hung Huang, Li-Yu Sung, Chih-Che Shen. Gene expression regulation system of *Synechococcus elongates* PCC 7942 and application thereof. China patent application filed.
11. **Yu-Chen Hu**, Hung Li, Jun-Hung Huang, Li-Yu Sung, Chih-Che Shen. Gene expression regulation system of *Synechococcus elongates* PCC 7942 and



- application thereof. US patent application filed.
12. **胡育誠**、范玉南,周俊彥, 王興運, 劉珈男. 維斯假絲酵母的基因編輯系統、其基因編輯方法、生產十二烷二酸的轉型株及生產十二烷二酸的方法. 中華民國發明專利 I857355. (專利權有效期間:2024/10/1~ 2042/9/28)
  13. **Yu-Chen Hu**, Ngoc-Nam Pham, Cho-Yi Chen, June-Yen Chou. Transformant for producing 2,5-Furandicarboxylic acid and preparation method for 2,5-furandicarboxylic acid. US 11578346B2. 2023/02/14-2040/12/01 (extendable to 2041/08/19).
  14. **胡育誠**, 范玉南, 陳倬翊, 周俊彥. 戀臭假單胞菌 S12 基因編輯系統及其應用. 中華民國發明專利 I739247. (專利權有效期間:2021/09/11~ 2039/12/19)
  15. **胡育誠**, 范玉南, 陳倬翊, 周俊彥. 2,5-呋喃二甲酸之製備方法. 中華民國發明專利 I735113. (專利權有效期間:2021/08/01~ 2039/12/22)
  16. **胡育誠**, 陳彥霖, 張鴻銘. Microbial composition and processing method for wastewater. 微生物組合物及廢水處理方法. 中華民國發明專利. I710632 (專利權有效期間: 2020/11/21~ 2039/09/11).
  17. **Yu-Chen Hu**, Mu-En Chung, I-Hsin Yeh, Hung, Li. Method for bacterial genome editing 細菌基因編輯方法. 中國發明專利. CN 106609279 B (專利有效期間: 2020/08/14 ~ 2036/10/21).
  18. **Yu-Chen Hu**, Hung Li, Jun-Hung Huang, Li-Yu Sung, Chih-Che Shen. 細長聚球藻 PCC7942 之基因編輯系統及其應用. 中華民國發明專利. I643951 (專利有效期間: 2018/12/11~2036/08/01)
  19. **Yu-Chen Hu**, Hung Li, Jun-Hung Huang, Li-Yu Sung, Chih-Che Shen. Gene expression regulation system of *Synechococcus elongates* PCC 7942 and application thereof. 細長聚球藻 PCC 7942 之基因表現干擾系統以及抑制細長聚球藻 PCC 7942 基因表現之方法. 中華民國發明專利 I629358. (專利有效期間: 2018/07/11-2036/08/01)
  20. **Yu-Chen Hu**, Mu-En Chung, I-Hsin Yeh, Hung, Li, Li-Yu Sung. Cas9 plasmid, genome editing system and method of *Escherichia coli*. US patent. US 9988637B2. 2018/06/05-2036/03/10.
  21. **Yu-Chen Hu**, Chih-Che Shen. 大量表現目標蛋白系統及其方法 System for over-expressing target protein and method thereof. 中華民國發明專利. I626309. (專利有效期間: 2018/06/11-2037/03/30).
  22. **Yu-Chen Hu**, Yenlin Chen, An-Banh Du. 黑酵母菌出芽短梗黴 *Aureobasidium melanogenum* 菌株及利用其生產琥珀酸的方法 (Black yeast *Aureobasidium melanogenum* strain and method of producing succinic acid using the same). 中華民國發明專利. I592482. (專利有效期間: 2017/07/21-2036/12/25).



23. **Yu-Chen Hu**, Mu-En Chung, I-Hsin Yeh, Hung, Li, Li-Yu Sung. Cas9 expression plasmid, gene editing system of *Escherichia coli* and application thereof. 中華民國發明專利 I608100. (專利有效期間: 2017/12/11-2037/02/02).
24. **Yu-Chen Hu**, Guan-Yu Chen, Hsing-Yu Tuan. Method for inducing autophagy and activating toll-like receptor. US Patent. US 9421224B2. 2016/08/23-2035/04/17.
25. **Yu-Chen Hu**, Shih-Yeh Lin. Method for preparing virus-like particle and recombinant baculovirus used therein. US Patent. US 9388390B2. 2016/07/12-2035/03/24.
26. **胡育誠**, 林事曄. 類病毒顆粒的製備方法及其使用的重組桿狀病毒. 中華民國發明專利 I558812. (專利有效期間: 2016/11/21-2032/03/19).
27. **胡育誠**, 陳繼元. “桿狀病毒表現載體與其應用”. 中華民國發明專利. I411681. (專利有效期間: 20131011-20290817).
28. 劉宏仁, 林岳宏, **胡育誠**. “泛用型桿狀病毒表面呈現系統及其應用於次單位疫苗之製備” (A universal baculovirus surface display system and application in production of subunit vaccine) 中華民國發明專利. I368656.
29. **胡育誠**. “腸病毒類病毒顆粒的製備方法及其應用”. 中華人民共和國發明專利 CN101928728A. 2013/03/27-2033/03/26.
30. **Yu-Chen Hu**, Chi-Yuan Chen. “Baculovirus expression vector and method therewith for generating immunogenicity in a host”. US patent, US 8399246B2. 2013/03/19-2031/03/04.
31. **Yu-Chen Hu**, Wen-Hsin Lo. “Method for sustained expression of an exogenous gene”. US patent, US 8110183B2. 2012/02/07-2028/12/11.
32. **胡育誠**, 羅文鑫. “長期表現外源基因之方法”. 中華民國發明專利 I349037. (專利有效期間: 2011/09/21-2028/08/03).
33. **胡育誠**, 陳皇綺, 廖俊仁 “組織細胞培養生物反應器”, 中華民國發明專利 I294912. (專利有效期間: 2008/03/21-2025/04/03)
34. 廖俊仁, 李筱萍, **胡育誠**, 江淑芳 “生物反應器”, 中華民國發明專利 I238851. (專利有效期間: 2005/09/01-2023/12/30)



D.

榮譽榜

得獎人	獎項	得獎年度
胡育誠	2024 莫德納台灣 mRNA 前瞻新創獎	2024 年
田庭綸	2024 莫德納台灣 mRNA 前瞻新創獎	2024 年
陳品諺	2024 莫德納台灣 mRNA 前瞻新創獎	2024 年
陳蘋欣	2024 莫德納台灣 mRNA 前瞻新創獎	2024 年
Vy Anh Truong	台灣化學工程學會 71 週年年會學生英語口頭競賽優等	2024 年
Vy Anh Truong	國立清華大學國際會議獲獎論文獎勵 佳作	2024 年
Vy Anh Truong	中華民國生醫材料及藥物制放學會年會暨國際創新藥物制放研討會 學生口頭論文競賽佳作	2024 年
陳蘋欣	中華民國生醫材料及藥物制放學會年會暨國際創新藥物制放研討會 學生壁報論文競賽佳作	2024 年
胡育誠	英國皇家化學會會士 (Fellow Royal Society of Chemistry)	2024 年
Vy Anh Truong	2024 臺灣生化工程與生物技術學會年會 口頭競賽優勝	2024 年
黃湘晴	2024 臺灣生化工程與生物技術學會年會 口頭競賽佳作	2024 年
胡育誠	台灣化工學會 會士	2023 年
田庭綸	2023 台灣化學工程學會 70 週年年會學生英語口頭競賽優勝	2023 年
楊書維	2023 台灣化學工程學會 70 週年年會學生英語口頭競賽佳作	2023 年
田庭綸	Asian Congress of Biotechnology 2023. 英文論文口頭第一名	2023 年
張晉維	Asian Congress of Biotechnology 2023. 英文論文口頭第一名	2023 年
Thị Kieu Nuong Nguyen	Asian Congress of Biotechnology 2023. 英文論文口頭第一名	2023 年
胡育誠	International Association of Advanced Materials 會士	2023 年
吳亦修	28rd BEST Conference on Biotechnology and Bioengineering. Tainan, Taiwan. 英文論文口頭發表第一名	2023 年
田庭綸	28rd BEST Conference on Biotechnology and Bioengineering. Tainan, Taiwan. 英文論文口頭發表 佳作	2023 年
Dang Huu Pham	28rd BEST Conference on Biotechnology and Bioengineering. Tainan, Taiwan. 英文論文口頭發表 佳作	2023 年
Dang Thuc Quyen	28rd BEST Conference on Biotechnology and Bioengineering. Tainan, Taiwan. 英文論文口頭發表 佳作	2023 年
張晉維	28rd BEST Conference on Biotechnology and Bioengineering. Tainan, Taiwan. 英文論文口頭發表 佳作	2023 年
簡鳴辰	台灣杜邦 - 國立清華大學化學工程系研究生論文發表競賽口頭發表競賽 佳作	2023 年



簡鳴辰	李昭仁教授基金會獎學金	2022 年
楊書維	2022 台灣化學工程學會 69 週年年會學生壁報發表競賽 優勝	2022 年
張晉維	2022 台灣化學工程學會 69 週年年會學生 <b>英語口頭發表 競賽 優勝</b>	2022 年
胡育誠	中華民國生醫材料及藥物製劑學會 研究學者獎	2022 年
林美薇、胡育誠	台灣化工學會 傑出論文獎	2022 年
張晉維	第 27 屆台灣生物技術暨生化工程國際研討會 <b>英文論文 口頭發表第一名</b>	2022 年
胡育誠	李昭仁教授基金會研究學者獎	2021 年
胡育誠	國際生醫材料科學與工程學會聯盟 會士	2020 年
胡育誠	科技部工程司產學合作計畫成果發表優良獎	2020 年
胡育誠	台灣化學工程學會 毛高文教授獎	2020 年
張佺豪	2020 台灣化學工程學會 67 週年年會學生壁報發表競賽 優勝(excellent)	2020 年
Thị Kieu Nuong Nguyen	2020 台灣化學工程學會 67 週年年會學生壁報發表競賽 佳作 (outstanding)	2020 年
林雅慧	2020 台灣化學工程學會 67 週年年會學生英語口頭發表競 賽 佳作(outstanding)	2020 年
張晉維	2020 台灣化學工程學會 67 週年年會學生英語口頭發表競 賽 佳作(outstanding)	2020 年
Nam Ngoc Pham	2020 台灣化學工程學會 67 週年年會學生 <b>英語口頭發表競 賽 優勝(excellent)</b>	2020 年
林美薇	2019 Young Asian Biological Engineer's Community 最佳 壁報論文獎	2019 年
胡育誠、沈志哲	第 16 屆國家新創獎 學研新創獎	2019 年
林雅慧	清華大學化工系壁報論文獎 第二名	2019 年
林美薇	清華大學 <b>優秀論文獎 優等獎</b>	2019 年
Truong, Vu Anh	清華大學 <b>優秀論文獎 優等獎</b>	2019 年
林美薇	14 <sup>th</sup> Asian Congress of Biotechnology. <b>英文論文口頭發表 第一名</b>	2019 年
Truong, Vu Anh	14 <sup>th</sup> Asian Congress of Biotechnology. <b>英文論文口頭發表 第一名</b>	2019 年



許慕農	14 <sup>th</sup> Asian Congress of Biotechnology. 英文論文口頭發表 第二名	2019 年
沈志哲	14 <sup>th</sup> Asian Congress of Biotechnology. 英文論文口頭發表 優秀(outstanding)獎	2019 年
Thị Kieu Nuong Nguyen	14 <sup>th</sup> Asian Congress of Biotechnology. 英文論文口頭發表 優秀(outstanding)獎	2019 年
林仁豐	14 <sup>th</sup> Asian Congress of Biotechnology. 英文論文口頭發表 優秀(outstanding)獎	2019 年
王亮忻	科技部 107 年度大專學生研究計畫研究創作獎	2019 年
林美薇、胡育誠	榮台聯大優良論文獎	2019 年

### HONORS AND AWARDS

2024	2024 莫德納台灣 mRNA 前瞻新創獎 Moderna Taiwan mRNA Innovation Awards
2024	英國皇家化學會會士 Fellow Royal Society of Chemistry
2023	台灣化工學會 會士 Fellow, Taiwan Institute of Chemical Engineers (TwIChE)
2023	國際先進材料學會 會士 Fellow, International Association of Advanced Materials
2023	台灣生物技術與生化工程學會 會士 Fellow, Biotechnology and Biochemical Engineering Society of Taiwan (BEST)
2022	中華民國生醫材料及藥物釋放學會 研究學者獎 Research Scholar Award, Society for Biomaterials and Controlled Release
2022	台灣化工學會 傑出論文獎 Outstanding paper award, Taiwan Institute of Chemical Engineers
2021	李昭仁教授基金會研究學者獎 Research Scholar Award, Professor Lee Foundation
2020	科技部工程司產學合作計畫成果發表優良獎 Outstanding Academic-Industry Collaboration Award, Ministry of Science and Technology (MOST)
2020	台灣化工學會 毛高文教授獎 Professor Mao Gao-Wen Award, Taiwan Institute of Chemical Engineers



2020	國際生醫材料科學與工程學會聯盟 會士 Fellow Biomaterials Science and Engineering (FBSE), International Union of Societies for Biomaterials Science and Engineering
2019	第 16 屆國家新創獎 學研新創獎 National Innovation Award
2019	台灣化工學會 金開英獎 Jin Kai-Yin Award, Taiwan Institute of Chemical Engineers

### ASSOCIATE EDITOR/EDITORIAL BOARD MEMBERS

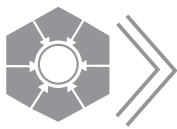
2022	Guest Editor, Biomolecules (IF 6.064)
2022	Editorial board member, Synthetic Biology and Engineering
2021	Associate Editor, Frontiers in Bioengineering and Biotechnology (IF 6.064)
2021	Editorial board member, Biomolecules (IF 6.064)
2020	Guest Editor, Frontiers in Cell and Developmental Biology (IF 6.081)
2019	Guest Editor, Biotechnology Journal (5.726)

### INVITED SPEECHES (International Conference)

1. Invited speaker, 2024 Nov. 2nd International HCMUS–Chemistry Conference. Ho Chi Min City, Vietnam.
2. Invited speaker, 2024 Sep. 8th Biotechnology International Congress, Bangkok, Thailand.
3. Keynote speaker, 2024 Aug. International Symposium on Engineering and Technology for Regenerative Medicine. Kyoto, Japan.
4. Invited speaker, International Symposium for Genome Editing and Precision Medicine. BioAsia Taiwan, Taipei, Taiwan.
5. Keynote speaker, 2024 June. European Congress of Biotechnology. Rotterdam, Netherland.
6. Keynote speaker, 2024 June. 3rd International Forum on Chemical Engineering and Catalysis (CECFORUM2024), Porto, Portugal.
7. Invited speaker, 2024 May. World Biomaterials Congress 2024, Daegu, Korea.
8. Invited speaker, 2024 May. The 24th International Annual Meeting of Korean Tissue Engineering and Regenerative Medicine Society. Jeju, Korea.
9. Keynote speaker, 2024 March. 38<sup>th</sup> Joint Annual Conference of Biomedical Science. Taipei, Taiwan.
10. Keynote speaker, 2024 March. EFB-AFOB joint meeting. Online meeting.



11. Keynote speaker, 2024 March. International Conference of Formosa Association of Regenerative Medicine. Taipei, Taiwan.
12. Keynote speaker, 2023 Nov. 2023 Annual Meeting of Taiwan Institute of Chemical Engineers. Taipei, Taiwan.
13. Keynote speaker, 2023 Oct. The World Conclave on Materials, Energy & Climate. Stockholm, Sweden.
14. Keynote speaker and session organizer, 2023 Oct. Asian Congress of Biotechnology. Ho Chi Min City, Vietnam.
15. Keynote speaker, 2023 July. 2023 eCM meeting on Bone and Fracture Repair. Davos, Switzerland.
16. Invited speaker, 2023 May, Controlled Release Society (CRS) Local Chapter Webinar.
17. **Plenary speaker**, 2022 Nov. The 13<sup>th</sup> Science Conference, VNUHCM-US. Ho Chi Min City, Vietnam.
18. Invited speaker, 2022 Nov. Australia-Taiwan Life Science Symposium. Virtual Conference.
19. Keynote speaker and session chair. 2022 Oct. 2022 TERMIS-AP Meeting, Korea
20. **Plenary speaker**, 2022 Oct. Kyungpook National University Hospital (KNUH) International Conference. Daegu, Korea.
21. Invited speaker, 2022, March. Annual Meeting of Formosa Association of Regenerative Medicine. Taipei. Taiwan.
22. Keynote speaker and session chair, 2021 Nov. AFOB virtual conference, Korea
23. Invited speaker, 2021 Oct. Korea-Taiwan-Japan Joint Symposium on Chemical Engineering, Korea.
24. Keynote speaker, 2021 Oct. Annual Meeting of the Taiwan Neuroimmunology Medical Society and Society for Neurological Rare Disorders. Taipei, Taiwan.
25. Keynote speaker, 2021 July. The 26th BEST conference and International Symposium on Biotechnology and Bioengineering. Taichung. Taiwan.
26. Keynote speaker, 2021 June. 2021 Annual Meeting of Agricultural Chemical Society of Taiwan. Taipei, Taiwan.
27. Chair Lecture, 2020 Nov. National Cheng Kung University, Tainan, Taiwan
28. Invited speaker. 2020 Nov. International Conference on Emergent Functional Matter Science 2020. Suao, Taiwan.
29. Keynote speaker, 2020, Aug. Annual Meeting of Biomaterials and Controlled Release Society in Taiwan. Taipei, Taiwan.



## Publications of Jen-Huang (Tony) Huang (黃振煌)

### A. Journal Papers (\* Corresponding author)

#### 2025

1. Y.-H. Lin, C.-M. Lin, K.-M. Man, C.-C. Hung, H.-L. Hsu, Y. Chen, H.-Y. Mu\*, T.-H. Hsiao\*, **J.-H. Huang\***, Real-time and Regional Analysis of Anticancer Drugs Efficacy in Patient-Derived Intratumoral Heterogenous Tumor Microenvironment, *Lab on a Chip*, **2025** (accepted) (2023 Impact Factor 6.1).
2. P.-Y. Lai, D. S. Raja, J.-W. Chang, **J.-H. Huang**, D.-H. Tsai\*, Real-time Quantification of Microfluidic Hydrogel Crosslinking via Gas-phase Electrophoresis, *Journal of Colloid & Interface Science*, **2025**, 684, 201-212 (2023 Impact Factor 9.4).
3. Y.-L. Lu, C.-M. Lin, **J.-H. Huang\***, Triplicate Dynamic Cell Culture Platform for Enhanced Reproducibility in Anti-Cancer Drug Testing, *ACS Biomaterials Science & Engineering*, **2025** (published online) (2023 Impact Factor 5.3).
4. C.-Y. Liu, Y.-R. Chen, H.-Y. Mu, **J.-H. Huang\***, A Dynamic Breathing Lung Chip for Precise Evaluation of Inhaled Drug Efficacy and Airway Epithelial Responses, *ACS Biomaterials Science & Engineering*, **2025**, 11, 682-691 (2023 Impact Factor 5.3).

#### 2024

5. J.-G. Liang, W.-X. Gao, C.-W. Chung, L. A. Dayao, H.-H. Chou, Z.-H. Lin, D. Wan, **J.-H. Huang**, Y.-C. Chen\*, T.-T Lu\*, Structure-Dependent Magnetoelectric and Magnetothermal Effects of MOF-Derived Zero-Valence Cobalt and Iron Oxide Nanoparticles on a Carbonaceous Matrix. *Chemical Communication*, **2024**, 60, 10136 (2023 Impact Factor 4.3).
6. Y.-H. Yang, Y.-H. Tu, H.-Y. Huang, Y.-H. Peng, W.-L. Lee, M.-F. Wu, **J.-H. Huang\***, C.-C. Hu\*. Cell Voltage Control on Ion Selectivity of Carbon Nanotube-Copper Hexacyanoferrate with Enhanced Electrochemical Deionization Performance. *Electrochimica Acta*. **2024**, 488, 144157 (2023 Impact Factor 5.5).
7. Y.-H. Sung, D. S. Raja, **J.-H. Huang**, D.-H. Tsai\*, Microfluidic-Aerosol Hyphenated Synthesis of Metal–Organic Framework-Derived Hybrid Catalysts



- for CO<sub>2</sub> Utilization. *Small Methods*. **2024**, 2301435 ([Cover Image](#)) (2023 Impact Factor 10.7).
8. S.-H. Chen, H.-W. Wang, P.-C. Yang, S.-H. Chen, C.-H. Ho, P.-C. Yang, Y.-C. Kao, S.-W. Liu, H. Chiu, Y.-J. Lin, E.-Y. Chuang, **J.-H. Huang**, H.-K. Kao, C.-C. Huang\*, Schwann Cells Acquire a Repair Phenotype After Assembling into Spheroids and Show Enhanced in vivo Therapeutic Potential for Promoting Peripheral Nerve Repair. *Bioengineering & Translational Medicine*. **2024**, e10635. (2023 Impact Factor 6.1).
  9. H.-Y. Mu, C.-M. Lin, L.-A. Chu, Y.-H. Lin, J. Li, C.-Y. Liu, H.-C. Huang, S.-L. Cheng, T.-Y. Lee, H. M. Lee, H.-M. Chen, Y.-J. Tsai, Y. Chen\*, **J.-H. Huang**\*, Ex Vivo Evaluation of Combination Immunotherapy Using Tumor-Microenvironment-on-Chip. *Advanced Healthcare Materials*. **2024**, 13(2), 2302268 ([Cover Image](#)) (2023 Impact Factor 10.0).
  10. H.-Y. Mu, Y.-N. N. Ta, M. J. R. Tham, F.-F. Hsu, Y.-C. Lin, H.-C. Huang, Y.-C. Sung, C.-I. Huang, C.-L. Wu, C.-H. Chang, S. Yang, T.-Y. Lee, D. Wan, J. Wang, D. G. Duda, Y. Boucher, **J.-H. Huang**\*, W. H. Ang\*, Y. Chen\*. A Chemoimmunotherapy Nanogel Enables Efficient Delivery of Interleukin-2 and Induction of Immunogenic Cell Death for Effective Cancer Therapy. *Advanced Functional Materials*, **2024**, 34(1), 2303033 (2023 Impact Factor 18.5).
  11. C.-M. Lin, **J.-H. Huang**\*. "Exploring the Potential of Cancer Chips in Novel Drug Development and Clinical Drug Guidance, *Instruments Today*, Vol. 239, 42-53 issued by Taiwan Instrument Research Institute (TIRI), **2024**.

## 2023

12. H.-Y. Wu, C.-L. Wu, W. Liao, B.-M. Matsagar, K.-Y. Chang, **J.-H. Huang**\*, C.-W. Wu\*. Continuous and Ultrafast MOF Synthesis Using Microfluidic Nanoarchitectonics. *Journal of Materials Chemistry A*, **2023**, 11, 9427-9435 ([Cover Image](#)) (2023 Impact Factor 10.8).
13. Y.-H. Sung, C.-L. Wu, **J.-H. Huang**\*, D.-H. Tsai\*. Real-Time Quantifying Microdroplet Synthesis of Metal-Organic Framework Colloids Using Gas-Phase Electrophoresis. *Analytical Chemistry*, **2023**, 95: 4513–4520 ([Cover Image](#)) (2023 Impact Factor 6.8).



## 2022

14. Y.-H. Tu, Y.-C. Tai, J.-Y. Xu, Y.-H. Yang, H.-Y. Huang, **J.-H. Huang\***, C.-C. Hu\*. Highly efficient water purification devices utilizing the microfluidic electrochemical deionization technique. *Desalination*, 2022, 538: 115928 (2023 Impact Factor 8.4).
15. H.-Y. Mu, C.-Z. Liu, C.-K. Chuang, **J.-H. Huang**, Y.-S. Lin, Y.-T. Liu, Y.-T. Wang, C.-L. Lin\*. Hyaluronic acid/Alginate Composite Dressing Powder for Reducing Tissue Fluid Leakage and Promoting Wound Healing after Spinal Surgery. *Journal of Wound Care*, 2022 (2023 Impact Factor 1.5).
16. W.-H. Lai, H.-Y. Mu, Y.-L. Lu, H. Chen, J.-W. Wen, H.-J. Wu, C.-M. Cheng, **J.-H. Huang\***. Dual-Cell Culture System with Identical Culture Environment for Comparison of Anti-Cancer Drug Toxicity. *Chemical Engineering Science*, 2022, 253: 117555 (2023 Impact Factor 4.1).

## 2021

17. C.-L. Wu, **J.-H. Huang\***. "Microfluidic Flow Chemistry Process", *Chemical Engineering*, Vol. 68, No. 2 issued by Taiwan Institute of Chemical Engineers (TwIChE) in April, 2021.

## 2020

18. **J.-H. Huang\***. "Manipulation of Fluids for Medical and Biotechnological Applications", issued by Biotechnology and Biochemical Engineering Society of Taiwan (BEST) Quarterly in June, 2020.
19. H.-Y. Mu, T.-L. Lu, T.-H. Hsiao, **J.-H. Huang\***. Microfluidic-based approaches for COVID-19 diagnosis. *Biomicrofluidics*, 2020, 14: 061504 (2021 Impact Factor 3.258).
20. C.-Y. Cho, T.-H. Chiang, L.-H. Hsieh, W.-Y. Yang, H.-H. Hsu, C.-K. Yeh, C.-C. Huang\*, **J.-H. Huang\***. Development of a Novel Hanging Drop Platform for Engineering Controllable 3D Microenvironments. *Frontiers in Cell and Developmental Biology*, 2020, 8:327. (2021 Impact Factor 6.081).
21. H.-Y. Mu, Y.-C. Ou, H.-N. Chuang, T.-J. Lu, P.-P. Jhan, T.-H. Hsiao\*, **J.-H. Huang\***. Triple Selection Strategy for in Situ Labeling of Circulating Tumor Cells with High Purity and Viability toward Preclinical Personalized Drug Sensitivity Analysis. *Advanced Biosystems*, 2020, 4, 2000013 (Cover Image) (2021 Impact Factor 4.053).



22. P.-H. Chen, Y.-T. Cheng, B.-S. Ni, **J.-H. Huang\***. Continuous Cell Separation Using Microfluidic-Based Cell Retention Device with Alternative Boosted Flow. *Applied Biochemistry and Biotechnology*, 2020, 191:151-163 (2021 Impact Factor 3.094).

## B. Conference Presentations

### 2024

1. **J.-H. Huang\***. Continuous Metal–Organic Frameworks Manufacturing Using Microfluidic Technology. *The 2nd International HCMUS-Chemistry Conference on EMERGING TRENDS IN SUSTAINABLE CHEMISTRY (ESTC24)*, 2024. Ho Chi Minh City, Vietnam (Invited).
2. J. Li, S.-H. Hu, **J.-H. Huang\***. Design of GEM/CQ@NH<sub>2</sub>-MIL-88B(Fe)-PEG Metal-Organic Framework Nanoparticles for Combined Chemotherapy and Chemodynamic Therapy in Pancreatic Cancer. *71<sup>th</sup> TwIChE Annual Meeting*, 2024. Taoyuan, Taiwan.
3. Y.-H. Wang, **J.-H. Huang\***. Bilirubin Diagnosis Chip: From Sampling, Detection, Analysis to Reading. *71<sup>th</sup> TwIChE Annual Meeting*, 2024. Taoyuan, Taiwan (Outstanding poster award).
4. Y.-J. Chen, **J.-H. Huang\***. Investigation of Metal-Organic Framework Synthesis Using Step-Emulsification Continuous Droplet Microfluidics. *71<sup>th</sup> TwIChE Annual Meeting*, 2024. Taoyuan, Taiwan.
5. Y. Liang, W.-X. Gao, **J.-H. Huang\***. Sustainable Continuous Synthesis of Metal-Organic Frameworks Using an Improved Droplet-Based Microfluidic Reactor. *71<sup>th</sup> TwIChE Annual Meeting*, 2024. Taoyuan, Taiwan.
6. S. Killedar, **J.-H. Huang\***. Shape Dependent Endocytosis of Iron-Containing MOF's for Highly Efficient Pancreatic Cancer Therapy. *71<sup>th</sup> TwIChE Annual Meeting*, 2024. Taoyuan, Taiwan.
7. P.-T.-N. Nguyen, **J.-H. Huang\***. Continuous Production of Cell-containing, Tumor-mimicking Microspheres for Drug Screening. *71<sup>th</sup> TwIChE Annual Meeting*, 2024. Taoyuan, Taiwan.
8. Y.-H. Liu, **J.-H. Huang\***. Development of a Dynamic Breathing Airway Model for Evaluation of Pulmonary Drug Efficacy through Inhalation and Epithelial Responses. *71<sup>th</sup> TwIChE Annual Meeting*, 2024. Taoyuan, Taiwan (Outstanding poster award).



9. W.-Y. Chang, **J.-H. Huang\***. Low-Pressure Drop Packed-Bed Microreactor for Continuous, Heterogeneous Catalysis Reaction. *71<sup>th</sup> TwIChE Annual Meeting, 2024*. Taoyuan, Taiwan.
10. P.-Y. Lu, **J.-H. Huang\***. Optimizing microfluidic valve systems for multi-column protein purification. *71<sup>th</sup> TwIChE Annual Meeting, 2024*. Taoyuan, Taiwan.
11. C.-Y. Lee, **J.-H. Huang\***. Advancements in Tumor-Microenvironment-on-a-Chip (TMOc) Technology for Studying Breast Cancer Dormancy in Bone Marrow. *71<sup>th</sup> TwIChE Annual Meeting, 2024*. Taoyuan, Taiwan.
12. C.-Y. Huang, J. Li, **J.-H. Huang\***. Magnetic Field Responsive Nano MOF Platform Enables Efficient Delivery of Chloroquine and Induction of Immunogenic Cell Death in Pancreatic Ductal Adenocarcinoma Therapy. *71<sup>th</sup> TwIChE Annual Meeting, 2024*. Taoyuan, Taiwan (Honorable mention poster award).
13. Y.-C. Tang, Y.-J. Lin, **J.-H. Huang\***. Life Cycle Assessment of Low-Carbon Bio-Based Adipic Acid Production. *71<sup>th</sup> TwIChE Annual Meeting, 2024*. Taoyuan, Taiwan.
14. H.-Y. Mu, Y.-H. Lin, C.-M. Lin, **J.-H. Huang\***. Dynamic Evaluation of Anticancer Drug Efficacy in Complex Tumor Microenvironments. *The 29<sup>th</sup> Symposium of Young Asian Biochemical Engineers' Community (YABEC), 2024*. Busan, Korea.
15. **J.-H. Huang\***. Generation of Physiological Oxygen Gradient in Tumor Microenvironment for Enhanced Drug Evaluation. *The 19th IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS), 2024*. Kyoto, Japan (Invited).
16. C.-M. Lin, H.-Y. Mu, **J.-H. Huang\***. Ex Vivo tumor-Microenvironment-on-Chip for Drug Screening: Combining Epigenetic Modulation with Immunotherapy. *Annual Meeting of Biomaterials and Controlled Release Society in Taiwan & International Advanced Drug Delivery Symposium (BCRS&IADDS), 2024*. Hsinchu, Taiwan.
17. **J.-H. Huang\***. The Future of Cancer Treatment: How Cancer Tumor Chips Can Speed Up New Drug Development. *Interdisciplinary Neuroscience Congress, 2024*. Taipei, Taiwan (Invited).
18. C.-M. Lin, H.-Y. Mu, **J.-H. Huang\***. Ex Vivo Metastatic Tumor-Microenvironment-on-Chip for Drug Screening: Combining Epigenetic Modulation with Immunotherapy. *The 29th BEST Conference & International*



- Symposium on Biotechnology and Biochemical Engineering, 2024.* Penghu, Taiwan (Outstanding oral presentation award).
19. J. Li, **J.-H. Huang\***. Development of GEM/CQ@NH<sub>2</sub>-MIL-88B(Fe)-PEG Nanoparticles for Synergistic Chemodynamic and Autophagy-Modulating Therapy in Pancreatic Cancer. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical Engineering, 2024.* Penghu, Taiwan (Outstanding poster award).
  20. Y.-H. Peng, **J.-H. Huang\***. Designing Continuous Activation Processes of Metal-Organic Frameworks for Biomedical Applications through Microfluidic Models. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical Engineering, 2024.* Penghu, Taiwan.
  21. C. Lee, Y.-C. Tseng, H.-Y. Mu, C. Xue, I.-S. Ng\*, **J.-H. Huang\***. Development of Microfluidic Technology for Validating Lactobacillus Metabolites in Enhancing Personalized Cancer Immunotherapy. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical Engineering, 2024.* Penghu, Taiwan (Outstanding poster award).
  22. Y.-J. Chen, K.-Y. Chang, **J.-H. Huang\***. Investigation of Metal-Organic Framework Synthesis Using Continuous Droplet Microfluidics. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical Engineering, 2024.* Penghu, Taiwan.
  23. Y.-H. Wang, C.-X. Han, **J.-H. Huang\***. Bilirubin Diagnosis Chip: From Sampling, Detection, Analysis to Reading. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical Engineering, 2024.* Penghu, Taiwan (Honorable mention poster award).
  24. W.-Y. Chang, Y.-J. Chen, **J.-H. Huang\***. Low-Pressure Drop Packed-Bed Microreactor for Continuous, Heterogeneous Catalysis Reaction with Bio-Membrane. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical Engineering, 2024.* Penghu, Taiwan (Outstanding poster award).
  25. H.-H. Lin, **J.-H. Huang\***. Using Transfer Learning for Prediction of Chemical Synthesis Reaction. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical Engineering, 2024.* Penghu, Taiwan (Honorable mention poster award).
  26. C.-Y. Lee, **J.-H. Huang\***. Advancements in umor-Microenvironment-on-a-Chip (TMoC) Technology for Studying Breast Cancer Dormancy in Bone Marrow. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical*



*Engineering*, 2024. Penghu, Taiwan (Honorable mention poster award).

27. P.-T.N. Nguyen, L.-H. Lee, **J.-H. Huang\***. Continuous Formation of Highly Uniform Liquid-Core Microsphere Using Divalent Cation Substitution. *The 29th BEST Conference & International Symposium on Biotechnology and Biochemical Engineering*, 2024. Penghu, Taiwan.

## 2023

28. **J.-H. Huang\***. Microfluidics in Drug Development: Paving the Way for Better Healthcare with Disease Models. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan.
23. C.-M. Lin, H.-Y. Mu, **J.-H. Huang\***. Ex Vivo Metastatic Tumor-Microenvironment-on-Chip for Immunotherapy Screening. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan (Best poster award).
24. S. Killedar, **J.-H. Huang\***. Crystal Growth of Metal-Organic Frameworks Using Reaction Diffusion Framework Synthesis in Microfluidic Device. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan.
25. P. T. N. Nguyen, L.-H. Lee, **J.-H. Huang\***. Continuous Formation of Highly Uniform Liquid-Core Microsphere Using Divalent Cation Substitution. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan.
26. C. Lee, **J.-H. Huang\***. Development of Gut Microbiome Modulation for Enhancing Personalized Cancer Immunotherapy. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan.
27. J. Li, S.-H. Hu, **J.-H. Huang\***. Development of GEM/CQ@NH<sub>2</sub>-MIL-88B(Fe)-PEG Nanoparticles for Synergistic Chemodynamic and Autophagy-Modulating Therapy in Pancreatic Cancer. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan.
28. Y.-H. Wang, C. X. Han, **J.-H. Huang\***. Bilirubin Diagnosis Chip: From Sampling, Detection, Analysis to Reading. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan.
29. Y.-J. Chen, K.-Y. Chang, **J.-H. Huang\***. Investigation of Metal-Organic Framework Synthesis Using Continuous Droplet Microfluidics. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan.
30. W.-Y. Chang, Y.-J. Chen, **J.-H. Huang\***. Low-Pressure Drop Packed-Bed Microreactor for Continuous, Heterogeneous Catalysis Reaction. *70<sup>th</sup> TwIChE Annual Meeting*, 2023. Taipei, Taiwan.



31. C. Y. Lee, **J.-H. Huang\***. Advancements in Tumor-Microenvironment-on-a-Chip (TMOc) Technology for Studying Breast Cancer Bone Metastasis. *70<sup>th</sup> TwIChE Annual Meeting, 2023*. Taipei, Taiwan.
32. H.-H. Lin, **J.-H. Huang\***. Using Transfer Learning for Prediction of Chemical Synthesis Reaction. *70<sup>th</sup> TwIChE Annual Meeting, 2023*. Taipei, Taiwan.
33. Y.-H. Peng, P.-R. Lin, K.-Y. Chang, **J.-H. Huang\***. Constructing a continuous Metal–Organic Frameworks manufacturing process using microfluidic technology. *70<sup>th</sup> TwIChE Annual Meeting, 2023*. Taipei, Taiwan.
34. C.-Y. Liu, Y.R. Chen, H.-Y. Mu, **J.-H. Huang\***. Medium Flow Controlled-Cyclic Breathing Lung Inflammation Chip for Pulmonary Drug Screening. *The 27th International Conference on Miniaturized Systems for Chemistry and Life Sciences, MicroTAS, 2023*. Katowice, Poland.
35. H.-Y. Mu, C.-M. Lin, L.-A. Chu, J. Li, C.-Y. Liu, H.-C. Huang, S.-L. Cheng, T.-Y. Lee, H. M. Lee, H.-M. Chen, Y.-J. Tsai, Y. Chen\*, **J.-H. Huang\***. Assessing Combination Immunotherapy through a Tumour-Microenvironment -on-Chip Platform. *The 27th International Conference on Miniaturized Systems for Chemistry and Life Sciences, MicroTAS, 2023*. Katowice, Poland.
36. **J.-H. Huang\***. Advancing Drug Development: Recapitulating Tumor Microenvironments using Microfluidics. *2023 KSBB Fall Meeting and International Symposium, 2023*. Busan, Korea (Invited).
37. C. Lee, **J.-H. Huang\***. Development of Gut Microbiome Modulation for Enhancing Personalized Cancer Immunotherap. *2023 BEST Joint YABEC International Symposium, 2023*. Tainan, Taiwan (Honorable Mention).
38. C.-M. Lin, **J.-H. Huang\***. Development of in Vitro Tumor Microenvironment on Chip for Breast Cancer Drug Selection. *2023 BEST Joint YABEC International Symposium, 2023*. Tainan, Taiwan (Best poster award).
39. L.-H. Lee, **J.-H. Huang\***. Continuous Cell Encapsulation in Alginate Microspheres for High-Throughput Drug Development. *2023 BEST Joint YABEC International Symposium, 2023*. Tainan, Taiwan.
40. C.-H. Wu, **J.-H. Huang\***. Development of Microfluidic Valve Control System for Multi-Column Continuous Protein Purification. *2023 BEST Joint YABEC International Symposium, 2023*. Tainan, Taiwan.
41. Y.-J. Chen, C.-H. Peng, **J.-H. Huang\***. Development of Low-Pressure Drop Packed-Bed Microreactor for Continuous, Heterogeneous Biocatalysis. *2023 BEST Joint YABEC International Symposium, 2023*. Tainan, Taiwan.



42. Y.-H. Peng, **J.-H. Huang\***. Constructing Continuous Activation Processes of Metal-Organic Frameworks for Biological and Medical Applications Using Microfluidic Models. *2023 BEST Joint YABEC International Symposium, 2023*. Tainan, Taiwan (Honorable Mention).
43. H.-H. Lin, **J.-H. Huang\***. Establishment of Machine Learning Model for Prediction of Continuous MOF Synthesis in Drug Delivery Application. *2023 BEST Joint YABEC International Symposium, 2023*. Tainan, Taiwan.
44. P.-R. Lin, C.-W. Wu, **J.-H. Huang\***. Development of Continuous Isolation Platform toward Sustainable Metal–Organic Frameworks Production for Drug Delivery. *2023 BEST Joint YABEC International Symposium, 2023*. Tainan, Taiwan.

## 2022

45. H.-H. Lin, **J.-H. Huang\***. Establishment of Machine Learning Model for Prediction of Continuous MOF Synthesis. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan.
46. C. Lee, **J.-H. Huang\***. Development of Gut Microbiome Modulation for Enhancing Personalized Cancer Immunotherapy. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan.
47. C.-M. Lin, **J.-H. Huang\***. Development of In Vitro Tumor Microenvironment on Chip for Esophageal Cancer Drug Selection. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan.
48. C.-H. Wu, **J.-H. Huang\***. Develop an Automated Platform and a Microfluidic-Based Valve Controlling System for Continuous Protein Purification on Multi-Columns. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan (Best poster award).
49. J. Li, **J.-H. Huang\***. Application of in Vitro Tumor Microenvironment on Chip for PDAC Autophagy and MP Inhibition Drug Selection. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan (Honorable Mention).
50. J.-W. Lin, M.-H. Yen, **J.-H. Huang\***. Multi-Antibiotic Susceptibility Testing Chip for Real-time Clinical Diagnosis. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan.
51. Y.-H. Peng, **J.-H. Huang\***. Constructing a Continuous Activation Process for Metal-Organic Frameworks Using a Microfluidic Model. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan.
52. P.-R. Lin, C.-W. Wu, **J.-H. Huang\***. Development of Continuous Isolation



- Platform toward Sustainable Metal–Organic Frameworks Production. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan (Honorable Mention).
53. K.-Y. Chang, C.-W. Wu, **J.-H. Huang\***. Continuous Synthesis of Metal Organic Framework. *69<sup>th</sup> TwIChE Annual Meeting, 2022*. New Taipei, Taiwan (Best poster award).
  54. H.-Y. Mu, **J.-H. Huang\***, Discovery of synergistic effect for triple-negative breast cancer immunotherapy using tumor-microenvironment-on-chip. *ESMO Asia Congress, 2022*. Singapore, Republic of Singapore.
  55. Chao-Yu Liu, **J.-H. Huang\***. Cyclic Breathing Lung Inflammation Model for Pulmonary Drug Screening. *2022 KSBB Fall Meeting and International Symposium, 2022*. Seoul, Korea, Online (Invited).
  56. H.-Y. Mu, **J.-H. Huang\***. Discovery of Synergistic Effect for Triple-Negative Breast Cancer Immunotherapy Using Tumor-Microenvironment-on-Chip. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan (Best oral presentation award).
  57. C.-H. Wu, **J.-H. Huang\***. Develop an Automated Platform and a Microfluidic-Based Valve Controlling System for Continuous Protein Purification on MultiColumns. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan (Best poster award).
  58. P.-R. Lin, C.-W. Wu, **J.-H. Huang\***. Development of Continuous Isolation Platform toward Sustainable Metal–Organic Frameworks Production for Drug Delivery. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan.
  59. X. H. Cheong, Y.-C. Tai, Y.-H. Cheng, **J.-H. Huang\***. Detection of Neonatal Hyperbilirubinemia Using Microfluidics-Based Rapid Diagnosis Chip. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan.
  60. Y.-J. Chen, C.-H. Peng, **J.-H. Huang\***. Development of Low-Pressure Drop Packed-Bed Microreactor for Continuous, Heterogeneous Biocatalysis. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan.
  61. L.-H. Lee, **J.-H. Huang\***. Continuous Cell Encapsulation in Liquid-Core Microsphere for High-Throughput Drug Testing. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan.



62. K.-Y. Chang, **J.-H. Huang\***. Investigation of Metal Organic Framework Synthesis Mechanism using Continuous Droplet Formation Platform for precision Drug Encapsulation. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan.
63. C.-Y. Liu, Y.-R. Chen, **J.-H. Huang\***. Development of a Breathable Airway Inflammation Disease Model toward Inhaled Pulmonary Drug Screening. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan.
64. C.-L. Wu, J.-Y. Xu, **J.-H. Huang\***. Continuous Production of Metal-Organic Frameworks For Drug Loading in a Microdroplet Reactor Integrated with a Water/Oil Separator. *2022 BEST Conference & International Symposium on Biotechnology and Bioengineering, 2022*. Taoyuan, Taiwan.

## 2021

65. P.-R. Lin, C.-W. Wu, **J.-H. Huang\***. Development of Continuous Isolation Platform toward Sustainable Metal–Organic Frameworks Production. *68<sup>th</sup> TwICHe Annual Meeting, 2021*. Kaohsiung, Taiwan.
66. C.-H. Wu, Y.-H. Chi, **J.-H. Huang\***. Develop an Automated Platform and a Microfluidic-Based Valve Controlling System for Continuous Protein Purification on Multi-Columns. *68<sup>th</sup> TwICHe Annual Meeting, 2021*. Kaohsiung, Taiwan.
67. G.-Y. Chang, **J.-H. Huang\***, C.-W. Wu. Continuous Synthesis of Metal Organic Framework. *68<sup>th</sup> TwICHe Annual Meeting, 2021*. Kaohsiung, Taiwan.
68. Y.-J. Chen, C.-H. Peng, **J.-H. Huang\***. Development of Low-Pressure Drop Packed-Bed Microreactor for Continuous, Heterogeneous Catalysis. *68<sup>th</sup> TwICHe Annual Meeting, 2021*. Kaohsiung, Taiwan.
69. H. Chen, Y.-L. Lu, **J.-H. Huang\***. Hydraulically-Driven Microperfusion Platform for Cell Culture and Drug Screening. *68<sup>th</sup> TwICHe Annual Meeting, 2021*. Kaohsiung, Taiwan.
70. X.-H. Cheong, Y.-C. Tai, Y.-J. Cheng, **J.-H. Huang\***. Detection of neonatal hyperbilirubinemia using microfluidics-based rapid diagnosis chip. *68<sup>th</sup> TwICHe Annual Meeting, 2021*. Kaohsiung, Taiwan (Honorable Mention).
71. T.-H. Chiang, C.-C. Huang, **J.-H. Huang\***. Development of 3D Spheroid using Novel Hanging Drop Platform for High-Throughput Drug Testing. *68<sup>th</sup> TwICHe Annual Meeting, 2021*. Hsinchu, Taiwan (Best Poster Award).



72. L.-H. Lee, **J.-H. Huang\***. Continuous Cell Encapsulation in Liquid-Core Microsphere for Cell-Material Interaction Analysis. *68<sup>th</sup> TwIChE Annual Meeting, 2021*. Hsinchu, Taiwan (Honorable Mention).
73. C.-L. Wu, **J.-H. Huang\***, C.-W. Wu. Continuous and Green Synthesis of Metal-Organic Frameworks with Tunable Size in an Aqueous System. *68<sup>th</sup> TwIChE Annual Meeting, 2021*. Hsinchu, Taiwan.
74. Y.-H. Chi, I.-W. Chen, **J.-H. Huang\***. Automated, Continuous Protein Purification Using Microfluidic- Controlled and Real-Time Monitoring Systems. *The 26<sup>th</sup> Symposium of Young Asian Biochemical Engineers' Community (YABEC), 2021*. Kobe, Japan (Online, Invited).

## 2020

75. **J.-H. Huang\***. Experience Sharing of English Teaching and Interactive Response System. *67th TwIChE Annual Meeting, 2020*. Hsinchu, Taiwan (Invited).
76. C.-L. Wu, J.-Y. Xu, **J.-H. Huang\***. Continuous Droplet-Based Microfluidic Synthesis of Metal-Organic Frameworks. *67th TwIChE Annual Meeting, 2020*. Hsinchu, Taiwan.
77. S.-W. Fan, **J.-H. Huang\***. Analysis of Flow Field in a Rapid Diagnosis Device. *67th TwIChE Annual Meeting, 2020*. Hsinchu, Taiwan.
78. Y.-H. Chi, I.-W. Chen, **J.-H. Huang\***. Development of Microfluidic-Based Valve Controlling Platform For Continuous Protein Purification. *67th TwIChE Annual Meeting, 2020*. Hsinchu, Taiwan.
79. T.-H. Chiang, **J.-H. Huang\***. Rapid Formation of Hanging Drop Arrays for Culturing 3D Spheroids. *67th TwIChE Annual Meeting, 2020*. Hsinchu, Taiwan (Honorable Mention).
80. L.-H. Lee, **J.-H. Huang\***. Continuous Cell Encapsulation in Liquid Core Hydrogel Droplet for Drug Development and Cell Therapy. *67th TwIChE Annual Meeting, 2020*. Hsinchu, Taiwan (Honorable Mention).
81. M.-H. Yen, C.-Y. Lin, **J.-H. Huang\***. Development of Multi-Antibiotic Susceptibility Testing Chip for Real-time Clinical Diagnosis. *Annual Meeting of the Taiwan Filtration and Separations Society, 2020*. Taipei, Taiwan (3rd place).
82. T.-H. Chiang, C.-Y. Cho, L.-H. Hsieh, W.-Y. Yang, C.-K. Yeh, C.-C. Huang, and **J.-H. Huang\***. A Novel Hanging Drop Platform for High Throughput 3D Spheroid Formation for Drug Testing. *Annual meeting of Biomaterials and Controlled Release Society in Taiwan, 2020*. Taipei, Taiwan.



83. M.-H. Yen, C.-Y. Lin, **J.-H. Huang\***. Antibiotic Susceptibility Testing Chip for Real Time Multi-Drug Diagnosis. Annual meeting of Biomaterials and Controlled Release Society in Taiwan, 2020. Taipei, Taiwan.
84. Y.-H. Chi, I.-W. Chen, **J.-H. Huang\***. Automated Microfluidic-Based Valve Controlling System for Continuous Protein Purification. Annual meeting of Biomaterials and Controlled Release Society in Taiwan, 2020. Taipei, Taiwan.
85. C.-L. Wu, **J.-H. Huang\***. Continuous Acid-Base Extraction for Small Molecule Separation in a Slug-Based System. Annual meeting of Biomaterials and Controlled Release Society in Taiwan, 2020. Taipei, Taiwan.
86. Y.-L. Lu, W.-H. Lai **J.-H. Huang\***. Dual-Microperfusion Platform for Cell Culture and Drug Screening. Annual meeting of Biomaterials and Controlled Release Society in Taiwan, 2020. Taipei, Taiwan (Excellent Poster Award).

### C. Patents

1. W.-H. Lai, **J.-H. Huang**, Y.-L. Lu, Perfusion Cell Culture Device and Perfusion Cell Culture System. US patent 12,054,699, 2021/06/22-2041/06/22
2. C.-Y. Cho, **J.-H. Huang**, T.-H. Chiang. Hanging Drop Device, Formation Method of Hanging Drop and Cell Culture Method by Using Hanging Drop. US patent 11,759,748 B1, 2021/05/05-2041/05/05
3. J.-Y. Xu, **J.-H. Huang**, C.-W. Wu. Flow Stabilized Chip, Droplet Generating System and Droplet Preparing Method. US patent 11,779,924, 2021/06/18-2041/06/18
4. Y.-H. Chi, I.-W. Chen, **J.-H. Huang**, C.-H. Wu. Automated Continuous Purification System. US patent 11,759,748, 2022/07/18-2042/07/18
5. 戴鈞靚、**黃振煌**、程俞竣、張善恆。按壓式流體傳輸暨檢測裝置及溶液比色分析檢測方法。發明專利證書號：I7813304。專利年限：2023/08/21-2042/05/22
6. 紀宇軒、陳奕璋、**黃振煌**、吳政憲。自動化連續純化系統。發明專利證書號：I806478。專利年限：2023/06/21-2042/03/07
7. 穆宣佑、**黃振煌**。微環境模擬細胞培養系統。發明專利證書號：I802457。專利年限：2023/05/11-2042/06/29
8. 賴威翰、**黃振煌**、呂育綸。灌流式細胞培養裝置及灌流式細胞培養系統。發明專利證書號：I780616。專利年限：2022/10/11-2041/03/03
9. H.-L. Hsieh, **J.-H. Huang**. In Vitro Cell Culture Platform and Cell Culture Method. US patent 11,371,009, 2022/06/28-2040/09/09
10. 卓晉逸、**黃振煌**、江子庠。懸滴裝置、形成懸滴之方法以及利用懸滴培養細胞之方法。發明專利證書號：I760120。專利年限：2022/04/01-2041/02/24



11. B.-S. Ni, **J.-H. Huang**, “Cell Culture Device and Cell Culture System”. U.S. Patent 11,248,200, 2022/02/15-2040/04/30
12. 許嘉芸、**黃振煌**、吳嘉文。擾流穩定晶片、液滴生成系統及液滴製備方法。發明專利證書號：I757167。專利年限：2022/03/01-2041/05/03
13. C.-K. Lin, **J.-H. Huang**, “Imitating Lung Device, System for Simulating Human Lung, Method for Simulating Human Breathing, System for Simulating Deposition”. US patent 11,062,625, 2021/07/13-2039/09/09
14. P. Nath, **J.-H. Huang**. “Devices for Cell Culture and Methods of Making and Using the Same”. U.S. Patent 10,982,181 B2 2021/04/20-2039/06/24.
15. R. Iyer, P. Nath, **J.-H. Huang**. “Devices for Fluid Management”. U.S. Patent 10,908,149 B2 2021/02/02-2039/04/24.
16. 穆宣佑、**黃振煌**、蕭自宏。捕獲循環腫瘤癌細胞裝置、其方法以及循環腫瘤癌細胞捕獲暨藥物敏感性測試的方法。發明專利證書號：I719605。專利年限：2021/2/21-2039/8/22
17. P. Nath, **J.-H. Huang**. “Reversibly Bonded Devices and Methods of Making and Using the Same”. US Patent 10,737,261 B1, 2020/08/11-2037/11/28.
18. R. Iyer, **J.-H. Huang**, P. Nath, J. F. Harris, “Bio-Assessment Device and Method of Making the Device”. WIPO patent. WO2016049363A1.
19. R. Iyer, **J.-H. Huang**, P. Nath, J. F. Harris, J. P. Wiksw, “Bio-Assessment Device and Method of Making the Device”. US patent 10,634,665 B2 2020/04/28-2035/09/24.
20. R. Iyer, J. F. Harris, **J.-H. Huang**, P. Nath, A. Przekwas “Multi-Organ Media compositions and Methods of Their Use”. US Patent 10,564,148 B2, 2020/02/18-2035/09/24.
21. H.-Y Mu, **J.-H. Huang**, T.-H. Hsiao. Circulating Tumor Cell Capture Device, Method Thereof and Method for Circulating Tumor Cell Capture and Drug Sensitivity Analysis. US patent 11,524,296, 2020/01/30-2040/01/30

#### D. Honors and Awards

- 2025 MOEA Technology Development Program for Academia 經濟部價值創造計畫, 2025
- 2024 NTHU-YEH,KUN-MING Distinguished Young Scholar Award 113 年度清華-葉昆明傑出年輕學者
- 2024 National Innovation Award 第 21 屆國家新創獎
- 2024 NTHU College of Engineering Outstanding Mentor Award 清華大學工學院傑出導師



- 2024 Boehringer Ingelheim Unicorn 2.0 - BioMedicine Innovation Program 百靈佳殷格翰獨角獸 2.0 生醫加乘行動計畫
- 2024 NSTC Taiwan Germination Program 國科會科研創業計畫
- 2023 NSTC Future Tech Award 國科會未來科技獎
- 2023 BEST Professor Shih-Yow Huang Memorial Award 台灣生物技術與生化工程學會黃世佑教授獎
- 2022 Outstanding Chemical Engineering Article of the Year 台灣化工學會化工傑作獎
- 2021 MOST Excellent Young Scholars Award 科技部優秀年輕學者研究計畫
- 2021 MOST College Student Research Creativity Award (Advisor) 科技部大專生研究創作獎 (指導教授)



## Publications of Shi-Shang Jang (鄭西顯)

### A. Journal Papers

#### 2024

1. Zhen-Feng Jiang, Xi-Zhan Wei, Jia-Lin Kang, David Shan-Hill Wong, Yuan Yao, Yao-Chen Chuang, **Shi-Shang Jang**, John Di-Yi Ou. “Deep learning model predictive control of a high-density polyethylene reactor with a physics-guided sequence-to-sequence model with memory”, COMPUTERS & CHEMICAL ENGINEERING, v 189, 2024.

#### 2023

2. Po-Hsun Chang, David Shan-Hill Wong, John Di-Yi Ou, Yung-Tin Pan, **Shi-Shang Jang\***. “CO<sub>2</sub>-Enhanced Production and Synthesis of 2,5-Furandicarboxylic Acid under CO<sub>2</sub> Flow through the Henkel Reaction”, European Journal of Organic Chemistry, 26, 2023.
3. Jie-Ying Su, Jia-Lin Kang, and **Shi-Shang Jang\***. “An Actor-Critic Algorithm for the Stochastic Cutting Stock Problem”, Processes, 11 (4), 2023.

#### 2022

4. Jiang, Z. F., Wei, X. Z., Wong, D. S. H., Yao, Y., Kang, J. L., Chuang, Y. C., **Jang, S. S.** & Ou, J. D. Y. “Model Predictive Control of Grade Transition with Attention Base Sequence-to-Sequence Model”, Computer Aided Chemical Engineering Vol. 49, pp. 367-372, 2022.
5. Huang, SH; Kang, JL ; Wong, DSH ; **Jang, SS\***, “Evaluation of Hydrodynamic Performance of New Random Packing Structure Using CFD”, Process, 10, 7, 1276, 2022.

#### 2021

6. Jia-Lin Kang\*, Ching-Jung Chen, Chien-Hao Wu, David Shan-Hill Wong\*, **Shi-Shang Jang\***, Chung-Sung Tan "Dynamic modeling of the absorption of acetic acid in rotating packed bed”, Journal of the Taiwan Institute of Chemical Engineers, 132, 104130, 2021.



7. Sun, K (Sun, Kai); Sui, L (Sui, Lin); Wang, HX; Yu, XD (Yu, Xiaodong); **Jang, SS**, “Design of an Adaptive Nonnegative Garrote Algorithm for Multi-Layer Perceptron- Based Soft Sensor”, IEEE Sensors, 21, 19, 21808 – 21816, 2021.
8. Kang, JL ; Wang, CC; Wong, DSH]; **Jang, SS\***, Wang, CH, “Digital twin model and dynamic operation for a plant-scale solid oxide fuel cell system” Journal of Taiwan Institute of Chemical Engineering, 118, 60-67, 2021.

## 2020

9. Cheng-Hung Chou, Haibin Wu, Jia-Lin Kang, David Shan-Hill Wong, Yuan Yao, Yao-Chen Chuang, **Shi-Shang Jang**, and John Di-Yi Ou, “Physically Consistent Soft-sensor Development Using Sequence-to-Sequence Neural Networks”, DOI 10.1109/TII.2019.2952429, IEEE Transactions on Industrial Informatics, 2020.
10. Huang, SH; Kang, JL ; Wong, DSH ; **Shi-Shang Jang\*** ; Lin, CA,”P a r t i c l e - Scavenging prediction in sieve plate scrubber via dimension reduction in computational fluid dynamics”, Chemical Engineering Research and Design, 160; 540-550, 2020.
11. Fan, YJ ; Tao, B; Zheng, Y **Shi-Shang Jang**, ”A Data-Driven Soft Sensor Based on Multilayer Perceptron Neural Network With a Double LASSO Approach”, IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT; 69; 7; pp3972-3979, 2020.

## B. Conference Papers

## 2024

1. Su, J.Y., Hong, Y.F., Kang, J.L., **Jang, S.S.** (2024). A Reinforcement Learning Approach for the Exact Guillotine Cutting Stock Problem. 2024 Symposium on Thermodynamics and Process Systems Engineering.

## 2023

2. Su, J.Y., Hong, Y.F., Kang, J.L., **Jang, S.S.** (2023). A Reinforcement Learning Approach for the Exact Guillotine Cutting Stock Problem. 2023 AIChE Annual Meeting.
3. Su, J.Y., Liu, C.H., Syu, C.S., Kang, J.L., **Jang, S.S.** (2023). “A Reinforcement Learning Development for The Exact Guillotine with Flexibility on Cutting Stock Problem”, Paper presented at the 33rd European Symposium on Computer Aided Process Engineering (Escape 33)



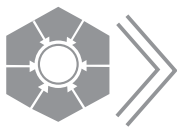
4. Su, J. Y., Kang, J. L., & **Jang, S. S.** (2023) “A Reinforcement Learning Development for The Exact Guillotine with Flexibility on Cutting Stock Problem” 2023 Symposium on Thermodynamics and Process Systems Engineering (PSE 2023)
5. Po-Hsun Chang, David Shan-Hill Wong, John Di-Yi Ou, Yung-Tin Pan, **Shi-Shang Jang\*** (2023) “CO<sub>2</sub> Enhanced Production and Synthesis Pathway of 2,5-Furandicarboxylic Acid under CO<sub>2</sub> Flow via the Henkel Reaction” 2023 Symposium on Thermodynamics and Process Systems Engineering (PSE 2023)

## 2022

6. Su, J.Y., Kang, J.L., **Jang, S.S.** (2022). A Reinforcement Learning Approach for Stochastic Cutting Stock Problem. 2022 AIChE Annual Meeting.
7. Su, J.Y., Kang, J.L., **Jang, S.S.** (2022). A Reinforcement Learning Approach for Stochastic Cutting Stock Problem. 10th Asian Symposium on Process Systems Engineering.
8. Siao-Han Huang, Jia-Lin Kang, **Shi-Shang Jang\*** (2022, June) “Improvement of Hydrodynamics Prediction with Complex Geometric Random Packing in CFD” The 14th International Symposium on Process Systems Engineering (PSE 2021)
9. Po-Hsun Chang, David Shan-Hill Wong, **Shi-Shang Jang\*** (2022, June) “Using 2-furoic acid as a Raw Material to Produce High Valued 2,5-furandicarboxylic acid” The 14th International Symposium on Process Systems Engineering (PSE 2021)
10. Zhen-Feng Jiang, Xi-Zhan Wei, Jia-Lin Kang\*, David Shan-Hill Wong\*, Yuan Yao\*, Yao-Chen Chuang, **Shi-Shang Jang**, John Di-Yi Ou. (2022, June) “Development of a Data-driven Nonlinear Dynamic Model for A High Density Polyethylene Reactor Using a Sequence-to-Sequence Model with Attention and Application in Model Predictive Control of Grade Transition” The 14th International Symposium on Process Systems Engineering (PSE 2021)

## 2020

11. Jia-Lin Kang, Yao-Chen Lee, Yao-Cheng Chuang, Marvin Frias, Cheng-Huang Chou, San-Jang Wang, David Shan Hill Wong, **Shi-Shang Jang.** (2020, Nov) “Data-Driven Digital Twin Development for Chemical Plants Using Sequence-to-Sequence Approach and Rolling Training” 2020 Asian Symposium on Process Systems Engineering.



12. Jia-Lin Kang, **Shi-Shang Jang**, Fan-Kai Sun, and Po-Hsun Chang. (2020, Aug.) "Physically Consistent Machine Learning Models Using Artificial Data for MISO Systems and Model Predictive Control." European Symposium on Computer Aided Process Engineering 30 (Escape 30)
13. Jia-Lin Kang, Chien-Chien Wang, Po-Hsun Chang, David Shan-Hill Wong, **Shi-Shang Jang**, and Chun-Hsiu Wang. (2020, Aug.) "Modeling of The Solid Oxide Fuel Cell Considering H<sub>2</sub> and CO Electrochemical Reactions." European Symposium on Computer Aided Process Engineering 30 (Escape 30)
14. Jia-Lin Kang, Yao-Chen Lee, Yao-Cheng Chuang, Marvin Frias, Cheng-Huang Chou, San-Jang Wang, David Shan Hill Wong, **Shi-Shang Jang**. (2020, Nov) "Data-Driven Digital Twin Development for Chemical Plants Using Sequence-to-Sequence Approach and Rolling Training" 2020 Asian Symposium on Process Systems Engineering
15. Jia-Lin Kang, **Shi-Shang Jang**, Fan-Kai Sun, and Po-Hsun Chang. (2020, Aug.) "Physically Consistent Machine Learning Models Using Artificial Data for MISO Systems and Model Predictive Control." European Symposium on Computer Aided Process Engineering 30 (Escape 30)
16. Jia-Lin Kang, Chien-Chien Wang, Po-Hsun Chang, David Shan-Hill Wong, **Shi-Shang Jang**, and Chun-Hsiu Wang. (2020, Aug.) "Modeling of The Solid Oxide Fuel Cell Considering H<sub>2</sub> and CO Electrochemical Reactions." European Symposium on Computer Aided Process Engineering 30 (Escape 30)
17. Siao-Han Huang, Jia-Lin Kang, **Shi-Shang Jang**\* (2022, June) "Improvement of Hydrodynamics Prediction with Complex Geometric Random Packing in CFD" The 14th International Symposium on Process Systems Engineering (PSE 2021)
18. Po-Hsun Chang, David Shan-Hill Wong, **Shi-Shang Jang**\* (2022, June) "Using 2-furoic acid as a Raw Material to Produce High Valued 2,5-furandicarboxylic acid" The 14th International Symposium on Process Systems Engineering (PSE 2021)
19. Zhen-Feng Jiang, Xi-Zhan Wei, Jia-Lin Kang\*, David Shan-Hill Wong\*, Yuan Yao\*, Yao-Chen Chuang, **Shi-Shang Jang**, John Di-Yi Ou. (2022, June) "Development of a Data-driven Nonlinear Dynamic Model for A High Density Polyethylene Reactor Using a Sequence-to-Sequence Model with Attention and Application in Model Predictive Control of Grade Transition" The 14th International Symposium on Process Systems Engineering (PSE 2021)
20. Jia-Lin Kang, Yao-Chen Lee, Yao-Cheng Chuang, Marvin Frias, Cheng-Huang Chou, San-Jang Wang, David Shan Hill Wong, **Shi-Shang Jang**. (2020, Nov) "Data-Driven Digital Twin Development for Chemical Plants Using



Sequence-to-Sequence Approach and Rolling Training” 2020 Asian Symposium on Process Systems Engineering

21. Jia-Lin Kang, **Shi-Shang Jang**, Fan-Kai Sun, and Po-Hsun Chang. (2020, Aug.) "Physically Consistent Machine Learning Models Using Artificial Data for MISO Systems and Model Predictive Control." European Symposium on Computer Aided Process Engineering 30 (Escape 30)
22. Jia-Lin Kang, Chien-Chien Wang, Po-Hsun Chang, David Shan-Hill Wong, **Shi-Shang Jang**, and Chun-Hsiu Wang. (2020, Aug.) "Modeling of The Solid Oxide Fuel Cell Considering H<sub>2</sub> and CO Electrochemical Reactions." European Symposium on Computer Aided Process Engineering 30 (Escape 30)

### C. Patents

- (1) 以氣丙烯與雙氧水反應生產環氧氣丙烷的製造裝置及造方法, 中華民國 I622584, 2018.
- (2) 氣體中的目標成分的捕獲裝置與捕獲方法, 中華民國, I614058, 2018.

### D. Other

#### Associate Editors and Editorial Board

- (1) Associate Editor, Journal of Process Control
- (2) Associate Editor, Process
- (3) Editorial Board of International Journal
  1. Taiwan Institute of Chemical Engineering
  2. International Journal of System Control and Information Processing
- (4) PROGRAM COMMITTEE:
  1. Steering Committee, PSE ASIA 2018.
  2. International Program Committee, AdCONIP: 2020, Singapore.
  3. International Program Committee, AdCONIP: 2021, Taipei.
- (5) 清華大學傑出產學貢獻獎 2022  
清華大學產學合作績優獎 2023



## Publications of U-Ser Jeng (鄭有舜)

### A. Journal Papers (\* Corresponding author)

2024-2025

1. Y. J. Shiu, B. W. Mansel, K.-F. Liao, T.-W. Hsu, J.-W. Chang, O. Shih, Y.-Q. Yeh, J. Allwang, **U. Jeng,\*** Revealing the Solution Conformation and Hydration Structure of Type I Tropocollagen using X-ray Scattering and Molecular Dynamics Simulation, *Biomacromolecules*, 2025, 26, 1, 449–458. [Journal Cover Story](#).
2. W.-C. Lin, Y.-E. Sun, Y.-R. Zhuang, T.-F. Huang,...C.-W. Chen, C.-H. Yu, A.-C. Su, K.-H. Lin,\* **U. Jeng,\*** Shang-Da Yang, \* Ho-Hsiu Chou\*, Optimally Miscible Polymer Bulk-Heterojunction-Particles for Nonsurfactant Photocatalytic Hydrogen Evolution, *J. Am. Chem. Soc.*, 2025, 147, 3, 2537–2548.
3. K-H Lu, W-R Wu, C-J Su, P-W Yang, Norifumi L Yamada, H-J Zhuo, S-A Chen, W-T Chuang, Y-K Lan, A-C Su,\* **U. Jeng,\*** Modulating phase segregation during spin-casting of fullerene-based polymer solar-cell thin films upon minor addition of a high-boiling co-solvent, *J. Applied Crystallography*\_ 2024, 57, 1871-1883. [Journal Cover Story](#).
4. T-C Lin, Orion Shih, T-Y Tsai, Y-Q Yeh, K-F Liao, Bradley W Mansel, Y-J Shiu, C-F Chang, A-C Su, Y-R Chen,\* **U. Jeng,\*** Binding structures of SERF1a with NT17-polyQ peptides of huntingtin exon 1 revealed by SEC-SWAXS, NMR and molecular simulation, 2024, *IUCrJ*, 11, 849-858.
5. T.-F. Huang, J.-J. Liu, Z.-Y. Lai, J.-W. Chang, Y.-R. Zhuang, Z.-C. Jiang, C.-L. Chang, T.-L. Wu, S.-D. Yang, A.-C. Su, **U. Jeng,\*** Ho-Hsiu Chou\*, Performance and Solution Structures of Side-Chain-Bridged Oligo (Ethylene Glycol) Polymer Photocatalysts for Enhanced Hydrogen Evolution under Natural Light Illumination, *Small*, 2024, 20, 2304743.
6. J-W Chang, KH Su, CW Pao, JJ Tsai, CJ Su, JL Chen, LM Lyu, CH Kuo, H.-C. Yang,\* Y.-H. Lai,\* **U. Jeng,\*** Arrayed Pt Single Atoms via Phosphotungstic Acids Intercalated in Silicate Nanochannels for Efficient Hydrogen Evolution Reactions, *ACS nano* 2024, 18, 1611-1620.
7. S.-W. Lin, P. K. Lam, C.-T. Wu, K.-H. Su, C.-F. Sung, S.-R. Huang, J.-W. Chang, O. Shih, Y.-Q. Yeh, T. H. Vo, H.-K. Tsao, H.-T. Hsieh, **U. Jeng,\*** Fa-Kuen Shieh,\* Hsiao-Ching Yang\*, Decoding the Biomimetic Mineralization



- of Metal–Organic Frameworks in Water, *ACS nano* 2024, 18, 25170–25182.
8. Y.-J. Chang, K.-T. Lin, O. Shih, C.-H. Yang, C.-Y. Chuang, M.-H. Fang, W.-B. Lai, Y.-C. Lee, H.-C. Kuo, S.-C. Hung, Ch.-K. Yao, **U. Jeng**, Yun-Ru Chen\*, Sulfated disaccharide protects membrane and DNA damages from arginine-rich dipeptide repeats in ALS, *Science Advances*, 2024, 10, eadj0347.
  9. S. Wang, C.-H. Huang, T.-S. Lin, Y.-Q. Yeh, Y.-S. Fan, S.-W. Wang, H.-C. Tseng, S.-J. Huang, Y.-Y. Chang, **U. Jeng**, C.-I Chang, Shiou-Ru Tzeng,\* Structural basis for recruitment of peptidoglycan endopeptidase MepS by lipoprotein NlpI, 2024, *Nature Communications*, 15, 5461. (IF= 14.7).
  10. C.-L. Tsai, J.-W. Chang, K.-Y. Cheng, Y.-J. Lan, Y.-C. Hsu, Q.-D. Lin, T.-Y. Chen, O. Shih, C.-H. Lin, P.-H. Chiang, M. Simenas, V. Kalendra, Yun-Wei Chiang,\* Chun-hsien Chen,\* **U. Jeng**,\* Sheng-Kai Wang\*, Comprehensive characterization of polyproline tri-helix macrocyclic nanoscaffolds for predictive ligand positioning, *Nanoscale Adv.* 2024, 6, 947-959.

## 2023

11. Yung-Jing Xue, Ze-Yu Lai, Han-Cheng Lu, Je-Wei Chang, Su-Ying Chien, Gene-Hsiang Lee, **U-Ser Jeng**,\* Yen-Ju Cheng,\* Unraveling the Structure–Property–Performance Relationships of Fused-Ring Nonfullerene Acceptors: Toward a C-Shaped ortho-Benzodipyrrole-Based Acceptor. *J. Am. Chem. Soc.*, 2023, 146, 833-848.
12. O. Shih,\* Y.-Q. Yeh, K.-F. Liao, K.-M. Li, J.-Y. Tsai, C.-C. Li, Y.-W. Chiang, R. K Heenan, Y.-J. Sun,\* **U. Jeng**, Solution structure of bilayer membrane-embedded proton-translocating pyrophosphatase revealed via small-angle X-ray scattering. *Materials Chemistry and Physics* 308 (2023) 128253.
13. T-W Hsu, C-H Yang, C-J Su,\* Y-T Huang, Y-Q Yeh, K-F Liao, T-C Lin, Orion Shih, M-T Lee, A-C Su, **U-S Jeng**,\* Revealing cholesterol effects on PEGylated HSPC liposomes using AF4–MALS and simultaneous small-and wide-angle X-ray scattering, *J. Appl. Cryst.* (2023). 56, 988-993.
14. Ying-Chiao Wang, Chun-Hao Chiang, Chun-Jen Su, Je-Wei Chang, Chi-Ying Lin, Chia-Chun Wei, Shao-Ku Huang, Hiroaki Maeda, Wen-Bin Jian, **U-Ser Jeng**,\* Kazuhito Tsukagoshi,\* Chun-Wei Chen,\* Hiroshi Nishihara,\* Terpyridine-zinc (ii) coordination nanosheets as modulators of perovskite crystallization to enhance solar cell efficiency, *J. Mater. Chem. A*, 2023, 11, 7077



## 2022

15. Tung-You Han, Chun-Hsiu Lin, Yu-Sheng Lin, Chun-Ming Yeh, Yi-An Chen, Hsin-Ya Li, Yu-Ting Xiao, Je-Wei Chang, An-Chung Su, **U-Ser Jeng,\*** Ho-Hsiu Chou,\* Autonomously self-healing and ultrafast highly-stretching recoverable polymer through trans-octahedral metal-ligand coordination for skin-inspired tactile sensing, *Chem. Engine. J.* 438 (2022) 135592. (IF=16.744; Time Cited 2).
16. Kai-En Hung, Yu-Sheng Lin, Yung-Jing Xue, Hau-Ren Yang, Yu-Ying Lai, Je-Wei Chang, Chun-Jen Su, An-Chung Su, Chain-Shu Hsu, **U-Ser Jeng,\*** Yen-Ju Cheng,\* Non-Volatile Perfluorophenyl-Based Additive for Enhanced Efficiency and Thermal Stability of Nonfullerene Organic Solar Cells via Supramolecular Fluorinated Interactions, *Adv. Energy Mater.*, 12 (2022) 2270047. (IF=29.698; Time Cited 7); Inner Cover story paper
17. O Shih, KF Liao, YQ Yeh, CJ Su, CA Wang, JW Chang, WR Wu, CC Liang, **U-Ser Jeng,\*** “Performance of the new biological small-and wide-angle X-ray scattering beamline 13A at the Taiwan Photon Source”, *J. Appl. Cryst.* (2022). 55, 340-352. (IF=3.304; Time Cited 2)
18. CA Wang, Y-Q Yeh,\* CY Mou, CJ Su, WR Wu, **U-Ser Jeng,\*** Small-angle-scattering resolved catanionic unilamellar vesicles as molecule carriers, *Materials Chemistry and Physics* 277 (2022) 125435.
19. 1-Chloronaphthalene-Induced Donor/Acceptor Vertical Distribution and Carrier Dynamics Changes in Nonfullerene Organic Solar Cells and the Governed Mechanism, X He, CCS Chan, J Kim, H Liu, CJ Su, US Jeng, H Su, X Lu, KS Wong, *Small Methods* 6 (3), 2101475, 2022
20. 15.71% Efficiency All-Small-Molecule Organic Solar Cells Based on Low-Cost Synthesized Donor Molecules, J Guo, B Qiu, D Yang, C Zhu, L Zhou, C Su, **U-Ser Jeng,** X Xia, X Lu, L Meng, *Advanced Functional Materials* 32 (13), 2110159, 2022
21. H Liu, L Wang, H Liu, M Guan, CJ Su, **US Jeng,** B Zhao, C Weng, K You, Ternary polymerization strategy to approach 12% efficiency in all-polymer solar cells processed by green solvent and additive, *Chemical Engineering Journal* 429, 132407, 2022
22. CM Hsieh, HC Hsiao, Y Yamada, WR Wu, **US Jeng,** CJ Su, YS Lin Promoting the Efficiency and Stability of Nonfullerene Organic Photovoltaics by Incorporating Open-Cage [60] Fullerenes in the Nonfullerene Nanocrystallites, *ACS Applied Materials & Interfaces* 14 (34), 39109-39119, 2022



23. Eric H-L Chen, Kuei-Ming Lin, Jason C Sang, Meng-Ru Ho, Chih-Hsuan Lee, Orion Shih, Chun-Jen Su, Yi-Qi Yeh, **U-Ser Jeng**, Rita P-Y Chen, Condition-dependent structural collapse in the intrinsically disordered N-terminal domain of prion protein IUBMB life 74 (8), 780-793, 2022

## 2021

24. Yi-Qi Yeh, Chun-Jen Su, Chen-An Wang, Ying-Chu Lai, Chih-Yuan Tang, Zhenyu Di, Henrich Frielinghaus, An-Chung Su, **U-Ser Jeng\***, Chung-Yuan Mou\*. “Diatom-inspired self-assembly of silica thin sheets of perpendicular” Nanochannels. J. Colloid Interface Sci. 2021/02, 584, 647–659 (IF=8.128, Times Cited=2)
25. Cheng-Ming Hsieh, Min-Ru Chuang, Yuto Yamada, Chun-Jen Su, Yuan Jay Chang,\* Michihisa Murata,\* **U-Ser Jeng\***, and Shih-Ching Chuang\* “ p Tetrafluorophenylene Divinylene-Bridged Nonfullerene Acceptors as Binary Components or Additives for High-Efficiency Organic Solar Cells”, ACS Applied Materials & Interfaces. (2021/12), <https://doi.org/10.1021/acsami.1c19943>. (IF=9.229, Times Cited=0)
26. D. G. Liu, C.-H. Chang, LC Chiang, MH Lee, CF Chang, CY Lin, CC Liang, **U. Jeng\***, ...Optical design and performance of the biological small-angle X-ray scattering beamline at the Taiwan Photon Source. J. Syn. Rad. 2021, 28, 1954-1965. (IF=2.616, Times Cited=0)
27. Y.-J. Shiu, M. Hayashi,\* Y.-H. Lai, **U-Ser Jeng\*** “Revealing the effects of molecular orientations on the azo-coupling reaction of nitro compounds driven by surface plasmonic resonances” Phys. Chem. Chem. Phys. 23, 21748-21756 (IF=3.676, Times Cited=0)
28. Chen-An Wang, Yi-Qi Yeh,\* Chung-Yuan Mou, Chun-Jen Su, Wei-Ru Wu, **U-Ser Jeng\*** “Small-angle-scattering resolved catanionic unilamellar vesicles as molecule carriers” Mater. Chem. Phys. 2022, 277, 125435. (IF=4.094, Times Cited=0)
29. Jing Guo, Beibei Qiu, Dengchen Yang, Can Zhu, Liuyang Zhou, Chunjen Su, **U-Ser Jeng**, Xinxin Xia, Xinhui Lu, Lei Meng, Zhanjun Zhang, Yongfang Li, “15.71% Efficiency All-Small-Molecule Organic Solar Cells Based on Low-Cost Synthesized Donor Molecules” Advanced Functional Materials (2021/12)(IF: 18.808), <https://doi.org/10.1002/adfm.202110159> (IF=18.808, Times Cited=0)
30. F. Liu, X. Qin, B. Han, C. C. S. Chan, C. Ma, T. L. Leung, W. Chen, Y. He, I. Lončarić, L. Grisanti, J. Ovčar, Ž. Skoko, Y. Shi, F. Chi, C. Ling, M. R. Huqe, J.



- A. Zapien, S. Wang, C.-J. Su, **U-Ser Jeng**, K. S. Wong, A. Man, C. Ng, M. Gu, J. Popović,, A. B. Djurišić,\* “Enhanced Light Emission Performance of Mixed Cation Perovskite Films—The Effect of Solution Stoichiometry on Crystallization” *Advanced Optical Materials*, 2021, 9, 2100393. (IF=9.926, Times Cited=1)
31. E. H.-L. Chen, K.-M. Lin, J. C. Sang, M.-R. Ho, C.-H. Lee, O. Shih, C.-J. Su, Y.-Q. Yeh, **U-Ser Jeng**, R. P.-Y. Chen,\* “Condition-dependent structural collapse in the intrinsically disordered N-terminal domain of prion protein” *IUBMB Life*, (2021/07), <https://doi.org/10.1002/iub.2528> (IF: 3.885). (IF=3.885, Times Cited=0)
32. Jia-Hong Pan, Kun-Ta Lin, Wei-Ting Li, Yi-Chang Wu, Jia-Han Lyu, Jyh-Ming Ting, Kao-Shuo Chang, Yen-Hsun Su, **U-Ser Jeng**, Jrjeng Ruan,\* “Self-organization of ferroelectric polymer crystals and enhanced dielectric responses” *Applied Surface Science*, 2021, 555, 149659. (IF=6.707, Times Cited=0)
33. Giovanni Ferraro, Lisa Romei, Emiliano Fratini,\* Sow-Hsin Chen, **U-Ser Jeng** and Piero Baglioni, “Functionalised nanoclays as microstructure modifiers for calcium and magnesium silicate hydrates” *Phys. Chem. Chem. Phys.* 2021, 23, 2630-2636 (IF=3.676, Times Cited=0)
34. Hanlin Hu, Minchao Qin, Patrick W. K. Fong, Zhiwei Ren, Xuejuan Wan,\* Mriganka Singh, Chun-Jen Su, **U-Ser Jeng**, Liang Li, Jiajie Zhu, Mingjian Yuan, Xinhui Lu, Chih-Wei Chu, Gang Li,\* “Perovskite Quantum Wells Formation Mechanism for Stable Efficient Perovskite Photovoltaics—A Real-Time Phase-Transition Study” *Advanced Materials*, 2006238. (IF=30.849, Times Cited=6)
35. Yee-Song Law, Sainan Wang, Yaw Bia Tan, Orion Shih, Age Utt, Wei Yang Goh, Bing-Jun Lian, Ming Wei Chen, **U-Ser Jeng**, Andres Merits, Dahai Luo,\* “Interdomain Flexibility of Chikungunya Virus nsP2 Helicase-Protease Differentially Influences Viral RNA Replication and Infectivity” *Am. Soc. Microbiol., J. Virol.* 2021; 95: e01470-20. (IF=5.103, Times Cited=4)
36. Ying-Huang Lai, Sin-Ren Li, Swathi M. G, Hsiao-Tzu Chang, Yu-Bin Huang, Yen-Ken Li, Yu-Mei Chen, Shivaraj B. Patil, Shu-Yi Chang, Po-Kai Chen, Chia-Che Chang, Yi-Chia Chen, Chih-Wen Pao, Jeng-Lung Chen, Chuan-Yu Wei, I.-Kuan Lin, Hung-Lung Chou, Chun-Jen Su, **U-Ser Jeng**, Tsung-Rong Kuo, Cheng-Yen Wen and Di-Yan Wang \* “Enhanced hydrogen evolution efficiency achieved by atomically controlled platinum deposited on gold nanodendrites



- with high-index surfaces” J. Mater. Chem. A, 2021, 9, 22901 (IF=12.732, Times Cited=0)
37. hang-Wei Lin, Kuan-Hsuan Su, Yi-Qi Yeh, **U-Ser Jeng**, Chun-Ming Wu, Hsiao-Ching Yang “Molecular dynamics simulation combined with small-angle X-ray/neutron scattering defining solution-state protein structures” Journal of The Chinese Chemical Society, 2021, 68, 403-408. (IF=1.967, Times Cited=0)
38. Cheng-Yo Ho, Po-Hsun Chen\*, Ching-Feng Yang, **U-Ser Jeng**, and An-Chung Su\*, “Mesomorphic Intermediate Stages During Brill Transition of Nylon 6/6” ACS Appl. Polym. Mater. 3, 2, 1042–1051 (2021/02) (IF=4.089, Times Cited=1)
39. M. K. Lee\*, E. V. Charnaya, S. Mühlbauer, **U-S. Jeng**, L. J. Chang, and Y. A. Kumzerov, “The Morphologic Correlation Between Vortex Transformation and Upper Critical Field Line in Opal based Nanocomposites” Sci. Rep, 2021, 11, 4807 (IF=4.38, Times Cited=0)
40. Hailu Liu, Linqiao Wang, Heng Liu, Min Guan, Chun-Jen **Su**, **U-Ser Jeng**, Bin Zhao, Chao Weng, Kuiyi You, Xinhui Lud, “Ternary polymerization strategy to approach 12% efficiency in all-polymer solar cells processed by green solvent and additive”, Chemical Engineering Journal, 2022, 429, 132407 (IF= 13.273, Times Cited=0)

## 2020

41. Fang-Hsuean Liao, Te-Haw Wu, Chun-Nien Yao, Shu-Chen Kuo, Chun-Jen Su, **U-Ser Jeng**, and Shu-Yi Lin\* “ A Supramolecular Trap to Increase the Antibacterial Activity of Colistin”, Angewandte Chemie Int. Edi. 59, 1430 (2020). (IF=15.336, Times Cited=2)
42. I.-M. Lin, C.-M. Chou, M.-C. Li, R.-H. Guo, C.-K. Lee, H.-J. Li, Y.-W. Chiang\*, Y.-H. Lin, Y.-C. Lee, C.-J. Su, **U.-S. Jeng**, and W.-T. Chuang\*, “Superhelices with Tunable Twisting Power Directed from Supramolecular Pairing of Focal Asymmetry in Achiral Dendron-jacketed Block Copolymers” J. Mater. Chem. C, 8, 1923 (2020). (IF=7.393, Times Cited=2)
43. S.-M. Lin, S.-C. Lin, J.-N. Hsu, C.-K. Chang, C.-M. Chien, Y.-S. Wang, H.-Y. Wu, **U.-S. Jeng**, K. Kehn-Hall, and M.-H. Hou\*, “Structure-Based Stabilization of Non-native Protein-protein Interactions of Coronavirus Nucleocapsid Proteins in Antiviral Drug Design” J. Med. Chem. 63, 3131 (2020). (IF=7.446, Times Cited=42)



44. P.-H. Chen\*, S.-J. Lin, J.-C. Tsai, **U.-S. Jeng**, and A.-C. Su\*“Equilibrium Melting Temperature Depression in Syndiotactic Poly(styrene-stat-3-methylstyrene) and Poly(styrene-stat-4-methylstyrene)” *Macromolecules*, 53, 3059 (2020). (IF=5.985, Times Cited=0)
45. M. Qin, H. Xue, H. Zhang, H. Hu, K. Liu, Y. Li, Z. Qin, J. Ma, H. Zhu, K. Yan, G. Fang, G. Li, **U.-S. Jeng**, G. Brocks, S. Tao\*, and X. Lu\*, “Precise Control of Perovskite Crystallization Kinetics via Sequential A-site Doping” *Adv. Mater.*, 32, 2004630 (2020). (IF=30.849, Times Cited=23)
46. C. M. Septani, C.-A. Wang, **U.-S. Jeng**, Y.-C. Su, B.-T. Ko, and Y.-S. Sun\*, “Hierarchically Porous Carbon Materials from Self-assembled Block Copolymer/Dopamine Mixtures” *Langmuir*, 36, 11754–11764 (2020). (IF=3.882, Times Cited=2)

## B. Other

現任:

國家同步輻射研究中心(NSRRC) 研究員(2010-)

TLS 23A 小角/廣角度 X 光散射光束線發言人(2009~)

TPS 13A 生物結構 小角/廣角度 X 光散射光束線發言人(2020~)。

清華大學化工系/半導體學院 合聘教授 (2012-)

國際結晶學聯合會 (IUCr) Small Angle Scattering Commission 諮詢委員(2020-)

J. Synchrotron Radiation 共編輯委員 (since 2019 –)

### Awards 獎項:

2017: 有庠科技論文獎

2021: 高分子學會 貢獻獎



## Publications of Ying-Ling Liu (劉英麟)

### A. Journal Papers (\* Corresponding author)

#### 2024

1. D.Y. Hung, **Y.L. Liu\***, “Flame retardant epoxy vitrimers employing a Meldrum’s acid-functionalized and phosphorus-containing bisphenol compound as the cross-linking agent for conventional epoxy”, *Polymer* **313**, 127697 (2024).
2. S.Y. Chien, J. Wang, **Y.L. Liu\***, “Biodegradable polyester-based vitrimers exhibiting transesterification-induced topography isomerization under recycling”, *ACS Appl. Polym. Mater.* **6**(15), 9191-9199 (2024).
3. S.K. Chiu, Y.H. Lu, H.Y. Chen, **Y.L. Liu\***, “Construction of ion-conducting channels with surface-functionalized carbon nanotubes in gel/solid polymer electrolytes for lithium ion batteries”, *ACS Appl. Energy Mater.* **7**(15), 6454-6462 (2024).
4. Y.H. Wang, D.Y. Hung, **Y.L. Liu\***, “Is a vitrimer with a high glass transition temperature available? A case study on rigid polyimides crosslinked with dynamic ester bonds”, *Macromol. Rapid Commun.* **45**, 2400312 (2024).
5. C.C. Hsiao, J.J. Lee, **Y.L. Liu\***, “Meldrum’s acid-functionalized bismaleimide, polyaspartimide and their thermally crosslinked resins: synthesis and properties”, *React. Funct. Polym.* **202**, 105988 (2024).
6. W.T. Tsai, Y.H. Lu, **Y.L. Liu\***, “*In situ* self-healing of gel polymer electrolytes enhancing the cycling stability of lithium ion battery”, *ACS Sustainable Chem. Eng.* **12**(20), 7894-7902 (2024).
7. Y.S. Lai, **Y.L. Liu\***, “Inverse vulcanization employing epoxy compounds as crosslinking agents for elemental sulfur in preparation of sulfur-rich epoxy resins”, *Polym. Chem.* **15**(17), 1748-1757 (2024).

#### 2023

8. D.Y. Hung, J.J. Lee, **Y.L. Liu\***, “An effective approach of preparation of epoxy vitrimers through *in situ* formation of dynamic and permanent linkages in one-pot curing reaction”, *Polym. Chem.* **14**(44), 5004-5013 (2023).
9. Z.J. Fan, **Y.L. Liu\***, “Synthesis and properties of an amide- and Meldrum’s acid-functionalized mainchain-type polybenzoxazine and the corresponding crosslinked resin”, *Polymer* **285**, 126359 (2023).



10. Chen, C.C. Lo, **Y.L. Liu**, Y.M. Sun\*, “Lignin extraction and fractionation from rice straw biorefinery residues”, *Sep. Purif. Technol.* **326**, 124778 (2023).
11. C.Y. Lai, Y.M. Sun, **Y.L. Liu\***, “Water-soluble ozonated lignin as a hydrophilic modifier for poly(vinyl alcohol) membranes for pervaporation desalination”, *J. Membr. Sci.* **685**, 121959 (2023).
12. Z.J. Fan, **Y.L. Liu\***, “Poly(ester amide)s from biomass-based 3,4-dihydrocoumarine through Meldrum’s acid mediated ketene chemistry”, *J. Polym. Sci.* **61**(19), 2360-2367 (2023).
13. Y.S. Lai, **Y.L. Liu\***, “Reaction between 1,3,5-triisopropylbenzene and elemental sulfur extending the scope of reagents in inverse vulcanization”, *Macromol. Rapid Commun.* **44**(8), 2300014 (2023).
14. D.Y. Hung, **Y.L. Liu\***, “Meldrum’s acid mediated ketene chemistry in formation of ester bonds for synthesis of vitrimers with high glass transition temperatures”, *Polym. Chem.* **14**(12), 1339-1349 (2023).
15. K. Chen, C.Y. Chen, H.L. Chen\*, R. Komaki, N. Kawakami, T. Isono, T. Satoh, D.Y. Hung, **Y.L. Liu**, “Self-assembly behavior of sugar-based block copolymer in the complex phase window modulated by molecular architecture and configuration”, *Macromolecules* **56**(1), 28-39 (2023).
16. C. Tseng, **Y.L. Liu\***, “Poly(vinyl alcohol)/carbon nanotube (CNT) membranes for pervaporation dehydration: the effect of functionalization agents for CNT on pervaporation performance”, *J. Membr. Sci.* **668**, 121185 (2023).

## 2022

17. C. Tseng, **Y.L. Liu\***, “Creation of water-permeation pathways with matrix-polymer functionalized carbon nanotubes in polymeric membranes for pervaporation desalination”, *J. Membr. Sci. Lett.* **2**(2), 100027 (2022).
18. H.W. Lee, **Y.L. Liu\***, “A tetra-functional benzoxazine compound possessing cyclic siloxane cores for high performance thermosetting resins”, *J. Appl. Polym. Sci.* **139**(28), e52605 (2022).
19. C.H. Chang, **Y.L. Liu\***, “Gel polymer electrolytes based on interconnected porous matrix functionalized with poly(ethylene glycol) brushes showing high lithium transference numbers for high charging-rate lithium ion batteries”, *ACS Sustain. Chem. Eng.* **10**(15), 4904-4912 (2022).
20. C.Y. Tsai, **Y.L. Liu\***, “Building up ion-conduction pathways in solid polymer electrolytes through surface and pore functionalization of PVDF porous membranes with ionic conductors”, *J. Membr. Sci.* **651**, 120456 (2022).



## 2021

21. C.Y. Tsai, **Y.L. Liu\***, “Crosslinked polyimide asymmetric membranes as thermally-stable separators with self-protective layers and inhibition of lithium dendrite growth for lithium metal battery”, *J. Membr. Sci.* **640**, 119816 (2021).
22. H.W. Lee, L. M. Chang, **Y.L. Liu\***, “Thermosetting resins from a tetra-functional vinylbenzene compound possessing cyclic siloxane cores”, *J. Polym. Sci.* **59**(17), 1912-1918 (2021).
23. C.C. Lo, Y.W. Chang, Y.L. Chen, **Y.L. Liu**, H.S. Wu, Y.M. Sun\*, Lignin recovery from rice straw biorefinery solid waste by soda process with ethylene glycol as co-solvent, *J. Taiwan Inst. Chem. Eng.* **126**, 50-57 (2021).
24. C.H. Huang, **Y.L. Liu\***, “A self-protection effect of monomers on preventing gelation in synthesis of main-chain polybenzoxazines with high molecular weights”, *Macromolecules* **54**(16) 7434-7440 (2021).
25. S. Zachariah, **Y.L. Liu\***, “Surface engineering through biomimicked structures and deprotonation of poly(vinyl alcohol) membranes for pervaporation desalination”, *J. Membr. Sci.* **637**, 119670 (2021).
26. T.W. Chuo, J.T. Hou, **Y.L. Liu\***, “Preparation of polymers possessing dynamic N-hindered amide bonds through ketene-based chemistry for repairable anticorrosion coatings”, *Mater. Adv.* **2**(12), 3993-3999 (2021).
27. C.H. Huang, **Y.L. Liu\***, “Preparation of Meldrum’s acid-functionalized polyimides exhibiting organo-soluble, reactive, self-crosslinkable, and colorless features”, *J. Polym. Sci.* **59**(10), 893-903 (2021).
28. Y.T. Chen, Y.M. Sun, C. C. Hu, J. Y. Lai, **Y.L. Liu\***, “Employing lignin in formation of the selective layer of thin-film composite membranes for pervaporation desalination”, *Mater. Adv.* **2**(9), 3099-3106 (2021).
29. T.C. Wang, C.Y. Tsai, **Y.L. Liu\***, “Solid polymer electrolytes based on crosslinked polybenzoxazine possessing poly(ethylene oxide) segments enhancing cycling performance of lithium metal batteries”, *ACS Sustainable Chem. Eng.* **9**(18), 6274-6283 (2021).
30. C.Y. Tsai, **Y.L. Liu\***, “2,2-Dimethyl-1,3-dioxane-4,6-dione functionalized poly(ethylene oxide)-based polyurethanes as multi-functional binders for silicon anodes of lithium ion batteries”, *Electrochim. Acta* **379C**, 138180 (11 pages) (2021).
31. R. P. Parreño Jr.\*, **Y.L. Liu**, A. B. Beltran, Effect on thermal stability of microstructure and morphology of thermally-modified electrospun fibers of polybenzoxazines (PBz) blended with sulfur copolymers (SDIB), *RSC Adv.* **11**(17), 10002-10009 (2021).



32. C. H. Huang, **Y.L. Liu\***, “Self-polymerization of Meldrum’s acid-amine compounds: an effective route to polyamides”, *Polym. Chem.* **12**(2), 291-298 (2021).

## 2020

33. S. Zachariah, **Y.L. Liu\***, “Nanocomposites of polybenzoxazine-functionalized multiwalled carbon nanotubes and polybenzoxazine for anticorrosion application”, *Composites Sci. Technol.* **194**, 108139 (2020).
34. C.H. Huang, **Y.L. Liu\***, “Self-crosslinkable polymers from furan-functionalized Meldrum’s acid and maleimides as effective precursors of free-standing and flexible crosslinked polymer films showing low dielectric constants”, *Polym. Chem.* **11**(9), 1606-1613 (2020).
35. Y.L. Chang, T.C. Wei, **Y.L. Liu\***, “Electrochemical activation of polymer chains mediated with radical transfer reactions”, *Chem. Commun.* **56**(17), 2626-2629 (2020).
36. C.Y. Tsai, K.J. Peng, C.F. Wang, **Y.L. Liu\***, “Creation of lithium ion conducting channels in gel polymer electrolytes through nonsolvent-induced phase separation for high-rate lithium ion batteries”, *ACS Sustainable Chem. Eng.* **8**(5), 2138-2146 (2020). (*Featured as Issue Cover*)

## B. Conference Presentations

## 2024

1. **Y.L. Liu**, “Dynamic Ester Bonds based Vitrimers through Meldrum’s Acid-Mediated Ketene Chemistry: Synthesis and Property Adjustments”, *The 12th Singapore Chemistry Conference (SICC-12)*, Dec. 9-13, 2024, Singapore (*Invited Speaker*).
2. **Y.L. Liu**, “Vitrimers possessing dynamic ester bonds through Meldrum’s acid-mediated ketene chemistry”, *The 2nd International Conference on Emerging Trends in Sustainable Chemistry (ETSC2024)*, Nov. 18-19, 2024, Hochiminh city, Vietnam (*Invited Speaker*).
3. **Y.L. Liu**, “Crosslinked Polymers Possessing Chemically Dynamic Bonds”, *Polymer Engineering and Science International 2024 (PESI-2024)*, Jul. 21-25, 2024, Tokyo, Japan (*Plenary Speaker*).



4. **Y.L. Liu**, “Designs and Synthesis of Polymeric Vitrimers with High Glass Transition Temperatures”, *The 5th International Symposium on Polybenzoxazines (ISPZ 2024)*, Jan. 9-11, 2024, Bangkok, Thailand.

## 2023

5. **Y.L. Liu**, “Designs and Synthesis of Polymeric Vitrimers with High Glass Transition Temperatures”, *The 5<sup>th</sup> International Symposium on Polybenzoxazines (ISPZ 2024)*, Jan. 9-11, 2024, Bangkok, Thailand.
6. **Y.L. Liu**, “Designs and Synthesis of Polymeric Vitrimers with High Glass Transition Temperatures”, *11<sup>th</sup> Asia Symposium on Functional Dyes and Advanced Materials (EAS11)*, Oct. 18-20, 2023, Taipei, Taiwan (**Keynote Speaker**)
7. **Y.L. Liu**, “Preparation and properties of crosslinked polymers from precursors of Meldrum’s acid derivatives”, *8<sup>th</sup> International FAPS Polymer Congress*, Sep. 11-14, 2023, Istanbul, Turkey (**Invited Speaker**)
8. **Y.L. Liu**, C. Tseng, S. Zachariah, “Membranes with Enhanced Water Permeation Fluxes in Pervaporation”, *13<sup>th</sup> International Congress on Membranes & Membrane Processes (ICOM2023)*, Jul. 9-14, 2023, Makuhari Messe, Chiba, Japan (**International scientific committee, Keynote speaker, Session chair, Poster award referee**).
9. **Y.L. Liu**, “Meldrum’s acid in polymer synthesis and functional polymers thereof”, *2023 Trilateral Conference on Modern Challenges in Polymer Science and Technology*, Jan. 17-18, 2023, Taoyuan, Taiwan (**Keynote Speaker**)

## 2022

10. **Y.L. Liu**, C.Y. Tsai, C.H. Chang (2022) “Functionalized Porous Membranes Based electrolytes for Lithium Ion Batteries”, *The 13<sup>th</sup> Conference of the Aseanian Membrane Society*, Jul. 4-6, 2022, Singapore (**Keynote Speaker, Session Chair**)
11. C. H. Huang, **Y.L. Liu** (2022) “Polymer Synthesis and Materials Based on Meldrum’s Acid-Mediated Chemistry”, *The Japan-Taiwan Bilateral Polymer Symposium 2022 (JTBPS2022)*, Mar. 7-8, 2022, Online (**Invited Speaker**)
12. **Y.L. Liu** (2022), “Thermosetting resins based polymeric membranes: Preparation and application”, *YONSEI International Workshop Series: Separation Technology 2022*, Feb. 15, 2022, Online (**Invited Speaker**).



## 2020

13. **Y.L. Liu** (2020) “Update on the researches and activities of Aseanian Membrane Society”, *International Congress on Membranes & Membrane Processes 2020*, Dec. 7-11, 2020, Online Conference (**Invited Speaker**).

### C. Other

1. 院士/會士

Fellow of The Royal Society of Chemistry (UK)

2. 國際重要期刊編輯/學會職務

Council Member, The Federation of Asian Polymer Societies, 2023-present

Council Member, The Aseanian Membrane Society (AMS), 2020-present

Elected President, The Aseanian Membrane Society (AMS), 2020-2021

Advisory Board Member, *ACS Sustainable Chemistry & Engineering*, 2023-present

3. 獲獎

國立清華大學傑出產學研究獎 (2022)

國立清華大學產學合作績優獎 (2021)



## Publications of Yu-Jeng Lin (林育正)

### A. Journal Papers (\* Corresponding author)

#### 2024

1. E. C. Chang, C.A. Chou, **Y.J. Lin\*** (2024). Hybrid Solvent Loop CO<sub>2</sub> Capture Process for Zero-Emission Hydrogen Production. *Separation and Purification Technology*, 357, 130120. (IF=8.2; ranked 9% in Chemical Engineering)
2. S.F. Chang, H.H. Chiu, H.S. Jao, J. Shang\*, **Y.J. Lin\***, B.Y. Yu\* (2024). Comprehensive Evaluation of Various CO<sub>2</sub> Capture Technologies through Rigorous Simulation: Economic, Equipment Footprint, and Environmental Analysis. *Carbon Capture Science & Technology*, 14, 100342. (IF=10.4; ranked 6% in Chemical Engineering)
3. M.S. Hsieh, **Y.J. Lin\*** (2024). Solvent Concentration Effect on Mass Transfer Pinch in CO<sub>2</sub> Absorber using Aqueous Monoethanolamine. *Journal of the Taiwan Institute of Chemical Engineers*, 105397. (IF=5.5; ranked 18% in Chemical Engineering)

#### 2023

4. **Lin, Y.J.**; Chen, C.C. (2023), Modeling Salt Adsorption in Electrical Double Layer for Capacitive Deionization. *AIChE Journal*, e18018.
5. Hsieh, C.J.; Kirkes, T.E.; **Lin, Y.J.**; Chen, C.C. (2023), Thermodynamic modeling of aqueous lithium salt solutions with association electrolyte nonrandom two-liquid activity coefficient model. *Fluid Phase Equilibria*, 556, 113696.

#### 2022

6. Yu, C.H.; **Lin, Y.J.**; Wong, D.S.H.; Chen, C.C. (2021), Process Modeling of CO<sub>2</sub> Absorption with Monoethanolamine Aqueous Solutions Using Rotating Packed Beds. *Industrial & Engineering Chemistry Research*, 61, 33, 12142–12152.



## 2021

7. **Lin, Y.J.**; Hsieh, C.J.; Chen, C.C. (2021), Association-based Activity Coefficient Model for Electrolyte Solutions. *AIChE Journal*, e17422.
8. **Lin, Y.J.**; Hossain, N; Chen, C.C. (2021), Modeling Dissociation of Ionic Liquids with Electrolyte NRTL Model. *Journal of Molecular Liquids*, 329, 115924.
9. Yu, C.H., **Lin, Y.J.**; Chen, C.C. (2021), Modeling Fluid Phase Equilibria of Carbon Dioxide-Methanol Binary System. *Fluid Phase Equilibria*, 529, 112866.

## 2020

10. Hirata, T.; Tsujiuchi, T.; Kamijo, T.; Kishimoto, S.; Inui, M. Kawasaki S.; **Lin, Y.J.**; Nakagami, Y.; Nojo, T.; (2020), Near-zero Emission Coal-fired Power Plant Using Advanced KM CDR Process. *International Journal of Greenhouse Gas Control*, 92.

### B. Conference Presentations

## 2023

1. **Lin, Y.J.**, Hsieh, M.S., Chen, Y.M. *The Impact of non-aqueous solvent properties on temperature-induced mass transfer pinch in CO<sub>2</sub> absorber*, 2023 TWIChE Annual Meeting, Taipei, Taiwan, 9<sup>th</sup>-10<sup>th</sup> December 2023.
2. **Lin, Y.J.** and Liang C.W., *Predicting CO<sub>2</sub> absorption capacity with amine pKa using a generalized solvent Model*, 7<sup>th</sup> Post-Combustion Capture Conference (PCCC-7), Pittsburgh, PA, 25<sup>th</sup>-28<sup>th</sup> September 2023.
3. **Lin, Y.J.** and Hsieh, M.S., *The effect of non-aqueous solvent properties on temperature-induced mass transfer pinch in CO<sub>2</sub> absorber*, 7<sup>th</sup> Post-Combustion Capture Conference (PCCC-7), Pittsburgh, PA, 25<sup>th</sup>-28<sup>th</sup> September 2023.
4. **Lin, Y.J.**; Liang C.W.; Huang, X.K., *Integrated absorbent and process design framework for CO<sub>2</sub> capture*, 2023 Symposium on Thermodynamics and Process Systems Engineering, Taiwan, 19<sup>th</sup>-20<sup>th</sup> May 2023.



## 2022

5. **Lin, Y.J.**, Huang, X.K., Liang, C.W., *Integrated Design Framework for Simultaneous Solvent and Process Development*, 2022 TWIChE Annual Meeting, Taipei, Taiwan, 2<sup>nd</sup>-3<sup>rd</sup> December 2022.

## 2021

6. **Lin, Y.J.**; Chen, C.C., *A new activity coefficient model with ionic hydration for electrolyte solutions*, 21<sup>st</sup> Symposium on Thermophysical Properties, Boulder, CO, 20<sup>th</sup>-25<sup>th</sup> June 2021.

## 2020

7. **Lin, Y.J.**; Chen, C.C., *Challenges of Modeling Electrochemical Processes: Double Layer Structure on Charged Electrode*, Virtual AIChE Annual Meeting, San Francisco, CA, 16<sup>th</sup>-20<sup>th</sup> November 2020.

## C. Patents

## 2018

1. **Lin, Y.J.**, Kamijo, T., Kishimoto, S., Inui, M., Noborisato, T., Acidic gas absorption device and acidic gas absorption method, JP2020093187A.
2. Rochelle, G.T.; Madan, T.; **Lin, Y.J.**, Apparatus for and method of removing acidic gas from a gaseous stream and regenerating an absorbent solution, US9956505.



## Publications of Kun-Han Lin (林昆翰)

### A. Journal Papers (\* Corresponding author)

2024

1. Wei-Cheng Lin, Yu-En Sun, Ying-Rang Zhuang, Tse-Fu Huang, Kuei-Jhong Lin, Mohamed M Elsenety, Jui-Chen Yen, Hung-Kai Hsu, Bo-Han Chen, Chen-Yu Chang, Je-Wei Chang, Hsin-Ni Huang, Bing-Heng Li, Siriporn Jungstittiwong, Toton Haldar, Shin-Huei Wang, Wan-Chi Lin, Tien-Lin Wu, Chin-Wen Chen, Chi-Hua Yu, An-Chung Su, **Kun-Han Lin**\*, U-Ser Jeng\*, Shang-Da Yang\*, Ho-Hsiu Chou\* (2024). "Optimally Miscible Polymer Bulk-Heterojunction-Particles for Nonsurfactant Photocatalytic Hydrogen Evolution". *J. Am. Chem. Soc.*, 147, 2537
2. Zhi Xuan Law, **Kun-Han Lin**\*, De-Hao Tsai\* (2024). "Efficient integration of calcium looping with methane bi-reforming using Pd-enhanced Ni-CaO dual functional nanomaterials". *Chem. Eng. J.*, 500, 157302
3. Christoph Scherer, Naomi Kinaret, **Kun-Han Lin**, Muhammad Nawaz Qaisrani, Felix Post, Falk May, Denis Andrienko\* (2024). "Predicting Molecular Ordering in Deposited Molecular Films". *Adv. Energy Mater.*, 14, 2403124
4. Wei-Cheng Lin, Yi-Hsiang Wu, Yu-En Sun, Mohamed M Elsenety, Wan-Chi Lin, Jui-Chen Yen, Hung-Kai Hsu, Bo-Han Chen, Hung-Yi Huang, Chia-An Chang, Tse-Fu Huang, Ying-Rang Zhuang, Yuan-Ting Tseng, **Kun-Han Lin**, Shang-Da Yang, Chi-Hua Yu, Ho-Hsiu Chou\* (2024). "Symmetry-breaking of Dibenzo [b, d] thiophene Sulfone Enhancing Polaron Generation for Boosted Photocatalytic Hydrogen Evolution". *Angew. Chem.*, 136, e202407702
5. Cheng-Yu Wu, Yueh-Chun Hsiao, Yi Chen, **Kun-Han Lin**, Tsung-Ju Lee, Chong-Chi Chi, Jui-Tai Lin, Liang-Ching Hsu, Hsin-Jung Tsai, Jia-Qi Gao, Chun-Wei Chang, I-Ting Kao, Chia-Ying Wu, Ying-Rui Lu, Chih-Wen Pao, Sung-Fu Hung, Ming-Yen Lu, Shan Zhou, Tung-Han Yang\* (2024). "A catalyst family of high-entropy alloy atomic layers with square atomic arrangements comprising iron-and platinum-group metals". *Sci. Adv.*, 10, eadl3693
6. Ding-Huei Tsai, Tung-Ta Wu, Hung-Chin Lin, Lu-Yu Chueh, **Kun-Han Lin**, Wen-Yueh Yu\*, Yung-Tin Pan\* (2024). "Cu/MgO Reverse Water Gas Shift Catalyst with Unique CO<sub>2</sub> Adsorption Behaviors". *Chem.: Asian J.*, 19, e202300955



7. Shang-Cheng Lin, Chun-Wei Chang, Meng-Hsuan Tsai, Chih-Hao Chen, Jui-Tai Lin, Chia-Ying Wu, I-Ting Kao, Wen-Yang Jao, Chia-Hsin Wang, Wen-Yueh Yu, Chi-Chang Hu, **Kun-Han Lin\***, Tung-Han Yang\* (2024). “Decreasing the O<sub>2</sub>-to-H<sub>2</sub>O<sub>2</sub> Kinetic Energy Barrier on Dilute Binary Alloy Surfaces with Controlled Configurations of Isolated Active Atoms”. *Adv. Funct. Mater.*, 34, 2314281
8. Mohamed Hammad Elsayed, Mohamed Abdellah, Ahmed Zaki Alhakemy, Islam MA Mekhemer, Ahmed Esmail A Aboubakr, Bo-Han Chen, Amr Sabbah, **Kun-Han Lin**, Wen-Sheng Chiu, Sheng-Jie Lin, Che-Yi Chu, Chih-Hsuan Lu, Shang-Da Yang, Mohamed Gamal Mohamed, Shiao-Wei Kuo, Chen-Hsiung Hung, Li-Chyong Chen, Kuei-Hsien Chen, Ho-Hsiu Chou\* (2024). “Overcoming small-bandgap charge recombination in visible and NIR-light-driven hydrogen evolution by engineering the polymer photocatalyst structure”. *Nat. Commun.*, 15, 707

## 2023

1. XinBang Wu, Wei-Tse Lee, Roland C Turnell-Ritson, Pauline CL Delannoi, **Kun-Han Lin\***, Paul J Dyson\* (2023). Controlling the selectivity of the hydrogenolysis of polyamides catalysed by ceria-supported metal nanoparticles”. *Nat. Commun.*, 14, 6524
2. Oskar Sachnik, Xiao Tan, Dehai Dou, Constantin Haese, Naomi Kinaret, **Kun-Han Lin**, Denis Andrienko, Martin Baumgarten, Robert Graf, Gert-Jan AH Wetzelaer, Jasper J Michels, Paul WM Blom\* (2023). “Elimination of charge-carrier trapping by molecular design”. *Nat. Mater.*, 22, 1114
3. Andriy Zhugayevych\*, **Kun-Han Lin**, Denis Andrienko (2023). “Electronic coarse-graining of long conjugated molecules: Case study of non-fullerene acceptors”. *J. Chem. Phys.*, 159, 024107
4. Wei-Cheng Lin, Chih-Li Chang, Chin-Hsuan Shih, Wan-Chi Lin, Ze-Yu Lai, Je-Wei Chang, Li-Yu Ting, Tse-Fu Huang, Yu-En Sun, Hung-Yi Huang, Yu-Tung Lin, Jia-Jen Liu, Yi-Hsiang Wu, Yuan-Ting Tseng, Ying-Rang Zhuang, Bing-Heng Li, An-Chung Su, Chi-Hua Yu, Chin-Wen Chen, **Kun-Han Lin**, U-Ser Jeng, Ho-Hsiu Chou\* (2023). “Sulfide Oxidation on Ladder-Type Heteroarenes to Construct All-Acceptor Copolymers for Visible-Light-Driven Hydrogen Evolution”. *Small*, 19, 2302682
5. Yi-Hong Liu, Chia-Jui Hsieh, Liang-Ching Hsu, **Kun-Han Lin**, Yueh-Chun Hsiao, Chong-Chi Chi, Jui-Tai Lin, Chun-Wei Chang, Shang-Cheng Lin, Cheng-



Yu Wu, Jia-Qi Gao, Chih-Wen Pao, Yin-Mei Chang, Ming-Yen Lu, Shan Zhou, Tung-Han Yang\* (2023). “Toward controllable and predictable synthesis of high-entropy alloy nanocrystals”. *Sci. Adv.*, 9, eadf9931

6. Franziska H Hasenburg, **Kun-Han Lin**, Bas van der Zee, Paul WM Blom, Denis Andrienko, Gert-Jan AH Wetzelaer\* (2023). “Ambipolar charge transport in a non-fullerene acceptor”. *APL Mater.*, 11, 021105

## 2022

1. M. M. Samy, I. M. A. Mekhemer, M. G. Mohamed, M. H. Elsayed, **K.-H. Lin**, Y.-K. Chen, T.-L. Wu, H.-H. Chou, S.-W. Kuo\* (2022). “Conjugated microporous polymers incorporating Thiazolo [5, 4-d] thiazole moieties for Sunlight-Driven hydrogen production from water”. *J. Chem. Eng.*, 446, 137158
2. N. C. Forero- Martinez, **K.-H. Lin**, K. Kremer, D. Andrienko\* (2022). “Virtual screening for organic solar cells and light emitting diodes”. *Adv. Sci.*, 9, 2200825

## 2021

1. **K.-H. Lin\***, L. Paterson, F. May, D. Andrienko\* (2021). “Glass transition temperature prediction of disordered molecular solids”. *npj Comput. Mater.*, 7, 179
2. A. Markina, **K.-H. Lin**, W. Liu, C. Poelking, Y. Firdaus, D. R. Villalva, J. I. Khan, S. H. K. Paleti, G. T. Harrison, J. Gorenflot, W. Zhang, S. D. Wolf, I. McCulloch, T. D. Anthopoulos, D. Baran, F. Laquai, D. Andrienko\* (2021). “Chemical Design Rules for Non- Fullerene Acceptors in Organic Solar Cells”. *Adv. Energy Mater.*, 11, 2102363
3. A. Mondal, A. Paterson, J. Cho, **K.-H. Lin**, B. Zee, G.-J. A. H. Wetzelaer, A. Stankevych, A. Vakhnin, J.-J. Kim, A. Kadashchuk, P. W. M. Blom, F. May, D. Andrienko\* (2021). “Molecular library of OLED host materials—Evaluating the multiscale simulation workflow”. *Chem. Phys. Rev.*, 2, 031304
4. J. T. Blaskovits, **K.-H. Lin**, R. Fabregat, I. Swiderska, H. Wu, C. Corminboeuf\* (2021). “Is a single conformer sufficient to describe the reorganization energy of amorphous organic transport materials?”. *J. Phys. Chem. C*, 125, 17355
5. W.-T. Lee, F. D. Bobbink, A. P. van Muyden, **K.-H. Lin**, C. Corminboeuf, R. R. Zamani, R. J. Dyson\* (2021). “Catalytic hydrocracking of synthetic polymers into grid-compatible gas streams”. *Cell Rep. Phys. Sci.*, 2, 100332
6. B. Özen, F. F. Tirani, K. Schenk, K.-H. Lin, R. Scopelliti, C. Corminboeuf, H. Frauenrath\* (2021). “Structure–Property Relationships in Bithiophenes with Hydrogen- Bonded Substituents”. *Chem. Eur. J.*, 27, 3348



7. **K.-H. Lin**\*, G. J. A. H. Wetzelaer, P. W. M. Blom, D. Andrienko\* (2021). “Virtual Screening of TADF Emitters for Single-Layer OLEDs”. *Front. Chem.*, 1080

## 2020

1. **K.-H. Lin**, C. Corminboeuf\* (2020). “FB-ECDA: Fragment-based Electronic Coupling Decomposition Analysis for Organic Amorphous Semiconductors”. *J. Phys. Chem. A*, 124, 10624
2. S. Paek, C. Roldán- Carmona, K. T. Cho, M. Franckevičius, H. Kim, H. Kanda N. Drigo, **K.-H. Lin**, M. Pei, R. Gegevičius, H. J. Yun, H. Yang, P. A. Schouwink, C. Corminboeuf, A. M. Asiri, M. K. Nazeeruddin\* (2020). “Molecular design and operational stability: toward stable 3D/2D perovskite interlayers”. *Adv. Sci.*, 7, 2001014
3. J. Guan, R. Wei, A. Prlj, J. Peng, **K.-H. Lin**, J. Liu, H. Han, C. Corminboeuf\*, D. Zhao\*, Z. Yu, J. Zheng\* (2020). “Direct Observation of Aggregation- Induced Emission Mechanism”. *Angew. Chem. Int. Ed.*, 59, 14903
4. **K.-H. Lin**, C. Corminboeuf\* (2020). “FB-REDA: fragment-based decomposition analysis of the reorganization energy for organic semiconductors”. *Phys. Chem. Chem. Phys.*, 22, 11881

## B. Conference Presentations

## 2024

1. (Invited lecture) 2024 Hybrid modeling of (bio-)molecular multiscale phenomena (HYMO-M2P). Title: Computational design of organic materials in optoelectronic applications. 2024年12月13日於克羅埃西亞札格瑞布。
2. (Invited talk) 2024台灣化學工程學會 71 週年年會. Title: Establishing a fast and reasonably accurate computational protocol for investigating organic semiconductors. 2024年11月10日於中原大學。
3. (Invited talk) 2024熱力學暨程序系統工程研討會. Title: Investigating the structure-mobility relationship of pure hydrocarbon host materials in OLEDs. 2024年5月4日於日月潭。
4. (Invited talk) 2024 APS March Conference. Title: Investigating the structure-mobility relationship of pure hydrocarbon host materials in OLEDs. 2024年3月4日於美國明尼阿波利斯。



5. (Invited talk) 2024 Trilateral Conference on Modern Challenges in Polymer Science and Technology. Title: Computational design of OLEDs via multiscale simulations and high-throughput screening. 2024年1月24日於成功大學。

## 2023

1. (Invited talk) The 16th Eurasia Conference on Chemical Sciences 2023 (EuAsC<sub>2</sub>S-16). Title: Computational design of organic materials for optoelectronic applications. 2023年12月14日於泰國曼谷。
2. (Invited talk) The 1<sup>st</sup> annual meeting and conference of Association of Computational Mechanics Taiwan (ACMT 2023). Title: Computational design of organic materials for optoelectronic applications. 2023年10月29日於海洋大學。
3. (Invited talk) The 6th International Conference on Molecular Simulation (ICMS 2023). Title: Computational design of organic materials for optoelectronic applications. 2023年10月8日於台灣大學。
4. (Invited talk) 2023 MOF/COF-Taiwan Conference. Title: Computational design of organic materials for optoelectronic applications. 2023年4月9日於中山大學。
5. (Invited talk) 2023 中華民國高分子學會年會. Title: Computational design of organic materials for optoelectronic applications. 2023年1月18日於長庚大學。

## 2022

1. (Invited talk) 2022 The 13th Science Conference: New Trends in Chemistry for Sustainable Development. Title: Computational design of organic materials for optoelectronic applications. 2022年11月21日於越南胡志明市理科大學。

### C. Other

1. 2023-2027 | **Emerging Young Scholars (2030新秀學者計畫)**, NSTC, Taiwan
2. 2023-2028 | **Max Planck Partner Group**, MPG, Germany
3. 2020-2022 | **Early Postdoc.Mobility Fellowship**, Swiss National Science Foundation



## Publications of Shih-Yuan Lu (呂世源)

### A. Journal Papers (\* Corresponding author)

#### 2025

1. Jianxing Wang,<sup>#</sup> Jiazhi Geng,<sup>#</sup> Xiaolang Liu, Yuxi Yang, Shuhao Yao, Chang Hong, Huiying Li, Zhen Lu, Runming Tao, Jiyuan Liang,\* **Shih-Yuan Lu,\*** 2025, “All-purpose additive anchoring interface enables formation of stable uniform electrolyte-anode interphase for high performance aqueous Zn metal batteries,” *Chemical Engineering J.*, **503**, 158342. (#: equal contribution)

#### 2024

2. Yu-Chieh Ting, Chih-Chieh Cheng, Shin-Hong Lin, Ting-Yu Lin, Po-Wei Chen, Fan-Yu Yen, Shao-I Chang, Chih-Heng Lee, Hsin-Yi Tiffany Chen,\* **Shih-Yuan Lu,\*** 2024, “Synergistic Fe and Co binary single atoms based air cathodes for high performance and ultra-stable Zn-air batteries,” *Energy Storage Materials*, **67**, 103286.
3. Ting-Yu Lin, Fan-Yu Yen, Yu-Chieh Ting, Po-Wei Chen, **Shih-Yuan Lu,\*** 2024, “Non-precious Bifunctional High Entropy Alloy Catalyst and Layered Double Hydroxide Enhanced Gel Electrolyte based Rechargeable Flexible Zinc-Air Batteries,” *Chemical Engineering J.*, **488**, 151093.
4. Pei-Syuan Jhu, Chiung-Wen Chang, Chih-Chieh Cheng, Yu-Chieh Ting, Ting-Yu Lin, Fan-Yu Yen, Po-Wei Chen, **Shih-Yuan Lu,\*** 2024, “Non-precious High Entropy Alloys and Highly Alkali-resistant Composite Membranes based High Performance Anion Exchange Membrane Water Electrolyzers,” *Nano Energy*, **126**, 109703.
5. Po-Wei Chen, Chih-Chieh Cheng, Yu-Chieh Ting, Ting-Yu Lin, Fan-Yu Yen, Guan-Ru Li, **Shih-Yuan Lu,\*** 2024, “Single-Atom Decorated Hollow Mesoporous Carbon Spheres Compositated with Free-standing Carbon Cloth Supported Cobalt Sulfide Nanowire Arrays as High-performance Sulfur Host for Lithium-Sulfur Batteries,” *J. Taiwan Inst. Chem. Engr.*, **164**, 105699.
6. Chih-Chieh Cheng, Yu-Chieh Ting, Fan-Yu Yen, Guan-Ru Li, Chih-Heng Li, Shao-I Chang, Hsin-Yi Tiffany Chen,\* **Shih-Yuan Lu,\*** 2024, “Synergistic Mo and W Single Atoms Co-Doped Surface Hydroxylated NiFe Oxide as



Bifunctional Electrocatalysts for Overall Water Splitting,” *Appl. Catal. B: Environ. & Energy*, **358**, 124356.

7. Yu-Chieh Ting, Chih-Chieh Cheng, Fan-Yu Yen, Guan-Ru Li, Shao-I Chang, Chih-Heng Lee, Hsin-Yi Tiffany Chen,\* **Shih-Yuan Lu,\*** 2024, “Highly asymmetrically configured single atoms anchored on flame-roasting deposited carbon black as binder-free air cathode catalysts for high power density rechargeable Zn-air batteries,” *EnergyChem*, **6**, 100134.

## 2023

8. Chun-Lung Huang, Yan-Gu Lin, Chao-Lung Chiang, Chun-Kuo Peng, Duraisamy Senthil Raja, Cheng-Ting Hsieh, Yu-An Chen, **Shih-Yuan Lu,\*** 2023, “Atomic scale synergistic interactions lead to breakthrough catalysts for electrocatalytic water splitting,” *Appl. Catal. B. – Environ.*, **320**, 122016.
9. Yong-Xian Yeh, Chih-Chieh Cheng, Shin-Hong Lin, Po-Wei Chen, Pei-Syuan Jhu, **Shih-Yuan Lu,\*** “Core-shell FTO@Co<sub>3</sub>O<sub>4</sub> Nanoparticles as Active and Stable Anode Catalysts for Acidic Oxygen Evolution Reaction and Proton Exchange Membrane Water Electrolysis,” *J. Mater. Chem. A*, **11**, 3399-3407. (inside back cover)
10. Chi Guo,# Kang Du,# Runming Tao, Yaqing Guo, Shuhao Yao, Jianxing Wang, Deyu Wang, Jiyuan Liang\*, **Shih-Yuan Lu,\*** 2023, “Inorganic filler enhanced formation of stable inorganic-rich solid electrolyte interphase for high performance lithium metal batteries,” *Adv. Functional Mater.*, **33**(29), 2301111. (#: equal contribution)
11. Duraisamy Senthil Raja, Chih-Chieh Cheng, Yu-Chieh Ting, **Shih-Yuan Lu,\*** 2023, “NiMo-MOF-Derived Carbon-Armored Ni<sub>4</sub>Mo Alloy of Interwoven Nanosheet Structure as Outstanding pH-Universal Catalyst for Hydrogen Evolution Reaction at High Current Densities,” *ACS Appl. Mater. & Interfaces*, **15** (16), 20130–20140. (supplementary journal cover)
12. Chih-Chieh Cheng, Ting-Yu Lin, Yu-Chieh Ting, Shin-Hong Lin, YongMan Choi, **Shih-Yuan Lu,\*** 2023, “Metal-organic frameworks stabilized Mo and W binary single-atom catalysts as high performance bifunctional electrocatalysts for water electrolysis,” *Nano Energy*, **112**, 108450. (front cover)
13. Shin-Hong Lin, Po-Wei Chen, Chih-Chieh Cheng, Yu-Chieh Ting, Ting-Yu Lin, Yong-Xian Yeh , and **Shih-Yuan Lu,\*** 2023, “Cobalt Sulfide Nanoparticles Embedded Carved Carbon Nanoboxes Dispersed in Iron Single-Atom decorated



Multi-walled Carbon Nanotube Porous Structure as a Host Material for Lithium-Sulfur Batteries,” *ACS Sustainable Chem. Engr.*, **11**(31), 11645–11659.

14. Duraisamy Senthil Raja, Yu-Chieh Ting, Ting-Yu Lin, Chih-Chieh Cheng, Po-Wei Chen, Fan-Yu Yen, **Shih-Yuan Lu**,\* 2023, “Quad-Metallic MOF-Derived Carbon-Armored Pseudo High Entropy Alloy as Bifunctional Electrocatalyst for Alkaline Water Electrolysis at High Current Densities,” *J. Mater. Chem. A*, **11**, 25283-25297. (inside front cover)

## 2022

15. Che-Ming Yang, Minh Viet Huynh, Tien Khoa Le, Thi Kieu Xuan Huynh, **Shih-Yuan Lu**, De-Hao Tsai,\* 2022, “Metal-Organic Framework-derived Mg-Zn Hybrid Nanocatalyst for Biodiesel Production,” *Adv. Powder Technol.*, **33**(1), 103365.
16. Kok Chung Chong,\* Pui San Ho, Soon Onn Lai, Sze Shin Lee, Woei Jye Lau, **Shih-Yuan Lu**, and Boon Seng Ooi, 2022, “Solvent-free Synthesis of MIL-101(Cr) for CO<sub>2</sub> Gas Adsorption: the effect of metal precursor and molar ratio,” *Sustainability*, **14**, 1152.
17. Chun Chang,\* Li Kan, Weina Mu, Qiong Wang, **Shih-Yuan Lu**,\* 2022, “Tetragonal/orthorhombic-bismuth tungstate homojunction formed through in situ bismuth induced phase transformation as highly efficient photocatalyst for pollutant degradation,” *J. Colloid & Interface Sci.*, **607**(part 1), 269-280.
18. Cheng-Hao Chen, Shin-Hong Lin, Yen-Ju Wu, Jing-Ting Su, Chih-Chieh Cheng, Po-Yin Cheng, Yu-Chieh Ting, and **Shih-Yuan Lu**,\* 2022, “MOF-derived Cobalt Disulfide/Nitrogen-doped Carbon Composite Polyhedrons Linked with Multi-walled Carbon Nanotubes as Sulfur Hosts for Lithium-Sulfur Batteries,” *Chemical Engineering J.*, **431**, Part 1, 133924.
19. Duraisamy Senthil Raja, Po-Yin Cheng, Chih-Chieh Cheng, Shun-Qin Chang, Chun-Lung Huang, **Shih-Yuan Lu**,\* 2022, “In-situ Grown Metal-Organic Framework-derived Carbon-coated Fe-doped Cobalt Oxide Nanocomposite on Fluorine-doped Tin Oxide Glass for Acidic Oxygen Evolution Reaction,” *Appl. Catal. B. – Environ.*, **303**, 120899.
20. Chih-Chieh Cheng, Yong-Xian Yeh, Yu-Chieh Ting, Shin-Hong Lin, Kotaro Sasaki, Yongman Choi,\* **Shih-Yuan Lu**,\* 2022, “Modulation of coordination environment enhances electrocatalytic efficiency of Mo single atoms toward water splitting,” *J. Mater. Chem. A*, **10**, 8784 - 8797. (inside back cover)



21. Jing-Ting Su, Shin-Hong Lin, Chih-Chieh Cheng, Po-Yin Cheng, and **Shih-Yuan Lu,\*** 2022, “Porous Core-Shell B-doped Silicon-Carbon Composites as Electrode Materials for Lithium Ion Capacitors,” *J. of Power Sources*, 531, 231345.
22. Chi Guo,<sup>+</sup> Yaqing Guo,<sup>+</sup> Runming Tao,<sup>+</sup> Xiaobin Liao, Kang Du, Huan Zou, Wang Zhang, Jiyuan Liang,\* Deyu Wang, Xiao-Guang Sun, **Shih-Yuan Lu,\*** 2022, “Uniform lithiophilic layers in 3D current collectors enable ultrastable solid electrolyte interface for high-performance lithium metal batteries,” *Nano Energy*, **96**, 107121. (+: co-first authors)
23. Po-Yin Cheng, Yu-Chieh Ting, Chih-Chieh Cheng, Duraisamy Senthil Raja, Shin-Hong Lin, Yong-Xian Yeh, Jing-Ting Su, and **Shih-Yuan Lu,\*** 2022, “Nitrogen-doped Carbon Armored Cobalt Oxide Hollow Nanocubes Electrochemically anchored on Fluorine-doped Tin Oxide Substrate for Acidic Oxygen Evolution Reaction,” *J. Colloid & Interface Sci.*, 623, 327-336.
24. Shun-Qin Chang, Chih-Chieh Cheng, Po-Yin Cheng, Chun-Lung Huang, **Shih-Yuan Lu,\*** 2022, “Pulse Electrodeposited FeCoNiMnW High Entropy Alloys as Efficient and Stable Bifunctional Electrocatalysts for Acidic Water Splitting,” *Chemical Engineering J.*, **446**, 137452.
25. Pui San Ho, Kok Chung Chong,\* Soon Onn Lai, Sze Shin Lee, Woei Jye Lau, **Shih-Yuan Lu**, Boon Seng Ooi, 2022, “Synthesis of Cu-BTC Metal-Organic Framework for CO<sub>2</sub> Capture via Solvent-free Method: Effect of Metal Precursor and Molar Ratio,” *Aerosol Air Qual. Res.*, **22**(12), 220235.

## 2021

26. Jia-Yu Tan, Jing-Ting Su, Yen-Ju Wu, Chun-Lung Huang, Po-Yin Cheng, Yu-An Chen, and **Shih-Yuan Lu,\*** 2021, “Hollow porous  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanoparticles as anode materials for high performance lithium ion capacitors,” *ACS Sustainable Chem. Engr.*, **9**(3), 1180-1192.
27. Chih-Chieh Cheng, Po-Yin Cheng, Chun-Lung Huang, Duraisamy Senthil Raja, Yen-Ju Wu, and **Shih-Yuan Lu,\*** 2021, “Gold nanocrystal decorated trimetallic metal organic frameworks as high performance electrocatalysts for oxygen evolution reaction,” *Appl. Catal. B. – Environ.*, **286**, 119916.
28. Liang-Guo He, Po-Yin Cheng, Chih-Chieh Cheng, Chun-Lung Huang, Cheng-Ting Hsieh, and **Shih-Yuan Lu,\*** 2021, “(Ni<sub>x</sub>Fe<sub>y</sub>Co<sub>6-x-y</sub>)Mo<sub>6</sub>C Cuboids as Outstanding Bifunctional Electrocatalysts for Overall Water Splitting,” *Appl. Catal. B. – Environ.*, **290**, 120049.



29. Yen-Ju Wu, Cheng-Hao Chen, Chun-Lung Huang, Yong-Xian Yeh, Jia-Yu Tan, Jing-Ting Su, Cheng-Ting Hsieh, and **Shih-Yuan Lu,\*** 2021, “Triple Functionalization of Carved N-doped Carbon Nanoboxes with Synergistic Tri-metallic Sulfide for High Performance Lithium-Sulfur Batteries,” *J. Mater. Chem. A*, **9**(14), 9028-9037. (inside back cover)
30. Shengrui Chen, Runming Tao, Chi Guo, Wang Zhang, Xiaolang Liu, Guang Yang, Pingmei Guo, Gengzhi Sun, Jiyuan Liang, \* **Shih-Yuan Lu,\*** 2021, “A new trick for an old technology: ion exchange syntheses of advanced energy storage and conversion nanomaterials,” *Energy Storage Materials*, **41**, 758-790.
31. Shengrui Chen,<sup>+</sup> Runming Tao,<sup>+</sup> Ji Tu, Pingmei Guo, Guang Yang, Wenjun Wang, Jiyuan Liang, \* **Shih-Yuan Lu,\*** 2021, “High performance flexible lithium ion battery electrodes: ion exchange assisted fabrication of carbon coated nickel oxide nanosheet arrays on carbon cloth,” *Adv. Functional Mater.*, **31**(24), 2101199. (+: co-first authors)
32. Chun Chang, Huanchun Yang, Li Kan, Weina Mu, Qiong Wang, **Shih-Yuan Lu,\*** Baole Deng,\* 2021, “Mechanism and impacts of inorganic ion addition on photocatalytic degradation of triclosan catalyzed by heterostructured Bi<sub>7</sub>O<sub>9</sub>I<sub>3</sub>/Bi,” *J. Taiwan Inst. Chem. Engr.*, **125**, 176-185.
33. Chun-Lung Huang, Kotaro Sasaki, Duraisamy Senthil Raja, Cheng-Ting Hsieh, Yen-Ju Wu, Jing-Ting Su, Chih-Chieh Cheng, Po-Yin Cheng, Shin-Hong Lin, YongMan Choi,\* **Shih-Yuan Lu,\*** 2021, “Twinning enhances efficiencies of metallic catalysts toward electrolytic water splitting,” *Adv. Energy Mater.*, **11**(46), 2101827. (inside front cover)

## 2020

34. Cheng-Ting Hsieh, Chun-Lung Huang, Yu-An Chen, **Shih-Yuan Lu,\*** 2020, “NiFeMo Alloy Inverse-Opals on Ni Foam as Outstanding Bifunctional Catalysts for Electrolytic Water Splitting of Ultra-Low Cell Voltages at High Current Densities,” *Appl. Catal. B. – Environ.*, **267**, 118376.
35. Yuan-Xin Zhu, Lei Zhang,\* Guo-Gang Zhu, Xin Zhang, and **Shih-Yuan Lu,\*** 2020, “N-doped carbon armored metal phosphides grown in-situ on nickel foam as chainmail electrocatalysts for high efficiency overall water splitting,” *J. Colloid & Interface Sci.*, **562**, 42-51.
36. Xin Zhang, Lei Zhang,\* Guo-Gang Zhu, Yuan-Xin Zhu, and **Shih-Yuan Lu,\*** 2020, “Mixed Metal Phosphide Chainmail Catalysts Confined in N-Doped Porous Carbon Nanoboxes as Highly Efficient Water Oxidation Electrocatalysts



- with Ultralow Overpotentials and Tafel Slopes,” *ACS Appl. Mater. & Interfaces*, **12**, 7153-7161. (supplementary journal cover)
37. Yuan-Xin Zhu, Lei Zhang,<sup>\*</sup> Guo-Gang Zhu, Xin Zhang, and **Shih-Yuan Lu**,<sup>\*</sup> 2020, “Open-Mouth N-doped Carbon Nanoboxes Embedded with Mixed Metal Phosphides Nanoparticles as High-Efficiency Catalysts for Electrolytic Water Splitting,” *Nanoscale*, **12**(10), 5689-6212. (inside front cover)
38. Teng-Yun Liang,<sup>+</sup> Duraisamy Senthil Raja,<sup>+</sup> Kah-Chun Chin,<sup>+</sup> Chun-Lung Huang, Sumathi A/P Sethupathi, Loong-Kong Leong,<sup>\*</sup> De-Hao Tsai,<sup>\*</sup> and **Shih-Yuan Lu**,<sup>\*</sup> 2020, “Bimetallic Metal-Organic Framework-derived Hybrid Nanostructures as High-Performance Catalysts for Methane Dry Reforming,” *ACS Appl. Mater. & Interfaces*, **12**(13), 15183-15193. (+: co-first authors)
39. Yen-Ju Wu, Yu-An Chen, Chun-Lung Huang, Jing-Ting Su, Cheng-Ting Hsieh, and **Shih-Yuan Lu**,<sup>\*</sup> 2020, “Small highly mesoporous silicon nanoparticles for high performance lithium ion based energy storage,” *Chemical Engineering J.*, **400**, 125958.
40. Jing-Ting Su, Yu-An Chen, Chun-Lung Huang, Yen-Ju Wu, Heng-Yi Cheng, Xui-Fang Chuah, Cheng-Ting Hsieh, and **Shih-Yuan Lu**,<sup>\*</sup> 2020, “Nitrogen doped carbon nanoboxes as high rate capability and long-life anode materials for high-performance Li-ion capacitors,” *Chemical Engineering J.*, **396**, 125314.
41. Duraisamy Senthil Raja, Chun-Lung Huang, Yu-An Chen, YongMan Choi, **Shih-Yuan Lu**,<sup>\*</sup> 2020, “Composition-Balanced Trimetallic MOFs as Ultra-Efficient Electrocatalysts for Oxygen Evolution Reaction at High Current Densities,” *Appl. Catal. B. – Environ.*, **279**, 119375.

## B. Conference Presentations

### 2024

1. Chun-Lung Huang, Yan-Gu Lin, Chao-Lung Chiang, Chun-Kuo Peng, Duraisamy Senthil Raja, Cheng-Ting Hsieh, Yu-An Chen, Shun-Qin Chang, Yong-Xian Yeh, **Shih-Yuan Lu**,<sup>\*</sup> 2024, “High Entropy Alloys as High Performance Catalysts for Electrolytic Water Splitting,” ECS 245th Meeting, San Francisco, USA. (5/26-30/2024)
2. Chih-Chieh Cheng, Yu-Chieh Ting, **Shih-Yuan Lu**,<sup>\*</sup> 2024, “Single Atom Catalysts for Electrochemical Energy Storage,” Taiwan International Conference on Catalysis 2024 (TICC 2024), Taipei, Taiwan. (6/19-21/2024) (keynote speech)



3. Yu-Chieh Ting, Chih-Chieh Cheng, Shin-Hong Lin, Ting-Yu Lin, Po-Wei Chen, Fan-Yu Yen, Shao-I Chang, Chih-Heng Lee, Hsin-Yi Tiffany Chen,\* **Shih-Yuan Lu**,\* 2024, “Synergistic Fe and Co binary single atoms based air cathodes for high performance and ultra-stable Zn-air batteries,” Taiwan International Conference on Catalysis 2024 (TICC 2024), Taipei, Taiwan. (6/19-21/2024)
4. Cheng-Han Lin, Yu-Chieh Ting, Guan-Ru Li, Fan-Yu Yen, **Shih-Yuan Lu**,\* 2024, “Development of Porous Nickel Structures as Catalyst Supports for Air Cathodes of Zinc-Air Batteries,” Taiwan International Conference on Catalysis 2024 (TICC 2024), Taipei, Taiwan. (6/19-21/2024)
5. Yu-Chieh Ting, Chih-Chieh Cheng, Shin-Hong Lin, Ting-Yu Lin, Po-Wei Chen, Fan-Yu Yen, Shao-I Chang, Chih-Heng Lee, Hsin-Yi Tiffany Chen,\* **Shih-Yuan Lu**,\* 2024, “Synergistic Fe and Co binary single atoms based air cathodes for high performance and ultra-stable Zn-air batteries,” 台灣化學工程學會 71 周年年會, 中壢. (11/9-10/2024) (學生壁報發表競賽優等獎)

## 2023

6. Chih-Chieh Cheng, Ting-Yu Lin, Yu-Chieh Ting, Shin-Hong Lin, YongMan Choi, and **Shih-Yuan Lu**,\* 2023, “Mo and W Binary Single-Atoms Stabilized by NiFe-Based Metal-Organic Frameworks as Overall Water Splitting Electrocatalysts,” 2023 ICGET-TW, Tainan, Taiwan. 6/28-30/2023) (outstanding poster award)
7. Chih-Chieh Cheng, Ting-Yu Lin, Yu-Chieh Ting, Shin-Hong Lin, YongMan Choi, and **Shih-Yuan Lu**,\* 2023, “Mo and W Binary Single-Atoms Anchored NiFe-Based Metal-Organic Frameworks as Overall Water Splitting Electrocatalysts,” 2023 ICGET-TW, Taipei, Taiwan. (10/26-28/2023) (silver medal award for student oral competition)
8. Chih-Chieh Cheng, Ting-Yu Lin, Yu-Chieh Ting, Shin-Hong Lin, YongMan Choi, and **Shih-Yuan Lu**,\* 2023, “NiFe-Based Metal-Organic Frameworks Stabilized Synergistic Mo and W Binary Single Atoms for Overall Water Splitting,” 台灣化學工程學會 70 周年年會, 台北. (12/9-10/2023) (學生英語口頭論文競賽佳作)
9. Shan-Ni Lin, **Shih-Yuan Lu**,\* 2023, “以簡易燃燒法製備二元金屬氧化物/泡沫鎳複合材料應用於高效穩定水分解電觸媒,” 台灣化學工程學會 70 周年年會, 台北. (12/9-10/2023)



## 2022

10. Chun-Lung Huang, Cheng-Ting Hsieh, and **Shih-Yuan Lu,\*** 2022, “Nanostructured Multi-component Electrocatalysts for High Performance Electrolytic Water Splitting,” 台灣化學工程學會 68 周年年會, 高雄. (1/6-7/2022) (keynote speech)
11. Duraisamy Senthil Raja and **Shih-Yuan Lu,\*** 2022, “Exploring Synergistic Effects for High Performance Catalysts of Electrolytic Water Splitting,” 台灣物理年會, Taipei, Taiwan. (1/24-26/2022) (invited talk)
12. Chun-Lung Huang, Kotaro Sasaki, Duraisamy Senthil Raja, Cheng-Ting Hsieh, Yen-Ju Wu, Jing-Ting Su, Chih-Chieh Cheng, Po-Yin Cheng, Shin-Hong Lin, YongMan Choi, **Shih-Yuan Lu,\*** 2022, “Twinning Enhances Electrolytic Water Splitting,” 2022 Taipei International Conference on Catalysis (TICC-2022), Taipei, Taiwan. (7/20-22/2022) (keynote speech)
13. Chih-Chieh Cheng, Yong-Xian Yeh, Yu-Chieh Ting, Shin-Hong Lin, Kotaro Sasaki, YongMan Choi,\* **Shih-Yuan Lu,\*** 2022, “Modulation of Coordination Environment Enhances Electrocatalytic Efficiency of Mo Single Atoms toward Hydrogen Evolution Reaction,” 2022 Taipei International Conference on Catalysis (TICC-2022), Taipei, Taiwan. (7/20-22/2022) (Excellent Poster Presentation)
14. Chih-Chieh Cheng, Po-Yin Cheng, Chun-Lung Huang, Duraisamy Senthil Raja, Yen-Ju Wu, and **Shih-Yuan Lu,\*** 2022, “Gold nanocrystal decorated trimetallic metal organic frameworks as high performance electrocatalysts for oxygen evolution reaction,” 台灣觸媒學會年會, Taipei, Taiwan. (7/21/2022) (CST invited lecture)
15. Pui San Ho, Kok Chung Chong,\* Soon Onn Lai, **Shih-Yuan Lu,** Woei Jye Lau, Boon Seng Ooi, 2022, “Preparation of Cerium-based UiO-66 Metal-Organic Framework (MOF) Without Addition of Solvent for Developing Its Sustainable Synthesis,” International Conference On Civil and Environmental Engineering 2022 - Special Issue On Sustainable Environment & Communities, Penang, Malaysia. (8/29-30/2022)
16. **Chih-Chieh Cheng,** Yong-Xian Yeh, Yu-Chieh Ting, Shin-Hong Lin, Kotaro Sasaki, YongMan Choi,\* **Shih-Yuan Lu,\*** 2022, “Coordination Modulation of Mo Single-atoms for Enhanced Electrochemical Hydrogen Evolution Reaction Performance,” 中國材料科學學會 111 年年會, Miaoli, Taiwan. (11/18-19/2022) (海報競賽優等)



17. **Shih-Yuan Lu**, 2022, “Developments of Electrocatalysts for High Performance Electrolytic Water Splitting,” 中國材料科學學會 111 年年會, Miaoli, Taiwan. (11/18-19/2022) (invited talk)
18. Chih-Chieh Cheng, Yong-Xian Yeh, Yu-Chieh Ting, Shin-Hong Lin, Kotaro Sasaki, YongMan Choi,\* **Shih-Yuan Lu**,\* 2022, “Modulation of Coordination Environment Enhances Electrocatalytic Efficiency of Mo Single Atoms toward Hydrogen Evolution Reaction,” 2022 ICGET-TW, Hsinchu, Taiwan. (11/10-12/2022) (Excellent Poster Presentation)
19. **Shih-Yuan Lu**,\* Heng-Yi Chen, Yen-Ju Wu, Jia-Yu Tan, Jing-Ting Su, 2022, “Nanostructuring Anode Materials for High Performance Lithium Ion Capacitors,” 2022 ICGET-TW, Hsinchu, Taiwan. (11/10-12/2022) (keynote speech)
20. Duraisamy Senthil Raja, **Shih-Yuan Lu**,\* 2022, “Effect of Fe-doping on the Electrocatalytic Oxygen Evolution Performances of Cobalt MOF-derived  $\text{Co}_3\text{O}_4$  Nanocomposites,” 2022 ICGET-TW, Hsinchu, Taiwan. (11/10-12/2022)
21. Chih-Chieh Cheng, Yong-Xian Yeh, Yu-Chieh Ting, Shin-Hong Lin, Kotaro Sasaki, YongMan Choi,\* **Shih-Yuan Lu**,\* 2022, “Modulating Coordination Environment of Mo Single-Atoms Mo-OxNyCz for Enhanced Electrochemical Hydrogen Evolution Reaction Performance,” 台灣化學工程學會 69 周年年會, 台北. (12/2-3/2022) (Student English Oral Presentation Content/Honorable Mention)
22. Chun-Lung Huang, Yan-Gu Lin, Chao-Lung Chiang, Chun-Kuo Peng, Duraisamy Senthil Raja, Cheng-Ting Hsieh, Yu-An Chen, Shun-Qin Chang, Yong-Xian Yeh, **Shih-Yuan Lu**,\* 2022, “High Entropy Alloys as Breakthrough Catalysts for Electrolytic Water Splitting,” 台灣化學工程學會 69 周年年會, 台北. (12/2-3/2022) (keynote speech)
23. Duraisamy Senthil Raja, **Shih-Yuan Lu**,\* 2022, “Cobalt MOF-derived Carbon-armored Fe-doped  $\text{Co}_3\text{O}_4$  Nanocomposite on FTO Glass as an Efficient Electrocatalyst for Oxygen Evolution Reaction in Acid,” 台灣化學工程學會 69 周年年會, 台北. (12/2-3/2022)

## 2021

24. Duraisamy Senthil Raja, Chih-Chieh Cheng, and **Shih-Yuan Lu**,\* 2021, “Exploring Synergistic Effects for High Performance Catalysts of Electrolytic Water Splitting,” 239th ECS Meeting with 18th International Meeting on Chemical Sensors, Digital Meeting, Chicago, USA. (5/30-6/26/2021) (invited talk)



25. Chih-Chieh Cheng, Po-Yin Cheng, Chun-Lung Huang, Duraisamy Senthil Raja, Yen-Ju Wu, and **Shih-Yuan Lu**,\* 2021, “Gold nanocrystal decorated trimetallic MOFs as high performance electrocatalysts for oxygen evolution reaction,” 2021 Materials Research Society-Taiwan International Conference (2021 MRSTIC), on-line, Taipei, Taiwan. (11/13-17/2021)
26. Duraisamy Senthil Raja and **Shih-Yuan Lu**,\* 2021, “Cobalt-MOF-derived Carbon-coated Iron-doped Spinel  $\text{Co}_3\text{O}_4$  Nanocomposite as an Efficient Oxygen Evolution Electrocatalyst in Acid,” 2021 Materials Research Society-Taiwan International Conference (2021 MRSTIC), on-line, Taipei, Taiwan. (11/13-17/2021)
27. Duraisamy Senthil Raja, Chih-Chieh Cheng, and **Shih-Yuan Lu**,\* 2021, “Development of High Performance Catalysts for Electrolytic Water Splitting through Engineering Synergistic Effects,” 2021 Materials Research Society-Taiwan International Conference (2021 MRSTIC), on-line, Taipei, Taiwan. (11/13-17/2021) (keynote speech)
28. **Shih-Yuan Lu**,\* Chun-Lung Huang, Xui-Fang Chuah, Cheng-Ting Hsieh, 2021, “NiFe Alloy Nanotube Arrays as Highly Efficient Bifunctional Electrocatalysts for Overall Water Splitting at High Current Densities,” The 30<sup>th</sup> Topical Meeting of the International Society of Electrochemistry, on-line, Taipei, Taiwan. (11/22-24/2021) (invited talk)
29. Chun-Lung Huang, Kotaro Sasaki, Duraisamy Senthil Raja, Cheng-Ting Hsieh, Yen-Ju Wu, Jing-Ting Su, Chih-Chieh Cheng, Po-Yin Cheng, Shin-Hong Lin, YongMan Choi\*, **Shih-Yuan Lu**,\* 2021, “Efficiency of metallic catalysts toward electrolytic water splitting enhanced with twinning,” 17<sup>th</sup> Taiwan-Japan Joint Symposium on Catalysis, Taipei, Taiwan. (12/3-4/2021) (invited talk)

## 2020

30. Duraisamy Senthil Raja, Hao-Wei Lin, and **Shih-Yuan Lu**,\* 2020, “Exploring Synergistic Effects for High Performance Catalysts of Electrolytic Water Splitting,” 台灣化學工程學會 67 周年年會, 新竹. (keynote speech)
31. Shun-Qin Chang, Chun-Lung Huang, and **Shih-Yuan Lu**,\* 2020, “Precious-metal-free high entropy alloys as electrolytic water splitting catalysts in acidic media,” 台灣化學工程學會 67 周年年會, 新竹.
32. Cheng-Hao Chen, Jing-Ting Su, Yen-Ju Wu, and **Shih-Yuan Lu**,\* 2020, “MOF-derived Cobalt Sulfide Interlaced with Multi-walled Carbon Nanotubes as Sulfur Hosts for Lithium-Sulfur Batteries,” 台灣化學工程學會 67 周年年會, 新竹.



33. Chih-Chieh Cheng, Po-Yin Cheng, Chun-Lung Huang, Duraisamy Senthil Raja, Yen-Ju Wu, and **Shih-Yuan Lu**,\* 2020, “Gold nanocrystal decorated trimetallic MOFs as high performance electrocatalysts for oxygen evolution reaction,” 台灣化學工程學會 67 周年年會, 新竹.
34. Jing-Ting Su, Yen-Ju Wu, and **Shih-Yuan Lu**,\* 2020, “Applications of Core-Shell Silicon-Carbon Composites as Anode Materials for Lithium Ion Capacitors,” 台灣化學工程學會 67 周年年會, 新竹.
35. Chih-Chieh Cheng, Po-Yin Cheng, Chun-Lung Huang, Duraisamy Senthil Raja, Yen-Ju Wu, and **Shih-Yuan Lu**,\* 2020, “Gold nanocrystal decorated trimetallic MOFs as high performance electrocatalysts for oxygen evolution reaction,” 26<sup>th</sup> Users’ Meeting & Workshops of NSRRC, Hsinchu.
36. Shun-Qin Chang, Chun-Lung Huang, and **Shih-Yuan Lu**,\* 2020, “Precious-metal-free high entropy alloys as electrolytic water splitting catalysts in acidic media,” 2020 The International Conference on Green Electrochemical Technologies, Taichung.
37. Cheng-Hao Chen, Jing-Ting Su, Yen-Ju Wu, and **Shih-Yuan Lu**,\* 2020, “MOF-derived Cobalt Sulfide Interlaced with Multi-walled Carbon Nanotubes as Sulfur Hosts for Lithium-Sulfur Batteries,” 2020 The International Conference on Green Electrochemical Technologies, Taichung.
38. Chih-Chieh Cheng, Po-Yin Cheng, Chun-Lung Huang, Duraisamy Senthil Raja, Yen-Ju Wu, and **Shih-Yuan Lu**,\* 2020, “Gold nanocrystal decorated trimetallic MOFs as high performance electrocatalysts for oxygen evolution reaction,” 2020 The International Conference on Green Electrochemical Technologies, Taichung. (Best Poster Golden Award)
39. Jing-Ting Su, Yen-Ju Wu, and **Shih-Yuan Lu**,\* 2020, “Applications of Core-Shell Silicon-Carbon Composites as Anode Materials for Lithium Ion Capacitors,” 2020 The International Conference on Green Electrochemical Technologies, Taichung.

### C. Patents

1. 黃俊龍, **呂世源**, 2020, “電解水的方法及用於電解水的觸媒的製備方法,” 中華民國發明專利, 發明第 I 745828 號, 11/11/2021–1/8/2040.
2. Chun-Lung Huang, **Shih-Yuan Lu**, 2022, “Method for Electrolysis of Water and Method for Preparing Catalysts for Electrolysis of Water,” 美國發明專利, US11,359,297B2, 06/14/2022-06/25/2040.



3. Chun-Lung Huang, Shih-Yuan Lu, 2022, "Method for Electrolysis of Water," 美國發明專利, US11,572,631B2, 02/07/2023-03/15/2040.

#### D. Other

1. 呂世源, 2024, "高效穩定價廉電催化分解水單原子觸媒開發(3/3)", 國科會專題研究計畫期末報告, MOST 110-2221-E-007-012-MY3.
2. 呂世源, 2024, "高效穩定價廉可充式鋅空氣電池雙功能空氣極單原子氧氣反應電觸媒開發(2/3)", 國科會專題研究計畫進度報告, MOST 111-2221-E-007-008-MY3.
3. 呂世源, 2024, "水慕氫華 - 電解水綠氫生產技術精進(1/2)", 國科會一般策略專案計畫進度報告, NSTC 112-2218-E-007-021.
4. 呂世源, 2023, "高效穩定價廉電催化分解水單原子觸媒開發(2/3)", 國科會專題研究計畫進度報告, MOST 110-2221-E-007-012-MY3.
5. 呂世源, 2023, "高效穩定價廉可充式鋅空氣電池雙功能空氣極單原子氧氣反應電觸媒開發(1/3)", 國科會專題研究計畫進度報告, MOST 111-2221-E-007-008-MY3.
6. 呂世源, 2022, "碳膠囊結構矽碳複材應用於以鋰離子為基礎之儲能", 科技部專題研究計畫期末報告, MOST 109-2221-E-007-034.
7. 呂世源, 2022, "發展用於質子交換膜與陰離子交換膜電解水之高效穩定以金屬有機架構材料為基礎的產氫產氧電觸媒(3/3)", 科技部專題研究計畫期末報告, MOST 108-2221-E-007-073-MY3.
8. 呂世源, 2022, "高效穩定價廉電催化分解水單原子觸媒開發(1/3)", 科技部專題研究計畫期中報告, MOST 110-2221-E-007-012-MY3.
9. 呂世源, 2021, "發展用於質子交換膜與陰離子交換膜電解水之高效穩定以金屬有機架構材料為基礎的產氫產氧電觸媒(2/3)", 科技部專題研究計畫期中報告, MOST 108-2221-E-007-073-MY3.
10. 呂世源, 2020, "發展用於質子交換膜與陰離子交換膜電解水之高效穩定以金屬有機架構材料為基礎的產氫產氧電觸媒(1/3)", 科技部專題研究計畫期中報告, MOST 108-2221-E-007-073-MY3.
11. 呂世源, 2020, "新穎集電器複合之氮摻雜階層式多孔碳奈米結構應用於鋰離子電容器(2/2)", 科技部專題研究計畫期末報告, MOST 107-2221-E-007-044-MY2.



### 國際重要期刊編輯

1. Editorial Board: J. Chin. Inst. Engr., 1/2015 – 12/2021
2. Editor: Advanced Powder Technology, 1/2013 – present
3. Consulting Editor: J. Taiwan Inst. Chem. Engr., 7/2018 - present

### 學術榮譽/競賽獲獎:

- 2017 起, Elsevier, World's Top 2% Scientists
- 2019 起, 科技部, 特約研究員
- 2020, The Royal Society of Chemistry, United Kingdom, Fellow
- 2020, International Association of Advanced Materials, Sweden, Fellow
- 2020, 國立清華大學, 傑出教學獎及榮譽教學獎
- 2021, 中國工程師學會, 傑出工程教授獎
- 2022, 台灣觸媒學會, 傑出論文獎
- 2022, 徐有庠先生紀念基金會, 有庠科技講座(奈米科技)
- 2022, 台灣化學工程學會, 會士
- 2022, 教育部, 學術獎
- 2023, 中技社, 化工學術獎
- 2024, 112 年度清華-台達傑出人才講座
- 2025, 113 年度清華-明驊科技傑出人才講座



## Publications of Claire Roa-Pu Shen (沈若樸)

### A. Journal Papers (\* Corresponding author)

#### 2024

1. Wang RS, Siao SW, Wang JC, Lin PY, **Shen CR\***. "Engineering thioesterase as a driving force for novel itaconate production via its degradation scheme", *Metabolic Engineering Communications* 2024, 19: e00246.

#### 2023

2. Yang Z, Wang RS, Cheng BY, Ruan V, Yang P, Liang CH, **Shen CR\***. Key residues identified by random mutagenesis enhanced indole hydroxylation efficiency of the flavin-containing monooxygenase from *Corynebacterium glutamicum*. *Biochemical Engineering Journal* 2023, 199: 109064.

#### 2022

3. Li H, Pham NN, **Shen CR**, Chang CW, Tu Y, Chang YH, Tu J, Nguyen MTT, and Hu YC. Combinatorial CRISPR Interference Library for Enhancing 2,3-BDO Production and Elucidating Key Genes in Cyanobacteria. *Frontiers in Bioengineering and Biotechnology* 2022, 10.
4. Ohtake T, Kawase N, Pontrelli S, Nitta K, Laviña WA, **Shen CR**, Putri SP, Liao JC, Fukusaki E. Metabolomics-Driven Identification of the Rate-Limiting Steps in 1-Propanol Production. *Frontiers in microbiology* 2022, 13.

#### 2021

5. Lu KW, Wang CT, Chang H, Wang RS, **Shen CR\***. Overcoming glutamate auxotrophy in *Escherichia coli* itaconate overproducer by the Weimberg pathway. *Metabolic Engineering Communications* 2021, 13: e00190.
6. Chang CT, Chen YT, Hsieh YK, Girsang SP, Wang RS, Chang YC, Shen SH, **Shen CR**, Lin TP, Wan DH, Wang, J. "Dual-functional antibiofilm polymer composite for biodegradable medical devices", *Mat Sci Eng C-Mater* 2021, 123.



## 2020

7. Fan ES, Lu KW, Wen RC, **Shen CR**\*. Photosynthetic Reduction of Xylose to Xylitol Using Cyanobacteria. *Biotechnol J* 2020, 15(6).
8. Lin TY, Wen RC, **Shen CR**, Tsai SL. Biotransformation of 5-Hydroxymethylfurfural to 2,5-Furandicarboxylic Acid by a Syntrophic Consortium of Engineered *Synechococcus elongatus* and *Pseudomonas putida*. *Biotechnol J* 2020, 15(6).

### B. Conference and Workshop Presentations

## 2024

1. Invited Speaker: “Engineering thioesterase as a driving force for itaconate production via its degradation scheme”, Biotechnology and Biochemical Engineering Society of Taiwan (BEST) annual conference, Penghu, Taiwan (2024/06)
2. Poster presentation: “Random mutagenesis for enzyme and pathway optimization in the biosynthesis of tryptophan-derived dye”, The 15th Globe Industrial Microbiology Congress & Metabolic Engineering Summit, Shanghai, China (2024/09)
3. Poster presentation: “Random mutagenesis for enzyme and pathway optimization in the biosynthesis of tryptophan-derived dye”, Young Asian Biological Engineers’ Community (YABEC), Busan, Korea (2024/10)
4. Invited Speaker: “Engineering thioesterase as a driving force for itaconate production via its degradation scheme”, 台灣化學工程年會, Taoyuan, Taiwan (2024/11)

## 2023

5. Invited session chair: Session of cellular engineering, Asian Synthetic Biology Association Conference 2023, Awaji Island, Japan (2023/12)
6. Poster presentation: Random mutagenesis for enzyme and pathway optimization in the biosynthesis of tryptophan-derived dye (2023/12)



## 2022

7. Invited Speaker: “透過代謝與蛋白質工程優化靛藍及紫色桿菌素之微生物合成”, 永續淨零論壇, Hsinchu, Taiwan (2022/07)
8. Invited Speaker: “Random mutagenesis of the flavin-containing monooxygenase enhanced indigo and indirubin production”, 12<sup>th</sup> Green Sustainable Biotechnology Symposium (2022/01)

## 2021

9. Invited Speaker: “Mutagenesis of the flavin-containing monooxygenase enhanced indigo and indirubin production”, Biotechnology and Biochemical Engineering Society of Taiwan (BEST) 26<sup>th</sup> annual conference, Online virtual meeting (2021/10)
10. Invited Speaker: “Mutagenesis of the flavin-containing monooxygenase enhanced indigo and indirubin production”, 2021 JAPAN-TAIWAN Symposium: Foresight Advanced Materials for Biotechnology and Precision Health and Medicine with AI, Online virtual meeting (2021/11)

## 2020

1. Invited Speaker: “分子生物學簡介”, 工業技術研究院, Hsinchu, Taiwan (2020/12)
2. Invited Speaker: “Redox balance as a driving force for enzyme evolution and biochemical production”, 2020 Innovation and Application of Microbial and Biological Conversion Technology (前瞻性生物轉換技術及其應用研討會), Taipei, Taiwan (2020/6)

### C. Patents

1. 沈若樸、楊子儀、阮勻、楊璧如. “用於提升靛類化合物的產量之方法及重組型多肽”, 中華民國專利申請號: TW 111107819
2. Roa-Pu Shen, Yang Zi-Yi, Vincent Ruan, Pi-Ju Yang. METHOD AND RECOMBINANT POLYPEPTIDE FOR INCREASING PRODUCTION OF INDIGOID COMPOUND. US Application #: US 18/076,680 (2022).
3. 沈若樸、呂維、王東煜. “生產衣康酸的大腸桿菌轉殖株及其用途”, 中華民國專利發明第I 732205號 (專利權期間: 2021/07/01 - 2039/04/10).



4. **Roa-Pu Shen**, Wei Lu, Tung-Yu Wang. “Escherichia coli transformant for producing itaconate and uses thereof”, United States Patent No. US 10,982,238 (Date of Patent: 2021/4/20).
5. **沈若樸**、溫爵宇. “正丁醇表現匣、重組質體及正丁醇生產相關基因的表現方法”，中華民國專利發明第I622648號（專利權期間：2018/5/1 - 2036/12/26）.
6. **Roa-Pu Shen**, Rex C. Wen. “Butanol expression cassette, recombinant plasmid and butanol production related gene expression method”, United States Patent No. US 10,633,677 B2 (Date of Patent: 2020/4/28).
7. **沈若樸**、呂維. “生產醋酸的基因轉殖藍綠菌及其應用”，中華民國專利發明第I664286號（專利權期間：2019/7/1 - 2037/8/1）.
8. **Roa-Pu Shen**, Wei Lu. “Engineered cyanobacterium and its application for producing acetate”, United States Patent No. US 10,570,425 B2 (Date of Patent: 2020/2/25).
9. 黃瓊芳，馬天陽，梁克明，**沈若樸**，郭家倫. “生產高產量2,3-丁二醇之方法”，中華民國專利發明第I690593號（專利權期間：2020/4/11 - 2038/3/21）.



## Publications of Yung-Tin Pan (潘詠庭)

### A. Journal Papers

#### 2024

1. C-C. Hsu, S-T. Hu, H-Y. Liu, C-S. Ni, A-Y. Wang, H-J. Chen, T-Y. Chen, Y-L. Chen, L-Y. Chueh, **Y-T. (Frank) Pan**, T-Y. Liu, H-Y. Chen\*, Iron-and nitrogen-modified *Trapa natans* husk-derived activated carbon as cathode materials for microbial fuel cells, *J. Power Sources*, **2025**, 632, 236269.
2. D-Z. Liao, Y-T. Lee, L-Y. Chueh, Y-T. Tsai, C-F. Huang, D-H. Tsai\* **Y-T. (Frank) Pan\***, Transition Metal Promoted Palladium-catalyzed Oxidative Carbonylation of Phenol to Diphenyl Carbonate, *J. Taiwan Inst. Chem.*, **2025**, 168, 105942.
3. Y-T. Lee, Y-T. Tsai, C-F. Huang, Y-T. Pan, D-H. Tsai\*, Aerosol-assisted synthesis of Cu/AC hybrid catalysts for dimethyl carbonates synthesis, *J. Taiwan Inst. Chem.*, **2025**, 168, 105899.
4. C-H. Yeh, J-W. Kang, Y-L. Chen, H-J. Chen, H-H. Chang, W-H. Lu, S-Y. Chen, H-L. Chen, C-W. Hu, L-Y. Chueh, **Y-T. (Frank) Pan**, H-Y. Chen\*, Electrochemical Improvement of  $\text{Na}_{0.62}\text{K}_{0.05}\text{Mg}_2^*9\text{Cu}_{1/9}\text{Mn}_{2/3}\text{O}_2$  P2-Type Layer-Oxide Anionic Redox Cathodes of Sodium-Ion Batteries via Incorporating K-Doping, *ACS Sustain. Chem. Eng.*, **2024**, 12, 12795-12807.
5. L-Y. Chueh, W-Y. Hsu, Z-Y. Wang, H-C. Lin, S-Y. Hung, Y-L. Chen, H-Y. Chen, **Y-T. (Frank) Pan\***, Transition Metal (Sn, Sb, and Mn) Modification Effects on  $\text{Co}_3\text{O}_4$  Spinel Structures: Enhancing Activity and Stability for Platinum Group Metal-Free Acidic Oxygen Evolution Reaction Catalyst, *Electrochim. Acta.*, **2024**, 497, 144575.
6. D-H. Tsai, T-T. Wu, H-C. Lin, L-Y. Chueh, K-H. Lin, W-Y. Yu\*, **Y-T. Pan\***, Cu/MgO Reverse Water Gas Shift Catalyst with Unique  $\text{CO}_2$  Adsorption Behaviors, *Chem. Asian J.*, **2024**, 19, e202300955.

#### 2023

7. R-H. Yang, L-Y. Chueh, S-L. Liao, **Y-T. Pan\***, Synthesis of Plasmonic  $\text{W}_{18}\text{O}_{49}$  Interconnected Nanowire Frameworks with Strong Photo Enhanced Hydrogen Evolution Reaction Activity, *Mater. Today Sustain.*, **2023**, 100485.



8. P-C. Yang, Y-T. Lee, Y-T. Tsai, C-F. Huang, **Y-T. Pan\***, D-H. Tsai\*, Oxidative carbonylation of propylene glycol to propylene carbonate by copper-based catalysts, *J. Taiwan Inst. Chem. Eng.*, **2023**, 105005.
9. **Y-T. Pan**, W. Zhu, H. Yang, Reaction-Driven Formation of Ag-Cu Alloy Nanostructures from Cu@Ag Core-Shell Nanoparticles Analyzed by Moiré Patterns Using Environmental TEM Images, *Surf. Sci.*, **2023**, 736, 122349. (Front Cover)
10. L-Y. Chueh, C-H. Kuo, R-H. Yang, D-H. Tsai, M-H. Tsai, C-C. Yang, H-Y. Chen, C-H. Wang, **Y-T. Pan\***, WO<sub>x</sub> Nanowire Supported Ultra-Fine Ir-IrO<sub>x</sub> Nanocatalyst with Compelling OER Activity and Durability, *Chem. Eng. J.*, **2023**, 464, 142613.
11. P-H. Chang, David S-H. Wong, John D-Y. Ou, Y-T. Pan\*, S-S. Jang\*, CO<sub>2</sub>-Enhanced Production and Synthesis of 2,5- Furandicarboxylic Acid under CO<sub>2</sub> Flow through Henkel Reaction, *Eur. J. Org. Chem.*, **2023**, e202300396.
12. S. Yamamoto, R. Yamashita, C. Kubota, K. Okano, M. Kitamura, M. Funahashi, S.-C. Ye, **Y.-T. Pan**, M. Horie, T. Shintani, H. Murata, H. Matsuyama, A. Mori\* Orthogonal Electric and Ionic Conductivities in the Thin Film of a Thiophene-Thiophene Block Copolymer, *J. Mater. Chem. C*, **2023**, 11, 2484-2493.

## 2022

13. **Y.-T. Pan**, D. Li, S. Sharma, C. Wang, M. J. Zachman, E. C. Wegener, A. J. Kropf, Y. S. Kim, D. J. Myers, A. A. Peterson, D. A. Cullen, J. S. Spendelow, Ordered CoPt Oxygen Reduction Catalyst with High Performance and Durability, *Chem Catalysis*, **2022**, 2, 3559-3572.
14. L-C. Lin, C-H. Kuo, Y-H. Hsu, L-C. Hsu, H-Y. Chen, J-L. Chen, **Y-T. Pan\***, High-Performance Intermetallic PtCo Oxygen Reduction Catalyst Promoted by Molybdenum, *Appl. Catal. B*. **2022**, 317, 121767
15. W-Z. Hung, Z. X. Law, D-H. Tsai, B-H. Chen, C-H. Chen, H-Y. Hsu, **Y-T. Pan\***, Selective CO<sub>2</sub> Deoxygenation to CO in Chemically Looped Reverse Water Gas Shift Using Iron Based Oxygen Carrier, *MRS Energy and Sus.* **2022**
16. Z. X. Law, **Y-T. Pan\***, D-H. Tsai\*, Calcium Looping of CO<sub>2</sub> Capture Coupled to Syngas Production Using Ni-CaO-Based Hybrid Nanostructure, *Fuel*, **2022**, 328, 125202
17. C-Y. Chang, Y-F. Chen, Y-T. Tsai, C-F. Huang, **Y-T. Pan\***, D-H. Tsai\*, Sustainable Synthesis of Epoxides from Halohydrin Cyclization by Composite Solid-Base Catalysts, *Ind. Eng. Chem. Res.*, **2022**, 61, 9970-9980.



18. W-C. Liao, D-H. Tsai, W-Z. Hong, Y-H. Huang, L-C. Lin, **Y-T. Pan\***, Enabling Direct CO<sub>2</sub> Electrolysis by Alkali Metal Cation Substituted Membranes in a Gas Diffusion Electrode Reactor, *Chem. Eng. J.* **2022**, 134765
19. Y-H. Huang, Y-H. Hsu, **Y-T. Pan\***, Fabrication of Catalyst Layers with Preferred Mass and Charge Transport Properties through Texture Engineering, *ACS Appl. Energy Mater.*, **2022**, 5, 2890-2897.

## 2021

20. Y.-S. Cheng, L.-C. Lin, C.-H. Kuo, Y.-C. Chen, W.-C. Liao, L.-Y. Chueh, H.-Y. Chen, H.-Y. Chen, and **Y-T. Pan\***, Armoring the Pt/C Catalyst with Fine Atomic-Scale Tungsten Species to Increase Tolerance against Thermal and Fuel Cell Stresses, *ACS Appl. Energy Mater.*, **2021**, 4, 11448-11457.
21. L.-C. Lin, Y.-S. Cheng, W.-C. Liao, Y.-H. Huang, and **Y-T. Pan\*** Transient Loss and Recovery of Platinum Fuel Cell Cathode Catalyst at High Voltage Efficiency Regimes, *J. Electrochem. Soc.* **2021**, 168, 054053.
22. A. N. Kuhn, H. Zhao, U. O. Nwabara, X. Liu, M. Liu, **Y-T. Pan**, W. Zhu, P. J. A. Kenis, H. Yang, Engineering Silver-Enriched Copper Core-Shell Electrocatalysts to Enhance the Production of Ethylene and C<sub>2+</sub> Chemicals from Carbon Dioxide at Low Cell Potentials. *Adv. Funct. Mater.* **2021**, 2101668.
23. C-C. Hsu, Y-C. Lin (co-first author), Y-Y. Lin, H-T. Li, C-S. Ni, C-I. Liu, C-C. Chang, L-C. Lin, **Y-T. Pan**, S-F. Liu, T-Y. Liu,\* Han-Yi Chen\*, Trapa Natans Husks-derived Nanoporous Carbons as Electrode Materials for Sustainable High-Power Microbial Fuel Cell-Supercapacitor Systems, *Adv. Energy Sus. Res.*, **2021**, 2100163.

## 2020

24. **Y-T. Pan**, Hong Yang, Design of Bimetallic Catalysts and Electrocatalysts through the Control of Reactive Environments, *Nano Today*, **2020**, 100832.

## B. Patent

## 2023

1. D-H. Tsai, **Y-T. Pan**, C-M. Yang, C-Y. Chang, D-H. Tsai, C-F. Huang, Y-D. Tsai, Composite solid base catalyst, manufacturing method thereof and manufacturing method of glycidol, US Patent, **2024**,11998894.



2. 蔡德豪、潘詠庭、楊哲銘、張晴淵、蔡定暉、黃健富、蔡易達，製備縮水甘油之方法，中華民國專利 第 I806375 號，**2023**。

### C. Conference Papers

#### 2024

3. L-Y. Chueh, Y-W. Hsu, C-M. Wu, M-H. Tsai, C-C. Yang, C-H. Wang, Y.-T. Pan\*, Operando XPS Study of Tungsten Oxide-Supported Iridium Nanoparticles: High-Efficiency Water Splitting Catalysts in Acidic Environments and PEM Electrolysis, 246<sup>th</sup> ECS Meeting PRiME, **2024**, Hawaii.
4. Y-W. Hsu, L-Y. Chueh, Y.-T. Pan\*, Innovative Anode Design Incorporating Sub-Catalyst Layer for Proton Exchange Membrane Water Electrolysis with Ultra-Low Iridium Loading, 246<sup>th</sup> ECS Meeting PRiME, **2024**, Hawaii.
5. D-H. Tsai, W-T. Tu, W-C. Liao, L-Y. Chueh, Y.-T. Pan\*, A Strategical Break-in of Accessible and High Surface Area Copper Cathode by Magnesium Oxide/Hydroxide Incorporation Applied in Zero-Gap CO<sub>2</sub>RR, 246<sup>th</sup> ECS Meeting PRiME, **2024**, Hawaii.

#### 2023

6. Y.-T. Pan\*, L-Y. Chueh, Y-W. Hsu, Tungsten Oxide-Based Materials as Catalyst Support for Oxygen Evolution Reaction, 244<sup>th</sup> ECS Meeting, **2023**, Gothenburg.
7. D-H. Tsai, T-T. Wu, L-Y. Chueh, W-C. Liao, W-Y. Yu, Y.-T. Pan\*, Selective CO<sub>2</sub> Electrolysis of Cu-on-MgO/Mg(OH)<sub>2</sub> Catalyst through Enhanced CO<sub>2</sub> Adsorption, 244<sup>th</sup> ECS Meeting, **2023**, Gothenburg.
8. L-Y. Chueh, C-H. Kuo, R-H. Yang, D-H. Tsai, M-H. Tsai, C-C. Yang, H-Y. Chen, C-H. Wang, Y.-T. Pan\*, Strong Catalyst-Support Interaction in WO<sub>x</sub> Nanowires Supported Iridium Nanocatalysts: A Pathway to Efficient Water Electrolysis, 244<sup>th</sup> ECS Meeting, **2023**, Gothenburg.

#### 2022

9. Y.-T. Pan, (*Digital Presentation*) Molybdenum-Promoted Intermetallic PtCo ORR Catalyst, #I01D-1555, Symposium: I01D: Polymer Electrolyte Fuel Cells & Electrolyzers 22(PEFC&E 22) - Catalyst Activity/Durability for Hydrogen(-Reformate) Acidic Fuel Cells. 242<sup>nd</sup> ECS Meeting, **2022**, Atlanta.



10. W.T. Tu, **Y.-T. Pan**, The Influence of Dynamic Valence State of Copper and Silver to CO<sub>2</sub>RR by using Pulsed Potential Electrolysis, 69<sup>th</sup> Annual Meeting of TWIChE, 2022. New Taipei City.
11. D.-H. Tsai, **Y.-T. Pan**, Enhance CO<sub>2</sub> Adsorption by MgO Support Boosting Copper Catalyst Electrocatalytic Performance for CO<sub>2</sub>RR at MEA Reactor, 69<sup>th</sup> Annual Meeting of TWIChE, 2022. New Taipei City
12. L.-Y. Chueh, **Y.-T. Pan**, WO<sub>x</sub> Support Direct Synthesis of Ultra-Fine Core@Shell Ir@IrO<sub>x</sub> Nanocatalyst with Compelling OER Activity and Durability, TICC 2022, 2022, Taipei.
13. L.-Y. Chueh, **Y.-T. Pan**, The influence of Alkaline Catalyst Supports on the Carbon Dioxide Reduction Reaction Catalyzed by Copper, TICC 2022, 2022, Taipei.
14. S.-C. Ye, M. Horie, **Y.-T. Pan**, Investigating the Charge Transfer Effect between the Interface of -Conjugated Polymers and Polycrystalline Platinum Metal for Electrocatalytic Reaction, 68<sup>th</sup> Annual Meeting of TWIChE, 2022
15. D.-H. Tsai, W.-C. Liao, **Y.-T. Pan**, The Influence of Alkaline Catalyst Supports on the Carbon Dioxide Reduction Reaction Catalyzed by Copper, 68<sup>th</sup> Annual Meeting of TWIChE, 2022
16. L.-Y. Chueh, R.-H. Yang, **Y.-T. Pan**, Highly Dispersed Iridium Nanoparticles Supported by One-Dimensional WO<sub>x</sub> and Mo-Doped WO<sub>x</sub> Nanowires as Superior OER Catalysts in Acidic Environments, 68<sup>th</sup> Annual Meeting of TWIChE, 2022
17. W.-Z. Hung, L.-Y. Chueh, **Y.-T. Pan**, CO<sub>2</sub> Deoxygenation via Chemical Looping Utilizing Redox and Oxygen Vacancies in Transition Metal Oxides, 68<sup>th</sup> Annual Meeting of TWIChE, 2022
18. R.-H. Yang, L.-Y. Chueh, S.-L. Liao, H.-Y. Tiffany Chen, T.-C. Wei, C.-Y. Wang, **Y.-T. Pan**, Synthesis of W<sub>18</sub>O<sub>49</sub> Interconnected Nanowire Frameworks Populated with Plasmon Hotspots, 68<sup>th</sup> Annual Meeting of TWIChE, 2022
19. Y.-H. Hsu, Y.-H. Huang, **Y.-T. Pan**, Textured Coatings on Polymer Membrane with Enhanced Mass Transport Properties Fabricated by Ultrasonic Spraying, 68<sup>th</sup> Annual Meeting of TWIChE, 2022

#### D. 重要成就及榮譽

1. 2024 年 國科會 吳大猷先生紀念獎
2. 2024 年 化工學會 李長榮學術研究傑出青年教授獎
3. 2023 年 信驊科技公司 信驊青年學者



4. 2023 年 國立清華大學 新進人員傑出研究獎
5. 2023 年 台灣觸媒學會 傑出論文獎章
6. 2022 年 國立清華大學工學院 新進人員傑出研究獎
7. 2022 年 台灣氫能與燃料電池學會 第一屆優秀年輕學者獎
8. 2021 年 清華工學院第 109 學年度傑出教學獎



## Publications of Hsing-Wen Sung (宋信文)

### A. Refereed Journal Papers (\*Corresponding Author)

2024

1. Chong-Yu Zhang, Cheng Fan, Shu-Hong Li; Jun Wu, Yvonne Ziyi Peng, **Hsing-Wen Sung**; Shiming Liu, Ren-Ke Li\*, “A Conductive Polymer Restores Connexin43 Expression through Suppressing Mitogen-Activated Protein Kinases to Improve Intercellular Communication and Alleviate Atrial Fibrillation,” *Acta Biomaterialia* (IF 9.5) (Revision under Review).
2. Cam-Hoa Mac<sup>1,†</sup>, Giang Le Thi Nguyen<sup>1,†</sup>, Dien Thi My Nguyen<sup>1,†</sup>, Sheng-Min Huang<sup>2</sup>, Hsu-Hsia Peng<sup>3</sup>, Yen Chang<sup>4</sup>, Shih-Kai Lo<sup>1</sup>, Hui-Hua Kenny Chiang<sup>5</sup>, Yuan-Zhen Yang<sup>5</sup>, Hsiang-Lin Song<sup>6</sup>, Wei-Tso Chia<sup>7\*</sup>, Yu-Jung Lin<sup>8\*</sup>, **Hsing-Wen Sung<sup>1\*</sup>** “Noninvasive Vagus Nerve Electrical Stimulation for Immune Modulation in Sepsis Therapy,” *Journal of the American Chemical Society* (SCI IF 14.4) (Accepted).
3. Adrian Tabora Dychiao, Ting-Hsuan Lu, Siyang Song, Fan Chen, Minyao Wang, Jun Wu, Shuhong Li, Sheng-Yao Peng, Yen Chang, **Hsing-Wen Sung\***, and Ren-Ke Li\*, “Noninvasive assessment of a bioconductive patch for treating atrial fibrillation with magnetic resonance imaging,” *Journal of Controlled Release*, doi.org/10.1016/j.jconrel.2025.01.092 (Editor's Selection for Cover Article) (SCI IF 10.5).
4. Nhien Nguyen<sup>a†</sup>, Tuyet-Mai Hoang<sup>a†</sup>, Tun-Yu Huang<sup>a†</sup>, Lam-Duc-Huy Nguyena, Hsiao-Huang Chang<sup>b</sup>, Yen Chang<sup>c</sup>, Mai Thanh Thi Nguyend, Kun-Ju Line, Chun-Chieh Chen<sup>f\*</sup>, and **Hsing-Wen Sung<sup>a\*</sup>**,” *Macrophage-Hitchhiked, Effervescence-Induced Nanoemulsions for Enhanced Oral Chemotherapy and Immunotherapy: Impact on Absorption Route*” *Biomaterials*. 123019, 2024. (SCI IF 12.8)
5. Po-Kai Luo, Hui-Min Ho, Min-Chun Chiang, Li-An Chu, Ya-Han Chuang, Ping-Chiang Lyu, I-Chen Hu, Wan-An Chang, Sheng-Yao Peng, Jayachandran Jayakumar, Hsin-Lung Chen, Ming-Hsi Huang\*, **Hsing-Wen Sung\*** “pH-Responsive  $\beta$ -Glucans-Complexed mRNA in LNPs as an Oral Vaccine for Enhancing Cancer Immunotherapy”, *Advanced Materials*, 36 (33), 2404830, 2024. (SCI IF 27.4)



6. Van Khanh Nguyen, Nhien Nguyen, Zhe-Cheng Li, Chao-Min Cheng, Jui-To Wang, Yu-Wei Chiang, Hsiang-Lin Song, Shih-Kai Lo, Cam Hoa Mac, Yen Chang, Wei-Tso Chia\*, and **Hsing-Wen Sung\***, “Inflammation-Activated Endogenous Macrophage-Mediated Prodrug Delivery System Overcoming Biological Barriers for Enhanced Oral Meningitis Therapy”, *Advanced Functional Materials*, 34 (32), 2401570, 2024. (SCI IF 18.5)
7. Yichong Zhang, Alina Yao, Jun Wu, Shuhong Li, Minyao Wang, Zexu Peng, **Hsing-Wen Sung**, Baoguo Jiang\*, Ren-Ke Li\*, “Conductive Hydrogel Restores Electrical Conduction to Promote Neurological Recovery in a Rat Model”, *Tissue Engineering, Part A*, 30 (17-18), 577-587, 2024. (SCI IF 3.5)
8. Cam-Hoa Mac, Hsien-Meng Tai, Sheng-Min Huang, Hsu-Hsia Peng, Amit Kumar Sharma, Giang Le Thi Nguyen, Pei-Ju Chang, Jui-To Wang, Yen Chang, Yu-Jung Lin, **Hsing-Wen Sung\***, ”Orally Ingested Self-Powered Stimulators for Targeted Gut–Brain Axis Electrostimulation to Treat Obesity and Metabolic Disorders”, *Advanced Materials*, 36 (21), 2310351, 2024. (SCI IF 27.4)
9. Putry Yosefa Siboro<sup>+</sup>, Amit Kumar Sharma<sup>+</sup>, Pei-Jhun Lai, Jayachandran Jayakumar, Fwu-Long Mi, Hsin-Lung Chen, Yen Chang\*, **Hsing-Wen Sung\***, "Harnessing HfO<sub>2</sub> Nanoparticles for Wearable Tumor Monitoring and Sonodynamic Therapy in Advancing Cancer Care" *ACS Nano*, 18 (3), 2485-2499, 2024. (SCI IF 15.8)

## 2023

10. Yichong Zhang, Alina Yao, Jun Wu, Shuhong Li, Minyao Wang, Zexu Peng, **Hsing-Wen Sung**, Baoguo Jiang, Ren-Ke Li, “Conductive Hydrogel Restores Electrical Conduction to Promote Neurological Recovery in a Rat Model” *Tissue Engineering, Part A*, ten.TEA.2023.0372. (SCI IF 4.1)
11. Cam-Hoa Mac, Hsien-Meng Tai, Sheng-Min Huang, Hsu-Hsia Peng, Amit Kumar Sharma, Giang Le Thi Nguyen, Pei-Ju Chang, Jui-To Wang, Yen Chang, Yu-Jung Lin, **Hsing-Wen Sung\***, ”Orally Ingested Self-Powered Stimulators for Targeted Gut–Brain Axis Electrostimulation to Treat Obesity and Metabolic Disorders”, *Advanced Materials*, 202310351. (SCI IF 29.4)
12. Putry Yosefa Siboro<sup>+</sup>, Amit Kumar Sharma<sup>+</sup>, Pei-Jhun Lai, Jayachandran Jayakumar, Fwu-Long Mi, Hsin-Lung Chen, Yen Chang\*, **Hsing-Wen Sung\***, "Harnessing HfO<sub>2</sub> Nanoparticles for Wearable Tumor Monitoring and Sonodynamic Therapy in Advancing Cancer Care" *ACS Nano*, 2485–2499, 2023. (SCI IF 17.1)



13. Cheng-Yu Wu<sup>+</sup>, Cam-Hoa Mac<sup>+</sup>, Tung-Han Yang<sup>+</sup>, Khanh Nguyen, Shih-Kai Lo, Yen Chang, Po-Liang Lai, **Hsing-Wen Sung\***, Yu-Jung Lin\*, ”Nanoscale Photocatalytic Hydrogen Production System Mitigates Inflammation by Harnessing Glycolysis Waste”, Chemical Engineering Journal, Volume 476,146614, 2023. (SCI IF 15.1)
14. Yu-Jung Lin, Po-Kai Luo, Huei-Rou Su, Hung-Yun Lu, Wan-An Chang, Min-Chun Chiang, Hsin-Lung Chen, Kai Chen, Hao-Ji Wei\*, Kun-Ju Lin\*, **Sung, H. W.\***, ”A Low-Energy Emulsification Platform Based on a Diet Coke–Mentos Reaction-Derived Bubbly Flow for Formulating Various Emulsions as Drug Carriers”, Biomaterials,122264, 2023 (SCI IF 14.0)
15. Kuan-Hung Chen, Tun-Yu Huang, Nhien Nguyen, Yu-Tzu Yu, Yu-Jung Lin, Hsiang-Lin Song, Jui-To Wang, Hsin-Lung Chen, **Sung, H. W.\*** “Macrophage-Hitchhiked Orally Administered  $\beta$ -Glucans-Functionalized Nanoparticles as “Precision-Guided Stealth Missiles” for Targeted Pancreatic Cancer Therapy” Advanced Materials, 2304735. (2023 June) (SCI IF 29.4)
16. Chih-Wei Chou, Wei-Tso Chia, Cam-Hoa Mac, Cheng-Yu Wu, Chun-Chieh Chen, Hsiang-Lin Song, Yi-Hsuan Lin, Yu-Jung Lin\*, and **Sung, H. W.\***, “Selective Accumulation of Ionic Nanocrystal H<sub>2</sub> Storage System as an In Situ H<sub>2</sub>/Boric Acid Nanogenerator Fights against Ethanol-Induced Gastric Ulcers“, Chemical Engineering J, Volume 463, 142373. (2023 May) (SCI IF 15.1)

## 2022

17. Zhang, Y. C., Wang, M. Y., Zhang, C. Y., Fan, Y. F., Wu, J., Li, S. H., Fu, A., Yu, S., Terrance M. Yau, Lu, T. H., **Sung, H. W.\*** & Li, R. K. (2022 Nov.) , “Epicardial delivery of a conductive membrane synchronizes conduction to reduce atrial fibrillation“, Journal of Controlled Release, 351, 847-859. (IF 10.8)
18. Siboro, P. Y., Nguyen, V. K. T., Miao, Y. B., Sharma, A. K., Mi, F. L., Chen, H. L., Chen, K. H., Yu, Y. T., **Chang, Y.\*** & **Sung, H. W.\*** (2022 Aug) , “Ultrasound-Activated, Tumor-Specific In Situ Synthesis of a Chemotherapeutic Agent Using ZIF-8 Nanoreactors for Precision Cancer Therapy“, ACS Nano, 16(8), 12403-12414. (IF 17.1)
19. Mac, C. H., Chan, H. Y., Lin, Y. H., Sharma, A. K., Song, H. L., Chan, Y. S., Lin, K. J., Lin, Y. J., **Sung, H. W.\*** (2022 May.) “Engineering a biomimetic bone scaffold that can regulate redox homeostasis and promote osteogenesis to repair large bone defects” Biomaterials, 286, 121574. (SCI IF 14.0)



20. Nguyen, N., Lin, Z. H., Barman, S. R., Korupalli, C., Cheng, J. Y., Song, N. X., Chang, Y., Mi, F.-L., Song, H.-L., **Sung, H. W.\***, Lin, Y. J\*. (2022) “Engineering an Integrated Electroactive Dressing to Accelerate Wound Healing and Monitor Noninvasively Progress of Healing. “Nano Energy, 107393. (IF 17.6)

## 2021

21. Miao, Y. B., Lin, Y. J., Chen, K. H., Luo, P. K., Chuang, S. H., Yu, Y. T., Tai, H. M., Chen, C. T., Lin, K. J., **Sung, H. W.\***, “Engineering Nano- and Microparticles as Oral Delivery Vehicles to Promote Intestinal Lymphatic Drug Transport” *Advanced Materials*, 2104139, 2021. (SCI IF 29.4)
22. Korupalli, C., Li, H., Nguyen, N., Mi, F. L., Chang, Y., Lin, Y. J.\*, **Sung, H. W.\***, “Conductive Materials for Healing Wounds: Their Incorporation in Electroactive Wound Dressings, Characterization, and Perspectives” *Advanced Healthcare Materials*, 10(6), 2001384, 2021. (SCI 10.0)
23. Miao, Y. B., Chen, K. H., Chen, C. T., Mi, F. L., Lin, Y. J., Chang, Y., Chiang, C.S., Wang, J.T., Lin, K.J., **Sung, H. W.\***, “A noninvasive gut-to-brain oral drug delivery system for Treating Brain Tumors” *Advanced Materials*, 2100701, 2021(July). (SCI IF 29.4)
24. Chen, P.-M., Pan, W.-Y., Luo, P.-K., Phung, H.-N., Liu, Y.-M., Chiang, M.-C., Chang, W.-A., Tien, T.-L., Huang, C.-Y., Wu, W.-W., Chia, W.-T.\*, **Sung, H.W.\***, “Pollen-Mimetic Metal–Organic Frameworks with Tunable Spike-Like Nanostructures That Promote Cell Interactions to Improve Antigen-Specific Humoral Immunity” *ACS Nano*, vol.15, pp.5775-7836, 2021. (IF 17.1)
25. Hsieh, M.H., Wei, H.J., Chen, K.H., Wang, H.C., Yu, C.H., Lu, T.H., Chang, Y.\*, **Sung, H.W.\***, “A fast and facile platform for fabricating phase-change materials-based drug carriers powered by chemical Marangoni effect” *Biomaterials*, vol.271, pp. 120748, 2021. (SCI IF 14.0)
26. An, Z., Wu, J., Li, S.H., Chen, S., Lu, F.L., Xu, Z.Y., **Sung, H.W.**, Li, R.K., “Injectable Conductive Hydrogel Can Reduce Pacing Threshold and Enhance Efficacy of Cardiac Pacemaker” *Theranostics*, vol.11(8), pp3948-3960, 2021. (SCI 12.4)

## 2020

27. Korupalli, C., Li, H., Nguyen, N., Mi, F. L., Chang, Y., Lin, Y.J.\*, **Sung, H.W.\***, “Conductive Materials for Healing Wounds: Their Incorporation in



- Electroactive Wound Dressings, Characterization, and Perspectives” Advanced Healthcare Materials, pp2001384, 2020. (SCI 10.0)
28. Chen, P. M., Pan, W. Y., Miao, Y. B., Liu, Y. M., Luo, P. K., Phung, H. N., Wu, W.W., Ting, Y.-H., Yeh, C.-Y., Chiang, M.-C., Chia, W.-T\*, **Sung, H.W.\***, “Bioinspired engineering of a bacterium-like metal-organic framework for cancer immunotherapy” Advanced Functional Materials, pp 2003764, 2020. (SCI 19.0)
  29. He, S., Wu, J., Li, S.H., Wang, L., Sun, Y., Xie, J.; Ramnath, D., Weisel, Richard D., Yau, Terrence M., **Sung, H.W.**; Li, R.K., “The conductive function of biopolymer corrects myocardial scar conduction blockage and resynchronizes contraction to prevent heart failure,” Biomaterials, vol.3, pp. 120285, 2020. (SCI IF 14.0)
  30. Chen, K. H., Miao, Y. B., Shang, C. Y., Huang, T. Y., Yu, Y. T., Yeh, C. N., Song, H. L., Chen, C.T., Mi, F. L., Lin, K. J., **Sung, H.W.\***, “A bubble bursting-mediated oral drug delivery system that enables concurrent delivery of lipophilic and hydrophilic chemotherapeutics for treating pancreatic tumors in rats,” Biomaterials, vol.255, pp. 120157, 2020. (SCI IF 14.0)
  31. Lin, Y.J., Chen, C.C., Dang N., Su, H.R., Lin, K.J., Chen, H.L., Hu, Y.J., Lai, P.L., **Sung, H.W.\***, “Biomimetic Engineering of a Scavenger-Free Nitric Oxide-Generating/Delivering System to Enhance Radiation Therapy,” Small, vol 16, pp.2070126, 2020. (SCI 13.3)
  32. Chen, S., Hsieh, M.H., Li, S.H., Wu, J., Weisel, R.D., Chang, Y., **Sung, H.W.\***, Li, R.K.\* , “A Conductive Cell-Delivery Construct as a Bioengineered Patch that Can Improve Electrical Propagation and Synchronize Cardiomyocyte Contraction for Heart Repair,” Journal of Controlled Release, vol.320, pp.73-82, 2020. (IF 10.8)
  33. Wan, W.L., Tian, B. Lin, Y.J., Korupalli, C., Lu, M.Y., Cui, Q., Wan, D.H., Chang, Y.\*, **Sung, H.W.\***, “Photosynthesis-Inspired H<sub>2</sub> Generation Using a Chlorophyll-Loaded Liposomal Nanoplatform to Detect and Scavenge Excess ROS,” Nature Communications, vol.11, pp.534, 2020. (SCI 16.6)

## B. Conference Papers



1. Lu, T.-H., Yu, C.-H., Wang M.-Y., Chang Y. , Li R.-K., **Sung, H.-W.\*** “Electrically Coupling of Cardiomyocytes Using a MRI-Traceable Conductive Hydrogel for Treating Atrial Fibrillation” 此篇論文榮獲2022第23屆工學院研究生論文發表競賽壁報展示組第三名
2. Yu, Y.-T.(余祐慈)榮獲中華民國斐陶斐榮譽會員 (2022)
3. Luo, P.-K., Chiang, M.-C., Chang, W.-A., **Sung, H.-W.** “A metal organic framework nanosystem loaded with methotrexate for combinational cancer therapy” 此篇論文榮獲110年度科技部大專學生研究創作獎、111 年中國工程師學會學生分會工程論文競賽特優獎
4. Yu, Y.-T., Chen, K.-H., Lin P.-Y., **Sung, H.-W.\***, “Phase-Changeable Nanoemulsions for Oral Delivery of Exenatide via Lymphatic Absorption for Glycemic Control in Treating Diabetes Mellitus”此篇論文榮獲 2021 中華民國生醫材料及藥物制放學會年會學生口頭論文競賽特優
5. Yu, Y.-T., Su, H.-R., **Sung, H.-W.\***, “A Low-Energy Emulsification Platform Using Diet Coke—Mentos Reaction Derived Bubbly Flows That Can Produce O/W or W/O Droplets as Drug Carriers” 此篇論文榮獲2021國立清華大學工學院研究生論文發表競賽壁報展示組佳作
6. Yu, Y.-T., Chen, K.-H., **Sung, H.-W.\***, “Effervescence-Based Oral Capsules That Enable Concurrent Delivery of Lipophilic and Hydrophilic Chemotherapeutics to Treat Pancreatic Cancers” 此篇論文榮獲2021年生物醫學工程科技研討會-科技部醫工學門成果發表會暨第三屆國際工程與科技研討會最佳壁報論文獎
7. Chen, K.-H., Miao, Y.-B., Shang, C.-Y., Yu, Y.-T., Lin, K.-J., **Sung, H.-W.\***, “An Effervescence-Enabled Oral Drug Delivery System That Concurrently Delivers Lipophilic and Hydrophilic Chemotherapeutics to Treat Pancreatic Cancer” 此篇論文榮獲2020台灣化學工程學會年會口頭報告競賽第一名
8. Chen, K.-H., Miao, Y.-B., Shang, C.-Y., Yu, Y.-T., Lin, K.-J., **Sung, H.-W.\***, “A Bubble Bursting-Mediated Oral Drug Delivery System That Enables Concurrent Delivery of Lipophilic and Hydrophilic Chemotherapeutics for Treating Pancreatic Cancer” 此篇論文榮獲2020中華民國生醫材料及藥物制放學會年會口頭報告競賽第一名
9. Chen, K.-H., Miao, Y.-B., Shang, C.-Y., Yu, Y.-T., Lin, K.-J., **Sung, H.-W.\***, “A Bubble Bursting-Mediated Oral Drug Delivery System That Enables Concurrent Delivery of Lipophilic and Hydrophilic Chemotherapeutics for Treating Pancreatic Cancer” 此篇論文榮獲2020清大工學院研究生論文發表競賽口頭報告第二名和化工系初賽第一名



10. Yu, Y.-T., **Sung, H.-W.\***, “ Self-emulsified Lipid Oil Drops as a Nanocarrier for Oral Delivery of Hydrophilic and Hydrophobic Anti-Cancer Drugs”此篇論文榮獲 中國工程師學會學生分會109年度工程論文競賽化工組優等獎
11. Yu, Y.-T., Chen, K.-H., Lin P.-Y., **Sung, H.-W.\***, “ Phase-Changeable Nanoemulsions for Oral Delivery of a Therapeutic Peptide Directly Targeting Pancreas via Lymphatic Transport for Glycemic Control in Diabetes”此篇論文榮獲 2020第67屆化工年會學生海報論文競賽佳作
12. Chen, P.-M., Pan, W.-Y., Wu, C.-Y., Yeh, C.-Y., Luo, P.-K., Liu, Y.-M., Chou, C.-J. , **Sung, H.-W.\***, “ Modulation of Tumor Microenvironment Using a TLR-7/8 Agonist-Laden Nanoparticle System that Combines Mild Hyperthermia and Immunotherapy for In Situ Cancer Vaccination”此篇論文榮獲 2019國際創新藥物制放研討會暨中華民國生醫材料及藥物制放學會年會 (2019 IADDS-BCRS) 學生口頭論文競賽藥物制放組特優
13. Hsieh, M.-H., Wu, J., Li, S.-H., Wu, S.-Y., Gao, X.-Y., Wei, H.-J., Li, R.-K., **Sung, H.-W.\*** “ An Injectable Self-doping Conductive Hydrogel that Improves Electrical Coupling of Isolated Cardiomyocytes, Restoring Heart Function after Myocardial Infarction” 此篇論文榮獲2018中華民國生醫材料及藥物制放學會壁報競賽活動生醫材料組第一名
14. Hsieh, M.-H., Wu, J., Li, S.-H., Wu, S.-Y., Gao, X.-Y., Wei, H.-J., Li, R.-K., **Sung, H.-W.\*** “ An Injectable Self-doping Conductive Hydrogel that Improves Electrical Coupling of Isolated Cardiomyocytes, Restoring Heart Function after Myocardial Infarction” 此篇論文榮獲2018第19屆工學院研究生論文發表競賽壁報展示組佳作
15. Chen, P.-M., Pan, W.-Y, Wu ,Y.-R., Yeh, C.-Y., Yang ,Y.-Z., Luo, P.-K., Chou, C.-J., **Sung, H.-W.\***, “An NIR-Absorbing Nanoparticle System Loaded with TLR-7/8 Ligand for Combinational Photothermal Immunotherapy” 此篇論文榮獲 2018 The 2nd International Conference on Biomedical Application of Nanomaterials, Best Poster Award in 3rd Prize

## C. Patents

### Taiwan

1. **宋信文**, 具光熱轉換及佐劑性質之尖刺狀金屬有機框架用於癌症免疫治療, 申請日期:2020/02/12序號:J2P109017-US
2. **宋信文**, 繆養寶,陳冠宏“口服藥物組成物及其用途” 2022年中華民國專利發明I783175 (專利權起訖日: 2022/11/11 ~ 2039/09/09)



3. **宋信文**, 林柏諺, 陳冠宏“可同時口服傳遞疏水性小分子藥物和親水性小分子藥物的醫藥組合物” 2021年中華民國專利發明I739450 (專利權起訖日: 2021/09/11 ~ 2040/05/27)
4. **宋信文**, 繆養寶, 陳冠宏, “口服藥物傳遞系統及其製備方法” 2021年中華民國專利發明I727411(專利權起訖日: 2021/05/11~ 2039/08/28)
5. 林柏諺, 陳冠宏, **宋信文**, “口服釋放之醫藥組合物ORAL DRUG DELIVERY SYSTEM AND METHOD FOR FABRICATING THEREOF” 2020年中華民國專利發明第I686214.
6. **宋信文**, 林威志, 林淑娟, “緩釋型組成物、其製備方法及其用途, SUSTAINED-RELEASE COMPOSITION, METHOD FOR FABRICATING, AND USE THEREOF,” 2018年中華民國專利發明第I638666號.
7. **Sung, H.-W.**, Lin, Y.-J., Chi, N.-W., Wan, W.-L., “溫度反應型組成物、其製備方法及其用途/Temperature-Responsive Composition, Method for Fabricating, And Use Thereof,” 2017年中華民國專利發明第I606829號.

### United States

8. **宋信文**, SPIKY METAL ORGANIC FRAMEWORK, METHOD FOR FABRICATING THEREOF, AND KIT FOR TREATING CANCER(美國第 17/205,732號發明專利, 2023)
9. **宋信文**, 繆養寶, 陳冠宏, “ORAL DRUG COMPOSITION AND USE THEREOF,” (U.S. Patent No. 11,278,630, 03/22/2022)
10. **宋信文**, 繆養寶, 陳冠宏, “ORAL DRUG DELIVERY SYSTEM AND METHOD FOR FABRICATING THEREOF,” U.S. Patent No. (申請號) J2P108042 US
11. **Sung, H. W.**, Huang, C. C., Wei-Lin, W. A. N., Hsieh, M. H., Shih, P. C., & Hu, H. Y., “Sustained-release composition, method for fabricating, and use thereof,” (USPTO 15/672,280, filed on 8/8/2017. U.S. Patent No. 10322088, 6/18/2019)
12. **Sung, H.-W.**, Chuang, E.-Y., Lin, P.-Y., TU, Hosheng., “A pharmaceutical composition comprising a gas generating ingredient,” (USPTO EP2974721A1, filed on 7/16/2015. U.S. Patent No. 15177007.0, 1/20/2018)
13. **Sung, H.-W.**, Lin, Y.-J., Chi, N.-W., Wan, W.-L., “TEMPERATURE-RESPONSIVE COMPOSITION, METHOD FOR FABRICATING, AND USE THEREOF,” (USPTO 15/603,419, filed on 05/23/2017. U.S. Patent No. US20180161276A1, 6/14/2018)
14. **Sung, H.-W.**, Chuang, E.-Y., Lin, P.-Y., “Nano/Micro Bubbles for Drug Delivery,” (USPTO 14/537,448, filed on 11/10/2014. U.S. Patent No. 9,603,793, 3/28/2017)



15. **Sung, H.-W.**, Hsiao, C.-W., Huang, C.-C., Chung, M.-F., Liao, Z.-X., Chiang, W.-L., “Acid-Substituted Polyaniline-Grafted Hydrogel Copolymer And Use Thereof,” (USPTO 14/488,571 , filed on 9/17/2014. U.S. Patent No. 9,539,326 1/10/2017)

#### **Other Countries**

16. **Sung, H.-W.**, Chuang, E.-Y., Lin, P.-Y., Chiang C.-H., “醫藥組合物 / Pharmaceutical composition” (Japan Patent No. 2016029034, 03/03/2016)
17. **Sung, H.-W.**, Chuang, E.-Y., Lin, P.-Y., “Nano/Micro Bubbles for Drug Delivery,” (China Patent No. 105267178, 01/27/2016)
18. **Sung, H.-W.**, Chuang, E.-Y., Lin, P.-Y., Chiang C.-H., “醫藥組合物 / Pharmaceutical composition” (European Patent No. 2974721, 01/20/2016)
19. **Sung, H.-W.**, Chuang, E.-Y., Lin, P.-Y., “Pharmaceutical Composition for Preparing Drug Delivery Nano/Micro Bubbles,” (China Patent No. 105250237, 01/20/2016)

#### **D. Other**

1. 目前是清華大學化學工程學系『特聘講座教授』以及『終身國家講座教授』。
2. 曾多次榮獲國內外學術獎項包括有:美國醫學與生物工程學會會士、國際生醫材料科學與工程聯合學會會士、亞太材料科學院院士、侯金堆傑出研究獎、東元獎、徐有庠講座教授、國家科學委員會傑出研究獎(3 次)、教育部國家獎座獎(2 次)、教育部學術獎、化工學會賴再德教授獎、李昭仁教授傑出學者獎、Elsevier 2015 Biomaterials 最佳論文獎、以及亞太地區組織工程暨再生醫學(TERMIS-AP)傑出科學家獎等。
3. 曾 / 目前擔任 Journal of Controlled Release, Tissue Engineering, AdvancedHealthcare Materials, Advanced Materials 等期刊編輯委員, Biomaterials 期刊(IF 15.304)副主編。



## Publications of De-Hao Tsai (蔡德豪)

### A. Journal Papers (\* Corresponding author)

#### 2024

1. Dun-Zheng Liao, Yen-Te Lee, Lu-Yu Chueh, Yi-Ta Tsai, Chien-Fu Huang, **De-Hao Tsai**<sup>\*</sup>, Yung-Tin Pan<sup>\*</sup> (2024). Transition metal promoted palladium-catalyzed oxidative carbonylation of phenol to diphenyl carbonate. In press, *Journal of the Taiwan Institute of Chemical Engineers*.
2. Yen-Te Lee, Yi-Ta Tsai, Chien-Fu Huang, Yung-Tin Pan, **De-Hao Tsai**<sup>\*</sup> (2024). Aerosol-assisted Synthesis of Cu/AC Hybrid Catalysts for Dimethyl Carbonates Synthesis. In press, *Journal of the Taiwan Institute of Chemical Engineers*.
3. Zhi Xuan Law, Kun-Han Lin<sup>\*</sup>, **De-Hao Tsai**<sup>\*</sup> (2024). Efficient Integration of Calcium Looping with Methane Bi-Reforming using Pd-Enhanced Ni-CaO Dual Functional Nanomaterials. *Chemical Engineering Journal*, 2024, Volume 500, 157302.
4. Yi Ching Chuah, Wen-Yueh Yu, Zhi Xuan Law, **De-Hao Tsai**<sup>\*</sup> (2024). Combined (CO<sub>2</sub>+CO) Hydrogenation with Methanolysis Using Aerosol Metal-Organic Framework-Derived Hybrid Catalysts. *Advanced Powder Technology*, 35, 12, 104696.
5. Yu-Chun Zeng, Zhi Xuan Law, **De-Hao Tsai**<sup>\*</sup> (2024). Combined Methane Cracking for H<sub>2</sub> Production with CO<sub>2</sub> Utilization for Catalyst Regeneration Using Dual Functional Nanostructured Particles. *ACS Sustainable Chem. Eng.* 12, 32, 12200–12215. 獲選為期刊封面
6. D. Senthil Raja, **D-H Tsai**<sup>\*</sup> (2024). Recent Advances in Continuous Flow Synthesis of Metal-Organic Frameworks and Their Composites. *Chem. Commun.*, 60, 8497-8515. 獲選為期刊封面
7. Y. C. Chuah, R. Y. Huang, **D-H Tsai**<sup>\*</sup> (2024). Gas-Phase Continuous Synthesis of Metal-Organic Framework-Derived Hybrid Catalysts for Combined CO<sub>2</sub> and CO Hydrogenation to Methanol. *Advanced Powder Technology*. Volume 35, Issue 4, 104407.
8. Y.-H. Sung, D. Senthil Raja, J.-H. Huang, **D-H Tsai**<sup>\*</sup> (2024). Microfluidic-Aerosol Hyphenated Synthesis of Metal-Organic Framework-derived Hybrid Catalysts for CO<sub>2</sub> Utilization. *Small Methods*. 8(5) 2301435. 獲選為期刊 Frontier piece



9. Y.-H. Wang, D. Senthil Raja, **D-H Tsai**\* (2024). Quantifying Thiolated Chemical Additives for Copper Electroplating Process. *Analytica Chimica Acta*, Volume 1307, 8, 342608.
10. C. B. Du, J. Y. Tu, Z. X. Law, **D-H Tsai**\* (2024). Aerosol metal-organic framework-derived Ni–Zn–Al hybrid catalyst for efficient methane Bi-reforming. *International Journal of Hydrogen Energy*. Volume 57, Pages 1152-1163.
11. P. C. Yang, Y. T. Lee, Y. T. Tsai, C. F. Huang, Y.-T. Pan\*, **D-H Tsai**\* (2024). Oxidative carbonylation of propylene glycol to propylene carbonate by copper-based catalysts. *Journal of the Taiwan Institute of Chemical Engineers*, Volume 158, 105005.
12. Quynh, N. L. T., Thi Quynh, T. L., Anh Tien, N., Quoc Thiet, N., **D-H Tsai**, & T. K. Le\*. (2024). Simple synthesis of floating Fe<sub>2</sub>O<sub>3</sub>/Luffa catalysts for the photo-Fenton degradation of methyl orange at near neutral pH. *Condensed Matter and Interphases*, 26(1), 68-77.

## 2023

13. Z. X. Law, **D.H. Tsai**\* (2023). Exploring the Challenges of Calcium Looping Integrated with Methane Bireforming for Enhanced Carbon Capture and Utilization. *Langmuir*, 39, 41, 14782–14790.
14. J. Y. Tu, C. H. Shen, **D-H Tsai**\*, C. W. Kung\* (2023). Carbonized Nickel-Incorporated Metal–Organic Frameworks for Methane Reforming: Post-Synthetic Modification vs. Impregnation. *ACS Applied Nano Materials*, 6, 12, 10269–10279.
15. R. Y. Huang, T. T. Nguyen Hoang, Y. A. Hsueh, **D-H Tsai**\* (2023). Combined Hydrogenation of CO<sub>2</sub> and CO to Methanol using Aerosol-Assisted Metal-Organic Framework-Derived Hybrid Catalysts. *Fuel*, 349, 128647.
16. Yi-Hsuan Sung, Ching-Ling Wu, Jen-Huang Huang\*, **De-Hao Tsai**\* (2023). Real-time quantifying microdroplet synthesis of metal-organic framework colloids using gas-phase electrophoresis. *Analytical Chemistry*, 95, 9, 4513–4520. 獲選為期刊封面
17. Zhi Xuan Law, **De-Hao Tsai**\* (2023). Efficient Calcium Looping-integrated Methane Dry Reforming by Dual Functional Aerosol Ca-Ni-Ce Nanoparticle Cluster. *ACS Sustainable Chemistry & Engineering*, 11, 6, 2574–2585. 獲選為期刊封面
18. 杜傳彬、**蔡德豪**\* (2023 年10 月)。運用甲烷重組反應概念進行二氧化碳再利用。化工會刊，70, 5, 66-74。



19. 劉紫璇、蔡德豪\* (2023 年04 月)。運用氣相蒸發誘導自組裝技術生成功能性奈米粒子團簇作為非勻相界面催化之應用。化工會刊，70, 2, 56-72。

## 2022

20. S. T. Chung, Y.-H. Tu, H.-Y. Huang, C.-C. Hu\*, D-H Tsai\* (2022). Aerosol synthesis of vanadium oxide-carbon hybrid nanoparticle cluster for high performance lithium extraction via electrochemical deionization. *ACS Sustainable Chemistry & Engineering*, 10(48), 15777-15790. 獲選為期刊封面
21. T. T. T. Pham, V. D. Nguyen, N. L. Nguyen, T. H. Pham, D. K. Nguyen Anh, T. Q. N. Le, D-H Tsai, T. K. Le\* (2022). Immobilization of Fe<sub>2</sub>O<sub>3</sub> on perlite for photo-Fenton degradation of methylene blue. *Toxicological & Environmental Chemistry*, 104(2), 232-245.
22. Z. X. Law, Y.-T. Pan\*, D-H Tsai\* (2022). Calcium looping of CO<sub>2</sub> Capture coupled to Syngas Production using Ni-CaO-based Dual Functional Material. *Fuel*, 328.
23. T. T. Nguyen Hoang, D-H Tsai\* (2022). Low-temperature methanol synthesis via (CO<sub>2</sub> + CO) combined hydrogenation using Cu-ZnO/Al<sub>2</sub>O<sub>3</sub> hybrid nanoparticle cluster. *Applied Catalysis A, General*, 645, 118844. 1-10.
24. C. Y. Chang, Y. F. Chen, Y. T. Tsai, C. F. Huang, Y.-T. Pan\*, D-H Tsai\* (2022). Sustainable Synthesis of Epoxides from Halohydrin Cyclization by Composite Solid Base Catalysts. *Ind. Eng. Chem. Res.*, 61, 28, 9970–9980. 獲選為期刊封面
25. W. Z. Hung, Z. X. Law, D-H Tsai, B. H. Chen, C. H. Chen, H. Y. Hsu, Y.-T. Pan\* (2022). Selective CO<sub>2</sub> Deoxygenation to CO in Chemically Looped Reverse Water Gas Shift Using Iron Based Oxygen Carrier. *MRS Energy & Sustainability*, 9, 342-349.
26. Z. X. Law, D-H Tsai\* (2022, Jul). Design of Aerosol Nanoparticles for Interfacial Catalysis. *Langmuir*, 38(30), 9037-9042.
27. C. B. Du, Z. X. Law, R. Y. Huang, D-H Tsai\* (2022, Jun). Aerosol-phase Synthesis of Bimetallic NiCu oxide-decorated CeO<sub>2</sub> Nanoparticle Cluster for Catalytic Methane Combustion. *Advanced Powder Technology*, 33, 8, 103649.
28. Y. A. Hsueh, Y. C. Chuah, C.-H. Lin, D-H Tsai\* (2022, May). Aerosol-Assisted Synthesis of Metal-Organic Framework-Derived Hybrid Nanomaterials for Reverse Water-gas Shift Reaction. *ACS Applied Nano Materials*, 5, 7, 8883-8893. 獲選為期刊封面
29. P. F. Hsieh, Z. X. Law, C.-H. Lin, D-H Tsai\* (2022). Understanding Solvothermal Growth of Metal–Organic Framework Colloids for CO<sub>2</sub> Capture Applications. *Langmuir*, 38, 14, 4415-4424. 獲選為期刊封面



30. C. M. Yang, M. V. Huynh, T. Y. Liang, T. K. Le, T. K. X. Huynh, **D-H Tsai\*** (2022, Jan). Metal-Organic Framework-derived Mg-Zn Hybrid Nanocatalyst for Biodiesel Production. *Advanced Powder Technology*, Volume 33, Issue 1, 103365.
31. 涂家耘、**蔡德豪\*** (2022年06月)。工業材料雜誌 6月號/2022 第426期。工業材料雜誌，6月號/2022 第426期 p45-52。

## 2021

32. Y. S. Chen, C. M. Yang, T. T. Nguyen Hoang, **D-H Tsai\*** (2021). "Porous magnesia-alumina composite nanoparticle for biodiesel production". *Fuel*. 285, 119203. (2019 IF: 5.6. Ranking 18/143)
33. T. T. Nguyen Hoang, Y. S. Lin, T. N. H. Nguyen, T. K. Le, T. K. X. Huynh, **D-H Tsai\*** (2021). "Cu-ZnO@Al<sub>2</sub>O<sub>3</sub> Hybrid Nanoparticle with Enhanced Activity for Catalytic CO<sub>2</sub> Conversion to Methanol". *Advanced Powder Technology*, 32, 5, 1785-1792.
34. Y. S. Lin, J. Y. Tu, **D-H Tsai\*** (2021). "Steam-promoted Methane-CO<sub>2</sub> Reforming by NiPdCeO<sub>x</sub>@SiO<sub>2</sub> Nanoparticle Clusters for Syngas Production". *International Journal of Hydrogen Energy*, 46, 49, 25103-25113.
35. T. K. T. Vu, T. K. Le, M. S. Hoang, H. A. Dang, D. K. A. Nguyen, T. T. Nguyen Hoang, **D-H Tsai**, H. K. H. Nguyen; T. K. X. Huynh\* (2021). "Effects of Au and F co-modification by thermal shock method on the photocatalytic activity of ZnO". *Materials Chemistry and Physics*. 260:124092.
36. M. T. Chiang, Y. H. Tu, H. L. Chiang, C. C. Hu\*, **D-H Tsai\*** (2021). "Raspberry-structured Silver-Carbon Hybrid Nanoparticle Clusters for High-Performance Capacitive Deionization". *Desalination*, 520, 115343.
37. S. T. Chung, M. T. Chiang, Y. X. Chin, C. C. Hu\*, **D-H Tsai\*** (2021). Controlled Aerosol-based Synthesis of Vanadium Oxides Nanoparticle for Supercapacitor Applications". *Journal of the Taiwan Institute of Chemical Engineers*, 128, 220-226.

## 2020

38. T. Y. Liang, D. Senthil Raja, K. C. Chin, C.-L. Huang, S. A. Sethupathi, L. K. Leong\*, **D-H Tsai\***, S-Y Lu\* (2020). "Bimetallic Metal–Organic Framework-Derived Hybrid Nanostructures as High-Performance Catalysts for Methane Dry Reforming". *ACS Applied Materials & Interfaces*. 12(13), 15183-15193.
39. M. T. Chiang, H. L. Wang, T. Y. Han, Y. K. Hsieh, J. Wang, **D-H Tsai\*** (2020). "Assembly and Detachment of Hyaluronic Acid on a Protein-Conjugated Gold Nanoparticle" *Langmuir*, 36(48), 14782–14792.



40. T. Y. Liang, H. H. Chen, **D-H Tsai**\* (2020). “Nickel Hybrid Nanoparticle Decorating on Alumina Nanoparticle Cluster for Synergistic Catalysis of Methane Dry Reforming”. *Fuel Processing Technology*, 201, 106335.
41. H. L. Chiang, Y. S. Chen, Y. A. Sun, D. S. H. Wong, **D-H Tsai**\* (2020). “Aerosol Spray Controlled Synthesis of Nanocatalyst using Differential Mobility Analysis Coupled to Fourier-Transform Infrared Spectroscopy”. *Ind. Eng. Chem. Res.*, 59, 24, 11187–11195.
42. T. Y. Liang, P. Y. Low, Y. S. Lin, **D-H Tsai**\* (2020). “Spherical Porous Nanoclusters of NiO and CeO<sub>2</sub> Nanoparticles as Catalysts for Syngas Production”. *ACS Appl. Nano Mater.*, 3 (9), 9035-9045.
43. H. L. Wang, C.-Y. Hsu, K. C.W. Wu\*, Y.-F. Lin\*, **D-H Tsai**\* (2020). “Functional nanostructured materials: Aerosol, aerogel, and de novo synthesis to emerging energy and environmental applications”. *Advanced Powder Technology*. 31(1), 104-120.
44. T. A. Pham Phan, N. P. Nguyen, L. T. Nguyen, P. H. Nguyen, T. K. Le, T. V. Huynh, T. Lund, **D-H Tsai**, T.-C. Wei, P. T. Nguyen\* (2020). “Direct experimental evidence for the adsorption of 4-tert-butylpyridine and 2,2'-bipyridine on TiO<sub>2</sub> surface and their influence on dye-sensitized solar cells' performance”. *Applied Surface Science*. 509, 144878.
45. K. H. Chai, L. K. Leong\*, D. S. H. Wong, **D-H Tsai**, S. A. Sethupathi (2020). “Effect of CO<sub>2</sub> Adsorbents on the Ni-based Dual Function Materials for CO<sub>2</sub> Capturing and in-situ Methanation”, *Journal of the Chinese Chemical Society*, 67:998–1008. (2019 IF: 1.6. Ranking 120/177)
46. J. L. Kang\*, K. T. Liu, D. S. H. Wong, S. S. Jang, **D-H Tsai** (2020). Multi-Scale Modeling and Study of Aerosol Growth in an Amine-based CO<sub>2</sub> Capture Absorber”. *Environment*, 7 (8), 58. (2019 IF: 2.3. 141/265)

## B. Conference Presentations

1. (Invited) 2024亞洲粉粒體技術會議(APT2024)。題目：Microfluidic-Aerosol Hyphenated Synthesis of Metal-Organic Framework-derived Hybrid Catalysts for CO<sub>2</sub> Utilization”。2024年12月2日於澳大利亞雪梨市Amora Hotel Jamison會議中心。
2. (Keynote) 2024台灣化工學會69週年慶祝大會暨新世紀化工國際研討會邀請演講。題目：Microfluidic-Aerosol Hyphenated Synthesis and Characterization of Metal-Organic Framework Colloids and Derived Materials for Energy and Environmental Applications。2024年11月9日於中原大學。



3. (Invited) 12<sup>th</sup> Vietnam National Conference on Catalysis and Adsorption and the 4<sup>th</sup> Vietnam – Taiwan Bilateral Symposium 第四屆台越觸媒雙邊會議。題目：Carbon Reduction-based Hydrogen Generation and Utilization: A Combination of Chemical Reforming Reactions。2024年5月24日於越南頭頓市。
4. (Invited) 國立清華大學化工系-越南胡志明市理科大學化學院聯合雙邊會議。題目：Combined Methane Cracking for H<sub>2</sub> Production with CO<sub>2</sub> Utilization for Catalyst Regeneration using Dual Functional Nanostructured Particle。2024年11月18日於越南胡志明市理科大學。

### 2023

5. (Invited) 2023 ACCIS 亞洲膠體與界面學會年會。發表論文題目：Aerosol Nanoparticles in Interfacial Catalysis: Applications in CO<sub>2</sub> Conversions。2023年12月14日於香港中文大學。
6. (Invited) 2023 台灣國際催化研討會。發表論文題目：Aerosol Synthesis of Nanostructured Catalysts for CO<sub>2</sub> Capture & Utilization。2023年6月29日於成大化工系。
7. 2023 美國化學學會秋季年會。發表論文題目：Aerosol Ca-Ni-Ce nanoparticle cluster for efficient CO<sub>2</sub> utilization via calcium looping-integrated methane dry reforming。August 13, 2023於美國加州舊金山國際會議中心。
8. 2023 日本化學學會年會。發表論文題目：Design of Aerosol Nanoparticles for Interfacial Catalysis in green energy and environmental applications。March 16, 2023於日本東京農工大學。

### 2022

9. (Invited) 2022 台灣化工學會69週年慶祝大會邀請演講。題目：Aerosol synthesis of nanostructured catalyst material for CO<sub>2</sub> capture & utilization。2022年12月3日於淡江大學。
10. (Invited) 2022 CHISA. Title: Design of high-performance catalyst materials using metal-organic framework-derived hybrid nanostructures. 布拉格科技大學，Prague, Czech Republic, August 22, 2022.
11. (Invited) 國立清華大學化工系-越南胡志明市理科大學化學院聯合雙邊會議。題目：Nanostructured catalyst material for CO<sub>2</sub> capture & utilization。2022年11月22日於越南胡志明市理科大學。
12. (Invited) 2022 年度能源與環境領域技術顧問會議 (TAC-EET)。題目：CO<sub>2</sub> 再利用：從化學重組反應的思維與方向。December 7, 2022。綠能所，工業技術研究院。



13. (Invited) 2022 CCUS 專題演講。題目：以氣溶膠合成技術製備奈米觸媒材料用於碳捕捉再利用。September 29, 2022。材化所，工業技術研究院。

## 2021

14. (Invited) The 8<sup>th</sup> Asian Particle Technology Symposium (APT2021). Title: Aerosol-based ion-mobility coupling techniques for metal-organic frameworks. October 12, 2021.(hybrid mode in Osaka Convention Center, Japan)
15. (Invited) 4<sup>th</sup> International Symposium on Green & Sustainable Technology 2021 (ISGST 2021). Title: Metal-organic framework-derived hybrid nanostructures as high-performance catalysts. October 6, 2021. (online presentation)
16. Pacifichem 2021 Congress. Title: Development of biofunctional nanomaterial colloid using gas-phase electrophoresis method. December 18, 2021. (online presentation)
17. 2021 台灣化工學會68週年慶祝大會邀請演講。題目：Aerosol-based ion-mobility coupling techniques for metal-organic frameworks。2022年1月7日於高雄展覽館。

## 2020

18. (Invited) Industrial Technology Research Institute (ITRI) Workshop on Nanotechnology and Applications. Title: Quantifying Functional Nanoparticles using Aerosol-based Ion Mobility-Coupling Technique. October 15, 2020. Hsinchu, Taiwan.

### C. Patents

1. 蔡德豪\*、潘詠庭、楊堡齊、余品濂、廖惇正、李晏德、黃健富、蔡易達。“銅系固體觸媒催化合成碳酸酯類的方法”。中華民國：202442304 (2024)
2. 蔡德豪\*、潘詠庭、楊哲銘、張晴淵、蔡定暉、黃健富、蔡易達。“製備縮水甘油之方法”。中華民國發明專利，ROC Patent # I806375 (2023)
3. 蔡德豪\*、潘詠庭、楊哲銘、張晴淵、蔡定暉、黃健富、蔡易達。COMPOSITE SOLID BASE CATALYST,MANUFACTURING METHOD THEREOF ANDMANUFACTURING METHOD OF GLYCIDOL“。美國發明專利，11,998,894(2024)。
4. 蔡德豪\*、陳育伸、楊哲銘、阮黃清竹、陳家穎、張鴻銘。“丙二醇甲醚的合成方法”。中華民國發明專利，ROC Patent # I755128 (2022)



5. **蔡德豪\***、張宏彥、賴冠宏。複合式鎳-氧化鈷-氧化鋁奈米粒子簇觸媒的製備方法、其製備之複合式鎳-氧化鈷-氧化鋁奈米粒子簇觸媒及聚醚胺的合成方法。中華民國發明專利，ROC Patent # I768264 (2022).
6. **蔡德豪\***、張宏彥、賴冠宏。”METHOD FOR FABRICATING NICKEL-CERIUM DIOXIDE-ALUMINUM OXIDE HYBRID NANOPARTICLE CLUSTER CATALYST, NICKEL-CERIUM DIOXIDE-ALUMINUM OXIDE HYBRID NANOPARTICLE CLUSTER CATALYST AND METHOD FOR SYNTHESIZING POLYETHERAMINE”。美國發明專利，11,944,960 (2024)
7. **蔡德豪\***、張宏彥、賴冠宏、林致遠、李浚瑀、賈志成、黃春利、張鴻銘 (2021)。METHOD FOR FABRICATING HETEROGENEOUS NICKEL-BASED CATALYST ON ALUMINUM OXIDE SUPPORT, HETEROGENEOUS NICKEL-BASED CATALYST ON ALUMINUM OXIDE SUPPORT AND METHOD FOR SYNTHESIZING POLYETHERAMINE。美國發明專利，#11141715。
8. **蔡德豪\***、張宏彥、賴冠宏、林致遠；李浚瑀、賈志成、黃春利、張鴻銘。非勻相鎳系氧化鋁載體觸媒的製備方法、其製備之非勻相鎳系氧化鋁載體觸媒及合成聚醚胺的方法。中華民國發明專利，ROC Patent # I677374 (2019).
9. **蔡德豪\***、張威昌，”石墨烯材料的數量表面積的定量方法”，中華民國發明專利，ROC Patent # I666441 (2019)
10. **Tsai, D-H\***; Chang, W. C. (2020). Quantitative method of number surface area of graphene material. US Patent: #10,670,505。
11. **蔡德豪\***、林致遠、周芳群、梁騰云 (國立清華大學)，”還原態觸媒的製備方法、其製備之還原態觸媒、其用途以及合成氣的製造方法”，中華民國發明專利，ROC Patent # I655967 (2019)。

#### D. Other

1. 科技部107年度吳大猷先生紀念獎
2. 日本粉粒體學會2018 Advanced Powder Technology Outstanding International Contribution Award。2019年10月於日本大阪國際會議中心獲獎。
3. 台灣化工學會107年度化工傑作獎
4. 期刊編輯，Advanced Powder Technology (Elsevier, IF=5.2)。2018至今。
5. 期刊編輯，Journal of the Taiwan Institute of Chemical Engineers (Elsevier, IF=5.7)。2024-
6. 科技部優秀年輕學者計畫。2018-2023。
7. 經理編輯，台灣化工會誌。2018-2019。



8. 獲選國立成功大學優秀青年校友(2021年11月)
9. 國立清華大學工學院傑出教學獎 (2022 年)與優良教師 (2022 年)
10. 九度獲選期刊封面故事：“Combined Methane Cracking for H<sub>2</sub> Production with CO<sub>2</sub> Utilization for Catalyst Regeneration Using Dual Functional Nanostructured Particles” (*ACS Sustainable Chem. Eng.* 2024)、” Recent Advances in Continuous Flow Synthesis of Metal-Organic Frameworks and Their Composites” (*Chem. Commun.* 2024)、” Microfluidic-Aerosol Hyphenated Synthesis of Metal-Organic Framework-derived Hybrid Catalysts for CO<sub>2</sub> Utilization” (*Small Methods* 2024)、”Real-time quantifying microdroplet synthesis of metal-organic framework colloids using gas-phase electrophoresis”( *Analytical Chemistry* 2023)、” Efficient Calcium Looping-integrated Methane Dry Reforming by Dual Functional Aerosol Ca-Ni-Ce Nanoparticle Cluster” (*ACS Sustainable Chemistry & Engineering* 2023) “Understanding Solvothermal Growth of Metal–Organic Framework Colloids for CO<sub>2</sub> Capture Applications”( *Langmuir* , 2022年4月)、 “Aerosol-Assisted Synthesis of Metal–Organic Framework-Derived Hybrid Nanomaterials for Reverse Water–Gas Shift Reaction”( *ACS Appl. Nano Mat.* 2022年7月)、 “Sustainable Synthesis of Epoxides from Halohydrin Cyclization by Composite Solid-Based Catalysts” (*Ind. Eng. Chem. Res.* , 2022年7月)、 “Aerosol synthesis of vanadium oxide-carbon hybrid nanoparticle cluster for high-performance lithium extraction via electrochemical deionization” (*ACS Sustainable Chemistry & Engineering* , 2022年12月)

**E. 學術服務工作：**

- 期刊編輯， *Advanced Powder Technology* (Elsevier)。2018至今。
- 期刊編輯， *Journal of the Taiwan Institute of Chemical Engineers* (Elsevier)。2024至今。
- 經理編輯，台灣化工會誌。2018-2019；2023-2024。



## Publications of Hsing-Yu Tuan (段興宇)

### A. Journal Papers (\* Corresponding author)

2024

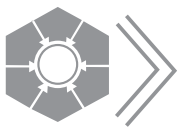
1. Chi-Wei Chou and **Hsing-Yu Tuan** (2024, Nov). Whispers of Entropic Distortion Elevating Voltage and Electrochemical Depth in Potassium Hexacyanoferrate Cathodes. *Advanced Functional Materials* , 2418680. (SCI, IF:18.5). 本人為通訊作者.
2. Che-Bin Chang, Yen-Yang Tseng, Ying-Rui Lu, Yi-Chun Yang, and **Hsing-Yu Tuan** (2024, Oct). High Entropy Induced Local Charge Enhancement Promotes Frank–Van der Merwe Growth for Dendrite-Free PotassiumMetal Batteries. *Advanced Functional Materials* , 2411193 . (SCI, IF:18.5). 本人為通訊作者.
3. Jia-Sheng Lin, Yi-Yen Hsieh, Kai-Yuan Hsiao, Yi-Chun Yang, Che-Hung Wang, Ming-Yen Lu, Wen-Wei Wu, **Hsing-Yu Tuan** (2024, Oct). Synergistic Triple-Action morphological composite Anode: Integrating lattice Softening, Interfacial electric Fields, and dual confinement for superior Potassium-Ion battery performance. *Chemical Engineering Journal* , 498, 155370. (SCI, IF:13.4). 本人為通訊作者.
4. Po-Wen Chien, Yu-Bo Hung, Yi-Chun Yang and **Hsing-Yu Tuan** (2024, Sep). Ferroelectricity-enhanced potassium-ion storage in van der Waals layered CuInP2S6 . *Journal of Materials Chemistry A* , 29113, 29128. (SCI, IF:10.8). 本人為通訊作者.
5. Kai-Siang Jhang, Yi-Chun Yang, Ying-Rui Lu, Kai-Yuan Hsiao, Ming-Yen Lu, **Hsing-Yu Tuan** (2024, Aug). Harnessing Berthollide Configuration Entropy for Expedited K<sup>+</sup> Storages. *Advanced Functional Materials* , 2411082. (SCI, IF:18.5). 本人為通訊作者.
6. Che-Bin Chang, Hsin-Yun Tsai, **Hsing-Yu Tuan** (2024, Jun). Tubular design and metal ratio refinement of copper telluride electrodes for superior volumetric capacity in potassium-ion batteries. *Journal of Energy Storage* , 111929. (SCI, IF:8.9). 本人為通訊作者.
7. Yi-Yen Hsieh, Yu-Chun Chuang, and **Hsing-Yu Tuan** (2024, Jun). Unraveling Dual Mechanisms in Quasi-Layered Bi2O2Se via Defect Modulation for High-Performance Aqueous Zn-Ion Batteries. *Advanced Functional Materials* , 2406975. (SCI, IF:18.5). 本人為通訊作者.
8. Yi-Yen Hsieh, **Hsing-Yu Tuan** (2024, Apr). Emerging trends and prospects in aqueous electrolyte design: Elevating energy density and power density of



- multivalent metal-ion batteries. *Energy Storage Materials*, 103361. (SCI, IF:18.9). 本人為通訊作者.
9. Shou-Shan Mai, Yi-Chun Yang , **Hsing-Yu Tuan** (2024, Mar). Exfoliated misfit layer compounds synergize conversion-alloying-intercalation triple mechanism for enhanced rate performance in potassium ion storages. *Chemical Engineering Journal* , 483, 149289. (SCI, IF:13.4). 本人為通訊作者.
  10. Wei-Wen Shen, Yi-Yen Hsieh, Yi-Chun Yang, Kai-Yuan Hsiao, Ming-Yen Lu, Chi Wei Chou, and **Hsing-Yu Tuan** (2024, Mar). Thermodynamic Origin-Based In Situ Electrochemical Construction of Reversible p-n Heterojunctions for Optimal Stability in Potassium Ion Storage. *Advanced Science*, 2308582. (SCI, IF:14.3). 本人為通訊作者.
  11. Shaokun Chong, Ting Li, Shuangyan Qiao, Yi-Chun Yang, Zhengqing Liu, Jing Yang, **Hsing-Yu Tuan**, Guozhong Cao, and Wei Huang (2024, Jan). Boosting Manganese Selenide Anode for Superior Sodium-Ion Storage via Triggering  $\alpha \rightarrow \beta$  Phase Transition. *ACS Nano* , 3801,3813. (SCI, IF:15.8). 本人為通訊作者.

## 2023

12. Yan-Jie Liao, Yi-Yen Hsieh, Yi-Chun Yang, and **Hsing-Yu Tuan** (2023, Nov). Revealing bimetallic synergy in van der Waals AgInP<sub>2</sub>Se<sub>6</sub> nanosheets for alkali metal ion battery electrodes. *Journal of Energy Storage*, 76, 109737. (SCI, IF:8.9). 本人為通訊作者.
13. Shou-Shan Mai, Kai-Yuan Hsiao, Yi-Chun Yang, Ying-Rui Lu, Ming-Yen Lu, Yi-Yen Hsieh, Che-Bin Chang , and **Hsing-Yu Tuan** (2023, Oct). Synchronous regulation of Schottky/p-n dual junction in Prussian blue-derived Janus heterostructures: A path to ultrafast long life potassium ion batteries. *Chemical Engineering Journal*, 474, 145992. (SCI, IF:13.4). 本人為通訊作者.
14. Yi-Yen Hsieh, and **Hsing-Yu Tuan** (2023, Aug). Oxygen Vacancy-Tailored Schottky Heterojunction Activates Interface Dipole Amplification and Carrier Inversion for High-Performance Potassium-Ion Batteries. *Small*, 2305342. (SCI, IF:13). 本人為通訊作者.
15. Po-Wen Chien, Che-Bin Chang, and **Hsing-Yu Tuan** (2023, Jul). High-entropy two-dimensional metal phosphorus trichalcogenides boost high-performance potassium ion storage devices via electrochemical reconstruction. *Energy Storage Materials*, 61, 102853. (SCI, IF:18.9). 本人為通訊作者.
16. Wei-Cheng Lin, Yi-Chun Yang and **Hsing-Yu Tuan** (2023, Jul). Electrochemical Self-Healing Nanocrystal Electrodes for Ultrastable Potassium-Ion Storage.



- Small*, 2300046. (SCI, IF:13). 本人為通訊作者.
17. Yan-Jie Liao, Wei-Wen Shen, Che-Bin Chang, and **Hsing-Yu Tuan** (2023, Jul). High-entropy transition metal disulfide colloid clusters: synergistic atomic scale interaction and interconnected network for ultra-stable potassium ion storage. *Chemical Engineering Journal*, 469, 143932. (SCI, IF:13.4). 本人為通訊作者.
  18. Wei-Wen Shen, Yi-Yen Hsieh and **Hsing-Yu Tuan** (2023, Jun). 3D space-confined Co<sub>0.85</sub>Se architecture with effective interfacial stress relaxation as anode material reveals robust and highly loading potassium-ion batteries. *Journal of Colloid and Interface Science*, 643, 626-639. (SCI, IF:9.4). 本人為通訊作者.
  19. Che-Bin Chang, Ying-Rui Lu, and **Hsing-Yu Tuan** (2023, May). High-entropy NaCl-type metal chalcogenides as K-ion storage materials: role of the cocktail effect. *Energy Storage Materials*, 59, 10027. (SCI, IF:18.9). 本人為通訊作者.
  20. Yan-Fu Huang, Yi-Chun Yang, Yen-Yang Tseng, and **Hsing-Yu Tuan\*** (2023, Apr). Two dimensional MnPSe<sub>3</sub> layer stacking composites with superior storage performance for alkali metal-ion batteries. *Journal of Colloid and Interface Science*, 635,336. (SCI, IF:9.4). 本人為通訊作者.
  21. Jia-Zheng Yen, Che-Bin Chang, Kai-Siang Jhang and **Hsing-Yu Tuan\*** (2023, Jan). An Excellent Metal Phosphide Electrode for Potassium Ion Hybrid Capacitors: the Case of Carbon Nanotube-Wrapped AgP<sub>2</sub>. *ACS Applied Energy Materials*, 6,822. (SCI, IF: 5.5). 本人為通訊作者.
  22. Sheng-Feng Ho and **Hsing-Yu Tuan** (2023, Jan). Cu<sub>3</sub>PS<sub>4</sub>: a sulfur-rich metal phosphosulfide with superior ionic diffusion channel for high-performance potassium ion batteries/hybrid capacitors. *Chemical Engineering journal*, 452, 139199. (SCI, IF:13.4). 本人為通訊作者.
  23. Yan-Fu Huang, Yi-Chun Yang, and **Hsing-Yu Tuan** (2023, Jan). Construction of Strongly Coupled Few Layer FePSe<sub>3</sub>-CNT Hybrids for High Performance Potassium-Ion Storage Devices. *Chemical Engineering Journal*, 451, 139013. (SCI, IF:13.4). 本人為通訊作者.

## 2022

24. Jia-Zheng Yen, Yi-Chun Yang, and **Hsing-Yu Tuan**. (2022, Dec). Interface Engineering of High Entropy Oxide@Polyaniline Heterojunction Enables Highly Stable and Excellent Lithium Ion Storage Performance. *Chemical Engineering Journal*, 450, 137924. (SCI, IF:13.4). 本人為通訊作者.
25. Wei-Cheng Lin, Yi-Chun Yang, and **Hsing-Yu Tuan**. (2022, Oct). Ternary Chalcogenide Anodes for High-Performance Potassium-Ion Batteries and Hybrid



- Capacitors via Composition-Mediated Bond Softening and Intermediate Phase. *Energy Storage Materials*, 51, 38-53. (SCI, IF:18.9). 本人為通訊作者.
26. Yi-Yen Hsieh, and **Hsing-Yu Tuan** (2022, Oct). Architectural Van Der Waals Bi<sub>2</sub>S<sub>3</sub>/Bi<sub>2</sub>Se<sub>3</sub> Topological Heterostructure as a Superior Potassium-Ion Storage Material. *Energy Storage Materials*, 51, 789-805. (SCI, IF:18.9). 本人為通訊作者.
  27. Sheng-Feng Ho, Yi-Chun Yang, and **Hsing-Yu Tuan**. (2022, Sep). Silver Boosts Ultra-Long Cycle Life for Metal Sulfide Lithium-Ion Battery Anodes: Taking AgSbS<sub>2</sub> Nanowires as an Example. *Journal of Colloid and Interface Science*, 621, 416-430. (SCI, IF:9.4). 本人為通訊作者.
  28. Yi-Yen Hsieh, and **Hsing-Yu Tuan**. (2022, Jun). Recent Progress and Strategies on Mixed-Dimensional Heterostructures for Potassium-Ion Storages. *Materials Today Sustainability*, 18, 100141. (SCI, IF:7.1). 本人為通訊作者.
  29. Che-Bin Chang, and **Hsing-Yu Tuan**. (2022, Apr). Recent Progress on Sb- and Bi- based Chalcogenide Anodes for Potassium-Ion Batteries. *Chemistry—An Asian Journal*, 17, e202200170. (SCI, IF:3.5). 本人為通訊作者.
  30. Chao-Hung Chang, Kuan-Ting Chen, Yi-Yen Hsieh, Che-Bin Chang, and **Hsing-Yu Tuan**. (2022, Jan). Crystal Facet and Architecture Engineering of Metal Oxide Nanonetwork Anodes for High-Performance Potassium-Ion Batteries and Hybrid Capacitors. *ACS Nano*, 16, 1486-1501. (SCI, IF:15.8). 本人為通訊作者.

## 2021

31. Che-Bin Chang, Kuan-Ting Chen and **Hsing-Yu Tuan** (2021, Sep). Large-scale synthesis of few-layered copper antimony sulfide nanosheets as electrode materials for high-rate potassium-ion storage. *Journal of Colloid and Interface Science*, 608, 984-994. (SCI, IF: 9.4). 本人為通訊作者.
32. Kuan-Ting Chen, Yi-Chun Yang, Lian-Ming Lyu, Ming-Yen Lu, and **Hsing-Yu Tuan** (2021, Jun). In situ formed robust submicron-sized nanocrystalline aggregates enable highly-reversible potassium ion storage. *Nano Energy*, 88, 106233. (SCI, IF: 16.8). 本人為通訊作者.
33. Yi-Yen Hsieh, Kuan-Ting Chen, and **Hsing-Yu Tuan** (2021, May). A synergetic SnSb-amorphous carbon composites prepared from polyesterification process as an ultrastable potassium-ion battery anode. *Chemical Engineering Journal*, 420, 130451. (SCI, 13.4). 本人為通訊作者.
34. Kuan-Ting Chen, Shaokun Chong, Lingling Yuan, Yi-Chun Yang, **Hsing-Yu Tuan** (2021, Apr). Conversion-alloying dual mechanism anode: Nitrogen-



- doped carbon-coated Bi<sub>2</sub>Se<sub>3</sub> wrapped with graphene for superior potassium-ion storage. *Energy Storage Materials*, 39, 239-249. (SCI, IF: 18.9). 本人為通訊作者.
35. Che-Bin Chang, Chun-Yu Tsai, Kuan-Ting Chen, and **Hsing-Yu Tuan** (2021, Mar). Solution-Grown Phosphorus-Hyperdoped Silicon Nanowires/Carbon Nanotubes Bilayer Fabric as a High-performance Lithium-ion Battery Anode. *ACS Applied Energy Materials*, 4, 3160-3168. (SCI, IF:5.5). 本人為通訊作者.
36. Kuan-Ting Chen, Yi-Chun Yang, Yuan-Hsing Yi, Xiang-Ting Zheng, **Hsing-Yu Tuan** (2021, Mar). A carbon ink for use in thin, conductive, non peelable, amphiphilic, antioxidant, and large-area current collector coating with enhanced lithium ion battery performance. *Journal of Colloid and Interface Science*, 598, 155-165. (SCI, IF: 9.4). 本人為通訊作者.
37. Chun-Yu Tsai, Chao-Hung Chang, Tzu-Lun Kao, Kuan-Ting Chen, **Hsing-Yu Tuan** (2021, Jan). Shape matters: SnP<sub>0.94</sub> teardrop nanorods with boosted performance for potassium ion storage. *Chemical Engineering Journal*, 417, 128552. (SCI, IF: 13.4). 本人為通訊作者.

## 2020

38. Xiang-Ting Zheng, Kuan-Ting Chen, Yi-Yen Hsieh and **Hsing-Yu Tuan** (2020, Dec). Ultrafine Antimony Nanocrystals/Phosphorus Pitaya-Like Nanocomposites as Anodes for High-Performance Sodium-Ion Batteries. *ACS Sustainable Chemistry & Engineering*, 50, 18535-18544. (SCI, IF:7.1). 本人為通訊作者.
39. Sheng-Bor Huang, Yi-Yen Hsieh, Kuan-Ting Chen and **Hsing-Yu Tuan** (2020, Nov). Flexible nanostructured potassium-ion batteries. *Chemical Engineering Journal*, 127697. (SCI, IF: 13.4). 本人為通訊作者.
40. Cheng-Ying Chan, Chao-Hung Chang and **Hsing-Yu Tuan** (2020, Sep). Synthesis of raspberry-like antimony-platinum (SbPt) nanoparticles as highly active electrocatalysts for hydrogen evolution reaction. *Journal of Colloid and Interface Science*, 584, 729-737. (SCI, IF: 9.4). 本人為通訊作者.
41. Kuan-Ting Chen and **Hsing-Yu Tuan** (2020, Sep). Bi-Sb Nanocrystals Embedded in Phosphorus as High-Performance Potassium Ion Battery Electrodes. *ACS Nano*, 14, 11648-11661. (SCI, IF: 15.8). 本人為通訊作者.
42. Hsuan-Peng Lin, Kuan-Ting Che, Che-Bin Chang, **Hsing-Yu Tuan** (2020, Jul). Aluminum phosphide as a high-performance lithium-ion battery anode. *Journal of Power Sources*, 465, 228262. (SCI, IF: 8.1). 本人為通訊作者.



43. Cheng-Chieh Chuang, Yi-Yen Hsieh, Wei-Chung Chang and **Hsing-Yu Tuan** (2020, May). Phosphorus-sulfur/graphene composites as flexible lithium-sulfur battery cathodes with super high volumetric capacity. *Chemical Engineering Journal*, 387, 123904. (SCI, IF: 13.4). 本人為通訊作者.
44. Cheng-Ying Chan, Chao-Hung Chang and **Hsing-Yu Tuan** (2020, May). Colloidal synthesis of porous red phosphorus nanoparticles as a metal-free electrocatalyst for the hydrogen evolution reaction. *Chemical Communications*, 56, 2937-2940. (SCI, IF:4.3). 本人為通訊作者.
45. Kuo-Lung Wang, Kuan-Ting Chen, Yuan-Hsing Yi, Yi-Hao Hung, **Hsing-Yu Tuan** and Masaki Horie (2020, Jan). High-Performance Lithium Ion Batteries Combining Submicron Silicon and Thiophene-Terephthalic Acid-Conjugated Polymer Binders. *ACS Sustainable Chem. Eng.*, 8, 1043-1049. (SCI, IF:7.1). 本人為通訊作者.



## Publications of Jane Wang (王潔)

### A. Journal Papers (\* Corresponding author)

#### 2023

1. Nguyen, H., Chen, Y.-T., Chen, Y., **Wang, J.\***, "Development of Highly Interconnected Pores and Mechanically Strong Hybrid Scaffolds by Integrating Cryogels into a 3D-Printed Gyroid Framework," *ACS Applied Engineering Materials*, 2023, 10, 2723-2733.
2. Chen, Y.-T., Chuang, Y.-H., Chen, C.-M., Wan, J.-Y., **Wang, J.,\*** "Development of hybrid scaffolds with biodegradable polymer composites and bioactive hydrogels for bone tissue engineering," *Biomaterials Advances*, 2023, 153, 213562.

#### 2022

3. Hsieh, H.-T., Huang, H.-C., Chung, C.-W., Chiang, C.-C., Hsia, T., Wu, H.-F., Huang, R.-L., Chiang, C.-S., **Wang, J.**, Lu, T.-T., Chen, Y. "CXCR4-targeted nitric oxide nanoparticles deliver PD-L1 siRNA for immunotherapy against glioblastoma," *Journal of Controlled Release*, 2022, 352, 920-930.
4. Huang, W.-J., **Wang, J.\***, "Development of 3D-Printed, Biodegradable, Conductive PGSA Composites for Nerve Tissue Regeneration," *Macromolecular Bioscience*, 2022, 23, 2200470.
5. Hsiao, S.-K., Liang, C.-W., Chang, T.-L., Sung, Y.-C., Chen, Y.-T., Chen, Y., **Wang, J.,\*** "An in vitro fibrotic liver lobule model through sequential cell-seeding of HSC and HepG2 on 3D-printed poly(glycerol sebacate) acrylate scaffolds," *Journal of Materials Chemistry B*, 2022, 10, 9590-9598.
6. Cheng, H.-T., Huang, H.-C., Lee, T.-Y., Liao, Y.-H., Sheng, Y.-H., Jin, P.-R., Huang, K.-W., Chen, L.-H., Chen, Y.-T., Liu, Z.-Y., Lin, T.-C., Wang, H.-C., Chao, C.-H., Juang, I P., Su, C.-T., Huang, K.-H., Lin, S.-L., **Wang, J.**, Sung, Y.-C., Chen, Y., "Delivery of sorafenib by myofibroblast-targeted nanoparticles for the treatment of renal fibrosis," *Journal of Controlled Release*, 2022, 346, 169-179.



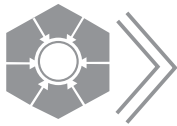
7. Wang, C.-C., Chen, J.-Y., **Wang, J.\***, "The selection of photoinitiators for photopolymerization of biodegradable polymers and its application in digital light processing additive manufacturing," *Journal of Biomedical Materials Research Part A*, 2022, 110, 204-216.

## 2021

8. Chang, P.-Y., **Wang, J.**, Li, S.-Y., Suen, S.-Y.\*, "Biodegradable Polymeric Membranes for Organic Solvent/Water Pervaporation Applications", *Membranes*, 2021, 11, 970.
9. Huang, H.-C., Sung, Y.-C., Li, C.-P., Wang, D., Chao, P.-., Tseng, Y.-T., Liao, B.-W., Cheng, H.-T., Hsu, F.-F., Huang, C.-C., Chen, Y.-T., Liao, Y.-H., Hsieh, H. T., Shih, Y.-C., Liu, I.-J., Wu, H.-C., Lu, T.-T.,\* **Wang, J.\***, Chen, Y.\*, "Reversal of pancreatic desmoplasia by a tumour stroma-targeted nitric oxide nanogel overcomes TRAIL resistance in pancreatic tumours". *Gut*, 2021, 0:1–13. 10.1136/gutjnl-2021-325180.
10. Wang, C.-C., Chen, J.-Y., **Wang, J.\***, "The selection of photoinitiators for photopolymerization of biodegradable polymers and its application in digital light processing additive manufacturing". *Journal of Biomaterials Research Part A*, 2021, 110:204–216.
11. Jiang, W.-C., Hsu, W.-Y., Ao-Ieong, W.-S., Wang, C.-Y., **Wang, J.**, Yet, S.-F.\* (2021, Jul). "A novel engineered vascular construct of stem cell-laden 3D-printed PGSA scaffold enhances tissue revascularization", *Biofabrication*, 2021, 13, 045004.
12. Ao-Ieong, W.-S., Chien, S.-T., Jiang, W.-C., Yet, S.-F., **Wang, J.\***, "The Effect of Heat Treatment toward Glycerol-Based, Photocurable Polymeric Scaffold: Mechanical, Degradation and Biocompatibility". *Polymers*, 2021, 13, 1960.
13. Chang, C.-T., Chen, Y.-T., Hsieh, Y.-K., Girsang, S. P., Wang, R. S., Chang, Y.-C., Shen, S.-H., Shen, C. R., Lin, T.-P., Wan, D., **Wang, J.\***, "Dual-functional antibiofilm polymer composite for biodegradable medical devices", *Materials Science and Engineering: C*, 2021, 123, 111985.

## 2020

14. Chiang, M.-T., Wang, H.-L., Han, T.-Y., Hsieh, Y.-K., **Wang, J.**, Tsai, D.-H., "Assembly and Detachment of Hyaluronic Acid on a Protein-Conjugated Gold Nanoparticle," *Langmuir*, 2020, 36, 14782-14792.



15. Wang, W.-H., Huang, C.-W., Tsou, E.-Y., Ao-Ieong, W.-S., Hsu, H.-C., Wong, D. S.-H., **Wang, J.**, “Characterization of Degradation Behavior of Poly(Glycerol Maleate) Films in Various Aqueous Environments,” *Polymer Degradation and Stability*, 2020, 183, 109441.
16. Chang, C.-T., Chen, H.-T., Chen, Y.-M., Wan, D., Shen, S.-H., **Wang, J.**, “3D-printed radiopaque polymer composites for the *in situ* monitoring of biodegradable medical implants,” *Applied Materials Today*, 2020, 20, 100771.
17. Wang, C.-C., Shih, T.-Y., Hsieh, Y.-T., Huang, J.-L., and **Wang, J.\***, “L-Arginine Grafted Poly(Glycerol Sebacate) Materials: An Antimicrobial Material for Wound Dressing,” *Polymer*, 2020, 12(7), 1457.
18. Hsieh, Y.-K., Hung, P.-H., Huang, C.-W., Chuang, K.-C., **Wang, J.\***, “Study on the Degradation of Biodegradable Poly (Glycerol Maleate) (PGM) Microbeads Polymer Degradation and Stability,” *Polymer Degradation and Stability*, 2020, 179, 109223.
19. Teng, C.-L., Chen, J.-Y., Chang, T.-L., Hsiao, S.-K., Hsieh, Y.-K., Villalobos Gorday, K. A., Cheng, Y.-L., and **Wang, J.**, “Design of photocurable, biodegradable scaffolds for liver lobule regeneration via digital light processing-additive manufacturing,” *Biofabrication*, 2020, 12(3):035024.

### C. Patents

1. **王潔**、周更生、徐松年“生物可分解的聚酯型彈性體之製備方法”，中華民國發明專利I 568768。(專利有效期間: 2017/02~2035/12)
2. **王潔**、鄭逸琳、陳怡文、謝明佑“可積層製造的生物可降解光聚合高分子複合材料及其應用”，中華民國發明專利I 644801。(專利有效期間: 2018/12~ 2037/08)
3. 鄭逸琳、陳怡文、謝明佑、**王潔**、陳定閻、許家寧“光固化裝置使用之可調波長曝光模組”，中華民國新型專利M 565120。(專利有效期間: 2018/08~ 2028/05)

### D. Other

#### Awards:

1. 109學年度國立清華大學工學院傑出導師獎, 2021/08-2022/06
2. 107學年度國立清華大學傑出教學獎, 2018/08-2019/06

#### Committees of International Conferences:

1. The 2020 Taiwan Institute of Chemical Engineers Annual Conference and Taiwan-Czech-Korean Trilateral International Conference (TwICHE 2020), Hsinchu, Taiwan, Oct 2020 (session organizer, session chair, conference MC)



## Publications of Tzu-Chien Wei (衛子健)

### A. Journal Papers

#### 2024

1. Duc-Anh Le; Kala, Kannankutty; Tzu-Sen Su; Perumbalathodi Nideesh ; **Tzu-Chien Wei**, “Control of hylamine Gas Treatment for Upscaling Perovskite Solar Module” SOLAR RRL,NOV 024
2. Faraghally, Faraghally A.; Musa, Ahmed Fouad; Chen, Ching-Chin; Chen, Yu-Hsuan; Chen, Yan-Da; Yeh, Chen-Yu; **Tzu-Chien Wei**, “Double Anthracene -Based Sensitizers for High-Efficiency Dye-Sensitized Solar Cells under Both Sunlight and Indoor Light” SMALL STRUCTURES, NOV 2024
3. Kattoor Vidya ; Pei-Tsen Wei; Zi-Fan He; **Tzu-Chien Wei**, “Manipulating the adhesion of electroless plated Cu film on liquid polymer crystal substrate for advanced microelectronic manufacturing” ISCIENCE,NOV15 2024
4. Iping Lee, Kala Kannankutty, Zi-Fan He, **Tzu-Chien Wei**, “Facile, cost-effective NO<sub>2</sub> gas sensors based on polymer intercalated graphene/reduced graphene oxide materials” *Journal of the Taiwan Institute of Chemical Engineers*, 157, 105405,2024.
5. Nideesh Perumbalathodi, Tzu-Sen Su, Zi-Fan He, Kala Kannankutty, **Tzu-Chien Wei**, “Bidirectional Passivation for Highly Efficient and Stable CuSCN-Based Perovskite Solar Cells Using (3-Mercaptopropyl) trimethoxysilane” *ACS Applied Energy Materials*,2024.
6. Gebremariam Zebene Wubie, Man-Ning Lu, Mekonnen Ababayehu Desta, Hulugirgish Degefu Weldekirstos, Mandy M Lee, Wen-Ti Wu, Sie-Rong Li, **Tzu-Chien Wei**, Shih-Sheng Sun, “Metal-Free Organic Dyes with Double Auxiliary Acceptors for High-Performance Dye-Sensitized Solar Cells” *Solar RRL*, 2300913,2024.
7. Vinh Son Nguyen, Kannankutty Kala, Yu-Hsuan Chen, Ding-Cheng Wang, Chen-Yu Yeh, **Tzu-Chien Wei**, “Investigation on the Coordination between Methylpyridine Additives with [Cu (dmp)<sub>2</sub>] 2+ Redox Couple and Its Improvement to the Stability of the Dye-Sensitized Solar Cells” *Sustainable Energy & Fuels*,2024.



- Hio-Kun Si, Ahmed Fouad Musa, Tzu-Sen Su, **Tzu-Chien Wei**, “Investigation of the Stoichiometric Deviation between Mixed Cation, Mixed Halide Lead Perovskite Thin Film and its Precursor Solution” *Journal of Materials Chemistry C*,2024.

## 2023

- Zi-Fan He, Yi-Ting Lu, **Tzu-Chien Wei**, Chi-Chang Hu, “Complementary Operando Electrochemical Quartz Crystal Microbalance and UV/Vis Spectroscopic Studies: Acetate Effects on Zinc - Manganese Batteries” *ChemSusChem*,16,12, e202300259,2023.
- Ching-Chin Chen, Yu-Hsuan Chen, Vinh Son Nguyen, Sheng-Yang Chen, Meng-Chen Tsai, Jia-Sian Chen, Sing-Yu Lin, **Tzu-Chien Wei**, Chen-Yu Yeh, “Double Fence Porphyrins Featuring Indacenodithiophene Group as an Effective Donor for High - Efficiency Dye - Sensitized Solar Cells ” *Advanced Energy Materials*,13,20,2300353,2023.
- Vinh Son Nguyen, Tzu-Sen Su, Ching-Chin Chen, Chen-Yu Yeh, **Tzu-Chien Wei**, ”Efficient counter electrode for copper (I)(II)-mediated dye-sensitized solar cells based on polyvinyl alcohol capped platinum nanoclusters” *Journal of the Taiwan Institute of Chemical Engineers*, 142, 104626, 2023.

## 2022

- Yi-Chen Teng, Tzu-Sen Su, Shiang Lan, Ahmed Fouad Musa, **Tzu-Chien Wei**, “Toward Clean and Economic Production of Highly Efficient Perovskite Solar Module Using a Cost-Effective and Low Toxic Aqueous Lead-Nitrate Precursor” *Nanomaterials* 12,21, 3783,2022.
- Chun-Yi Tsai, Tzu-Sen Su, **Tzu-Chien Wei**, Mao-Sung Wu, “ $\delta$ -Type Manganese Oxides with Preintercalated Sodium Ions as Atomic Pillars for High-Performance Supercapacitors” *Electrochimica Acta*,430 141107,2022.
- Yu-Hsuan Chen, Ching-Chin Chen, Vinh Son Nguyen, Man-Ning Lu, Yan-Da Chen, Yu-Cheng Lin, **Tzu-Chien Wei**, Chen-Yu Yeh, “Modified Hagfeldt Donor for Organic Dyes That Are Compatible with Copper Electrolytes in Efficient Dye-Sensitized Solar Cells” *ACS Applied Energy Materials*,5,11, 13544-13553,2022.



15. Nideesh Perumbalathodi, Tzu-Sen Su, **Tzu-Chien Wei**, “Antisolvent Treatment on Wet Solution-Processed CuSCN Hole Transport Layer Enables Efficient and Stable Perovskite Solar Cells” *Advanced Materials Interfaces*, 9,30, 2201191,2022.
16. Ching-Chin Chen, Vinh Son Nguyen, Hsiao-Chi Chiu, Yan-Da Chen, **Tzu-Chien Wei**, Chen-Yu Yeh, “Anthracene-Bridged Sensitizers for Dye-Sensitized Solar Cells with 37% Efficiency under Dim Light” *Advanced Energy Materials*, 12,20, 2104051,2022

## 2021

17. Pylnev, Mikhail, Ana Maria Barbisan, and **Tzu-Chien Wei**, “Effect of wettability of substrate on metal halide perovskite growth” *Applied Surface Science* ,541,148559,2021.
18. Ching-Chin Chen, Jia-Sian Chen, Vinh Son Nguyen, **Tzu-Chien Wei**, Chen-Yu Yeh, “Double Fence Porphyrins that are Compatible with CoII/III Electrolyte for High Efficiency Dye-Sensitized Solar Cells” *Angewandte Chemie International Edition*, 60, 4886-4893,2021.
19. Pylnev, Mikhail, Tzu-Sen Su, and **Tzu-Chien Wei**, “Titania augmented with TiI4 as electron transporting layer for perovskite solar cells” *Applied Surface Science*,549,149224,2021.
20. Wei-Yen Wang, Yu-Hsiang Kao, Tzu-Yi Yang, Yu-Lun Chueh, and **Tzu-Chien Wei**, “Adhesive Wet Metallization on TiO<sub>2</sub>-Coated Glass” *Journal of The Electrochemical Society* ,168, 4, 042506,2021.
21. Tzu-Sen Su, Tzu-En Fan, Hio-Kun Si, Duc-Anh Le, Nideesh Perumbalathodi, **Tzu-Chien Wei**. "Characterization on Highly Efficient Perovskite Solar Cells Made from One - Step and Two - Step Solution Processes” *Solar RRL5*,7,2100109,2021.
22. Shiuan-Ying Peng, Tzu-Sen Su, Cheng-An Chen, Kai-Wen Chuang, **Tzu-Chien Wei**, and Ying-Chih Liao. “Recrystallized Perovskite Thin Film via Intense Pulse Light Sintering for Vertical Gradient Band Gap Perovskite Solar Cells” *ACS Applied Energy Materials* 4,12,14240-14248,2021.
23. Man Ning Lu, Tzu-Sen Su, Mikhail Pylnev, Yean-San Long, Teng-Chun Wu, Min - An Tsai, and **Tzu - Chien Wei**, “Stepwise optimizing photovoltaic performance of dye- sensitized cells made under 50-lux dim light” *Progress in Photovoltaics: Research and Applications* 29,5,533-545,2021.



24. Nguyen De, Tuan Van Huynh, Vinh Son Nguyen, Phuong-Lien Doan Cao, Hai Truong Nguyen, **Tzu-Chien Wei**, Phuong Hoang Tran, and Phuong Tuyet Nguyen, “Choline chloride-based deep eutectic solvents as effective electrolytes for dye-sensitized solar cells” *RSC Advances* 11,35,21560-21566,2021.
25. Wubie, Gebremariam Zebene, Man-Ning Lu, Mekonnen Ababayehu Desta, Hulugirgesh Degefu Weldekirstos, Mandy M. Lee, **Tzu-Chien Wei**, Sie-Rong Li, and Shih-Sheng Sun, “Structural Engineering of Organic D–A– $\pi$ –A Dyes Incorporated with a Dibutyl-Fluorene Moiety for High-Performance Dye-Sensitized Solar Cells” *ACS Applied Materials & Interfaces*, 13, 20, 23513-23522,2021.

## 2020

26. Ping-Heng Wu, Yu-Zhong Lai, Yan-Ping Zhang, Manik Chandra Sil, Po-Heng Henry Lee, **Tzu - Chien Wei\***, and Chih-Ming Chen\*, “Organosiloxane Monolayers Terminated with Amine Groups as Adhesives for Si Metallization” *ACS Applied Nano Materials*, 3,4,3741-3749,2020.
27. Thu Anh Pham Phan, Nghi Phuong Nguyen, Le Thi Nguyen, Phu Hoang Nguyen, Tien Khoa Le, Tuan Van Huynh, Torben Lund, De-Hao Tsai, **Tzu-Chien Wei**, Phuong Tuyet Nguyen, “Direct experimental evidence for the adsorption of 4-tert-butylpyridine and 2,2'-bipyridine on TiO<sub>2</sub> surface and their influence on dye-sensitized solar cells' performance” *Applied Surface Science*, 509,144878,2020.
28. Yu-Ling Chang, **Tzu-Chien Wei**, Ying-Ling Liu, “Electrochemical activation of polymer chains mediated with radical transfer reactions” *Chemical communications*, 56,17,2626-2629,2020.
29. Tzu-Sen Su, **Tzu-Chien Wei**, “Co-Electrodeposition of Sn-Doped TiO<sub>2</sub> Electron-Transporting Layer for Perovskite Solar Cells” *physica status solidi (a)*.217,1,1900491,2020.
30. Tsung-Yu Hsieh, Mikhail Pylnev, Emilio Palomares, and **Tzu-Chien Wei**, “Exceptional Long Electron Lifetime of Methylammonium Lead Iodide Perovskite Solar Cell Made from Aqueous Lead-Nitrate Precursor” *Advanced Functional Materials*, 30,10,1909644,2020.
31. Kala Kannankutty, Ching-Chin Chen, Vinh Son Nguyen, Yu-Cheng Lin, Hsien-Hsin Chou, Chen-Yu Yeh, **Tzu-Chien Wei\***, “Tert-butylpyridine Coordination with [Cu(dmp)<sub>2</sub>]<sup>2+/+</sup> Redox Couple and its Connection to the Stability of the Dye-sensitized Solar Cell” *ACS Applied Materials & Interfaces*, *Proof corrected*,12,5812-5819,2020.



32. Tzu-Sen Su, Felix Thomas Eickemeyer, Michael A. Hope, Farzaneh Jahanbakhshi, Marko Mladenović, Jun Li, Zhiwen Zhou, Aditya Mishra, Jun-Ho Yum, Dan Ren, Anurag Krishna, Olivier Ouellette, **Tzu-Chien Wei**, Hua Zhou, Hsin-Hsiang Huang, Mounir Driss Mensi, Kevin Sivula, Shaik M. Zakeeruddin, Jovana V. Milić, Anders, Hagfeldt, Ursula, Rothlisberger, Lyndon Emsley, Hong Zhang\*, and Michael Grätzel\*, “Crown Ether Modulation Enables over 23% Efficient Formamidinium-Based Perovskite Solar Cells” *Journal of the American Chemical Society*, 142, 19980-19991, 2020.
33. Vinh Son Nguyen, Ting-Kuang Chang, Kala Kannankutty, Jia-Ling Liao, Yun Chi, **Tzu-Chien Wei**, “Novel Ruthenium Sensitizers Designing for Efficient Light Harvesting under Both Sunlight and Ambient Dim Light” *Solar RRL*, 4, 6, 2000046, 2020.
34. Yu-Hsuan Chen, Vinh Son Nguyen, Hsien-Hsin Chou, Yogesh S. Tingare, **Tzu-Chien Wei**, Chen-Yu Yeh, “Anthracene Organic Sensitizer with Dual Anchors for Efficient and Robust Dye-Sensitized Solar Cells” *ACS Applied Energy Materials*, 3, 5479-5486, 2020.



## Publications of David Shan Hill Wong (汪上曉)

### A. Journal Papers (\* Corresponding author)

#### 2023

1. Wang Y, Zeng Y\*, Qu Q, **Wong DSH**: Enhanced robust multimode process monitoring under dirty data via difference-based decomposition of matrix. *Journal of Process Control*, 132, 103080 (2023).
2. Chang PH, **Wong DSH**, John ODY, Pan YT\*, Jang SS\*: CO<sub>2</sub>-Enhanced Production and Synthesis of 2,5-Furandicarboxylic Acid under CO<sub>2</sub> Flow through Henkel Reaction. *European Journal of Organic Chemistry*, 26, e202300396 (2023).
3. Yang PL, Tsai SH, Chen KN, **Wong DSH\***: A New Continuous Flow Microwave Radiation Process Design for Non-Isocyanate Polyurethane (NIPU). *Polymers*, 15(11), 2499 (2023).
4. Yang XY, Li XY, Zeng Y\*, Zhang Y and **Wong DSH**: Bearing remaining useful life prediction using spatial-temporal multiscale graph convolutional neural network. *Measurement Science and Technology*, 34, 085009 (2023).
5. Jiang ZF, **Wong DSH\***, Kang JL, Yao Y, Chuang YC: Polymer Grade Transition Control via Reinforcement Learning Trained with a Physically Consistent Memory Sequence-to-Sequence Digital Twin. *Computer Aided Chemical Engineering*, 52, 297-303 (2023).

#### 2022

6. Jiang ZF, Wei XZ, **Wong DSH\***, Yao Yao\*, Kang JL\*, Chuang YC, Jang SS, Ou JDY: Model Predictive Control of Grade Transition with Attention Base Sequence-to-Sequence Model. *Computer Aided Chemical Engineering*, 49, 367-372 (2022).
7. Yang XY, Zheng Y\*, Zhang Y, **Wong DSH\***, Yang WD: Bearing Remaining Useful Life Prediction Based on Regression Shaplet and Graph Neural Network. *IEEE Transactions on Instrumentation and Measurement*, 71, 3505712 (2022).
8. Kang JL\*, Chiu CT, Huang JS, **Wong DSH\***: A surrogate model of sigma profile and COSMOSAC activity coefficient predictions of using transformer with SMILES input. *Digital Chemical Engineering*, 2, 100016-100021 (2022).



9. Wang ZJ, Zheng Y\*, **Wong DSH**, Wang Y, Yang WD: Stationary Mapping based Generalized Monitoring Scheme for Industrial Processes with Mixed Operational Stages. *IEEE Transactions on Instrumentation and Measurement*, 71, 3503313 (2022).
10. Kang JL, Chen CJ, Wu CH, **Wong DSH\***, Jang SS, Tan CS: Dynamic modeling of the absorption of acetic acid in rotating packed bed. *Journal of the Taiwan Institute of Chemical Engineers*, 130, 103966-103982 (2022).
11. Yu CH, Lin YJ, **Wong DSH**, Chen CC\*: Process Modeling of CO<sub>2</sub> Absorption with Monoethanolamine Aqueous Solutions Using Rotating Packed Beds. *Industrial & Engineering Chemistry*, 61 (33), 12142-12152 (2022).
12. Liu JL\*, **Wong DSH**, Chen DS: Energy-saving performance of the process modifications for carbon capture by diluted aqueous ammonia. *Journal of the Taiwan Institute of Chemical Engineers*, 130, 103966-103982 (2022).

## 2021

13. Chen ZH, Zhang T, Zheng Y\*, **Wong DSH**, Deng ZH: Fully Decoupled Control of the Machine Directional Register in Roll-to-Roll Printing System. *IEEE Transactions on Industrial Electronics*, 68(10), 10007-10018 (2021).
14. Cuia CT\*, Zhang XD, Lyu H, Wang SJ, Sun JS, Qu YP, Wu WC, Bo CM, **Wong DSH**, Zhang QL: Process intensification in ternary distillation via comparative grassroots and retrofit designs: A case study of distilling an industrial multicomponent C<sub>6</sub> alkane mixture in caprolactam processing. *Chemical Engineering and Processing- Process Intensification*, 164, 108423-108444 (2021).
15. Nguyen HLQ, **Wong DSH\***: Integration of rich and lean vapor recompression configurations for aqueous ammonia-based CO<sub>2</sub> capture process. *Chemical Engineering Research and Design*, 169, 86-96 (2021).
16. Yang XY, **Wong DSH**, Zheng Y\*, Zhang Y, Yang W, Kang JL\*: A universal LPC health monitoring method for rolling element bearings with ADSCI feature. *Measurement*, 176, 108969 (2021).
17. Hsiao YD, Kang JL\*, **Wong DSH\***: Development of Robust and Physically Interpretable Soft Sensor for Industrial Distillation Column Using Transfer Learning with Small Datasets. *Processes*, 9(4), 667-678 (2021).
18. Yu CH, Lin YJ, **Wong DSH**, Bruno JC, Chen CC\*: Modeling fluid phase equilibria of carbon dioxidemethanol binary system. *Fluid Phase Equilibria*, 529, 112866-112874 (2021).



19. Kang JL\*, Wang CC, **Wong DSH\***, Jang SS, Wang CH: Digital twin model and dynamic operation for a plant-scale solid oxide fuel cell system. *Journal of the Taiwan Institute of Chemical Engineers*, 118, 60-67 (2021).
20. Chang JJ, **Wong DSH\***, Huang CH, Kang JL, Hsu HH, Lin ST: Towards a universal digital chemical space for pure component properties prediction. *Fluid Phase Equilibria*, 527(1), 112829-112838 (2021).
21. Wang WH, Huang CW, Tsou EY, Ao-Ieong WS, Hsu HC, **Wong DSH**, Wang Jane\*: Characterization of degradation behavior of poly(glycerol maleate) films in various aqueous environments. *Polymer Degradation and Stability*, 183, 109441-109448 (2021).

## 2020

22. Wang ZJ, Zheng Y\*, **Wong DSH\***: Trajectory based operation monitoring of transition procedure in multimode process. *Journal of Process Control*, 96, 67-81 (2020).
23. Zheng Y, Liu L\*, Zhou W, Yang WD, **Wong DSH**: Between-class difference analysis based multidimensional RBC for multivariate fault isolation of industrial processes. *Journal of the Taiwan Institute of Chemical Engineers*, 115, 1-12 (2020).
24. Liu JL\*, **Wong DSH**, Chen DS: Energy-saving performance of advanced stripper configurations for CO<sub>2</sub> capture by ammonia based solvents. *Journal of the Taiwan Institute of Chemical Engineers*, 113, 273-284 (2020).
25. Huang SH, Kang JL\*, **Wong DSH**, Jang SS\*, Lin CA: Particle-Scavenging prediction in sieve plate scrubber via dimension reduction in computational fluid dynamics. *Chemical Engineering Research and Design*, 160, 540-550 (2020).
26. Kang JL\*, Liu KT, **Wong DSH**, Jang SS, Tsai DH: Multi-Scale Modeling and Study of Aerosol Growth in an Amine-based CO<sub>2</sub> Capture Absorber. *Environments*, 7(8), 58-72 (2020).
27. Tseng ST\*, Yao YC, **Wong DSH**: The effects of model misspecification on shelf-life prediction of nano-sols under pH acceleration. *Quality Technology & Quantitative Management*, 17(4), 383-398 (2020).
28. Chiang HL, Chen YS, Sun YA, **Wong DSH**, Tsai DH\*: Aerosol Spray Controlled Synthesis of Nano catalyst using Differential Mobility Analysis coupled to Fourier-Transform Infrared Spectroscopy. *Industrial & Engineering Chemistry Research*, 59(24), 11187-11195 (2020).



29. Chou CH, Wu HB, Kang JL\*, **Wong DSH**, Yao Y, Chuang YC, Jang SS, Ou J DY: Physically Consistent Soft-Sensor Development Using Sequence-to-Sequence Neural Networks. *IEEE Transactions on Industrial Informatics*, 16(4), 2829-2838 (2020).
30. Wang SJ\*, Lu CY, Huang SH, **Wong DSH**: Reactive vapor-recompression distillation for green hexamethylene-1,6-dicarbamate synthesis. *Chemical Engineering and Processing Process Intensification*, 149, 107827-107836 (2020).

## B. Conference Presentations

### 2023

1. **Wong DSH\***: Four Decades of Pen-Robinson Equation of State. Canadian Society for Chemical Engineering Conference (CSCHE 2023), Oct. 28~Nov. 2, Ottawa, Canada.
2. Liao YC, Kang JL\*, **Wong DSH\***: Efficiency of Computer Aided Design (CAMD) by Large Language Model GPT-3.5. Foundations of Process/Product Analytics and Machine learning (FOPAM 2023), July 30- Aug 3, 2023, US Davis CA.
3. Jiang ZF, **Wong DSH\***, Yao Yao, Kang JL, Chuang YC, Jang SS: A Physics Guided Deep Learning for Model Predictive Control and Reinforcement Learning Control of a HDPE Slurry Reactor: Foundations of Process/Product Analytics and Machine learning (FOPAM 2023), July 30- Aug 3, 2023, US Davis CA.

### 2022

4. Hsu XH, **Wong DSH\***: Physics Inspired Deep Learning for Distributed Parameter Systems. 10<sup>th</sup> Asian Symposium on Process Systems Engineering (2022 PSE Asia), 11 – 14 Dec 2022, Chennai, India.
5. Huang JS, ng, **Wong DSH\***, Chiu CT, Kang JL, Tai SH, Tang PH: Graph-Based Deep Learning Quantitative Structure Properties Relation (QSPR) for Solvents. 10<sup>th</sup> Asian Symposium on Process Systems Engineering (2022 PSE Asia), 11 – 14 Dec 2022, Chennai, India.
6. Huang KL, **Wong DSH\***, Yao Y: System Identification with Physics Informed Neural Network. 32th European Symposium on Computer Aided Process Engineering(ESCAPE-32), 12-15 Jun 2022, Toulouse, France.



## 2021

7. 戴瑋德, 江振峯, 汪上曉\*, 姚遠, 鄭西顯, 莊曜禎, 區迪頤: Comparison of Different Forms of Sequence-to-Sequence Models Obtained by Training with Open-Loop Operation data of a Vapor Recompression Distillation Tower. Symposium on Thermodynamics and Process Systems Engineering, May 14-15, 2021, Nanto, Taiwan.
8. 張博勛, 汪上曉\*, 鄭西顯: Using 2-Furoic Acid as a Raw Material to Produce High Values 2,5-Furandicarboxylic Acid. Symposium on Thermodynamics and Process Systems Engineering, May 14-15, 2021, Nanto, Taiwan.
9. 陳靜蓉, 汪上曉\*, 鄭西顯, 康嘉麟: Experiment and Modeling of the Absorption of Acetic Acid in Rotating Packed Bed. Symposium on Thermodynamics and Process Systems Engineering, May 14-15, 2021, Nanto, Taiwan.

## 2020

10. Frias JM, Wang SJ\*, Wong DSH, Chou CH, Jang SS, Lee EK: Floating Pressure Control of Vapor Recompression Distillation in Propane Propylene Separation. The 30<sup>th</sup> European Symposium on Computer Aided Process Engineering (ESCAPE 30, Virtual Symposium), August 31- September 2, 2020, Milano, Italy.
11. Wang SJ\*, Wong DSH, Chen YZ, Lee EK: Intensified Green Process for Synthesizing Non-phosgene Hexamethylene-1,6-dicarbamate. The 30<sup>th</sup> European Symposium on Computer Aided Process Engineering (ESCAPE30), Virtual Symposium, August 31- September 2, 2020, Milano, Italy.
12. Kang JL\*, Wang CC, Chang PH, Wong DSH, Jang SS, Wang CH: Modeling of The Solid Oxide Fuel Cell Considering H<sub>2</sub> and CO Electrochemical Reactions. The 30<sup>th</sup> European Symposium on Computer Aided Process Engineering (ESCAPE30), Virtual Symposium, August 31- September 2, 2020, Milano, Italy.



C. Patents

專利名稱	國別	專利號碼	發明人	專利核准日
以氨水進行二氧化碳捕捉後再生氨水之方法及以氨水進行二氧化碳捕捉之方法	中華民國/ 美國	I 695734/ 11311834B2	霍安、汪上曉	2020/4
二氧化碳捕捉系統與方法	中華民國	I 6226080	霍安、汪上曉、 鄭西顯	2018/6
以氯丙烯與雙氧水反應生產環氧氯丙烷的製造裝置及製造方法	中華民國	I 622584	王聖潔、黃建智、 李恩各、汪上曉、 鄭西顯	2018/5
聚氨酯樹脂的製備方法	中華民國/ 中華人民共和國/ 美國	I 663188/ 201710805574.X/ 15/10570254B2	汪上曉、陳幹男、 楊秉霖、杜安邦、 李恩各	2019/6
含鹽甘油廢水處理系統與方法	中華民國/ 中華人民共和國/ 美國	I 636967/ 201710523679.6/ 10,364,162	莊世晟、鄭西顯、 汪上曉、王聖潔、 李恩各	2018/10
氣體中的目標成分的捕獲裝置與捕獲方法	中華民國	I 614058	汪上曉、泰爾馬蒂亞斯、游承修、 康嘉麟、鄭西顯	2018/2
碳五產物分離裝置	中華民國	I 572706	汪上曉、徐筱靜、 區迪頤、王聖潔	2017/3~ 2035/8



#### D. Others

1. 清華大學 112 學年度國際競爭重點領域人才培育補助-獎勵優良學者。
2. 清華大學 108~110 學年度「延攬及留住特殊優秀人才彈性薪資暨獎勵補助」獲選現職績優教研人員。
3. 指導碩士生獲得台灣「2021 化工學會年會暨科技部年度研究成果發表會壁報論文競賽」優勝及佳作。
4. 指導本系學生獲得 台灣化工學會辦理之 2020 全國化工啤酒釀造創意競賽淺色組第 2 名，深色組第 3 名的佳績。



## Publications of Yuan Yao (姚遠)

### A. Book Chapters (\* Corresponding author)

**2024**

1. Elisabetta Rosina, Ermanno Grinzato, Stefano Sfarra, **Yuan Yao**, Elena Pivarčiová, Gianfranco Gargiulo, Xavier P.V. Maldague (2024). Conservation Applications of Thermal and Infrared Testing. *NDT Handbook, 4th Edition: Thermal and Infrared Testing*. The American Society for Nondestructive Testing, Inc. 1201 Dublin Road, Suite #G04, Columbus, OH 43215.

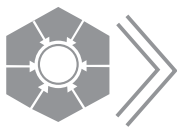
**2021**

2. Ya Wen, **Yuan Yao** (2021). Autism Spectrum Disorders: the mitochondria connection. In: Andreas M. Grabrucker, editor. *Autism Spectrum Disorders*. Brisbane (AU): Exon Publications; 2021. ISBN: 978-0-6450017-8-5.

### B. Journal Papers (\* Corresponding author)

**2024**

1. Tung-Yu Hsiao, Stefano Sfarra, Yi Liu, **Yuan Yao**\* (2024). Two-dimensional Hilbert-Huang transform-based thermographic data processing for non-destructive material defect detection. *Quantitative InfraRed Thermography Journal*, DOI: 10.1080/17686733.2024.2379066.
2. Zhen-Feng Jiang, Xi-Zhan Wei, Jia-Lin Kang, David Shan-Hill Wong, **Yuan Yao**\*, Yao-Chen Chuang, Shi-Shang Jang, John Di-Yi Ou (2024). Deep learning model predictive control of a high-density polyethylene reactor with a physics-guided sequence-to-sequence model with memory. *Computers & Chemical Engineering*, 189, 108790.
3. Mingwei Jia, Le Zhou, Yi Liu\*, Zengliang Gao, **Yuan Yao**\* (2024). Global dependency graph network for soft sensing in process industry. *IEEE Sensors Journal*, 24(16), 26290-26300.
4. Yi Liu, Mingwei Jia, Danya Xu, Tao Yang, **Yuan Yao**\* (2024). Physics-guided graph learning soft sensor for chemical processes. *Chemometrics and Intelligent Laboratory Systems*, 249, 105131.



5. Mingwei Jia, Danya Xu, Tao Yang, **Yuan Yao**<sup>\*</sup>, Yi Liu<sup>\*</sup> (2024). Graph-guided masked autoencoder for process anomaly detection. *Process Safety and Environmental Protection*, 186, 1345-1357.
6. Jian-Guo Wang, Rui Chen, Xiang-Yun Ye, Zhong-Tao Xie, **Yuan Yao**<sup>\*</sup>, Li-Lan Liu (2024). A hierarchical granger causality analysis framework based on information of redundancy for root cause diagnosis of process disturbances. *Computers & Chemical Engineering*, 182, 108589.
7. Fumin Wang, Zhili Jiang, Yi Liu, Clemente Ibarra-Castanedo, Hai Zhang, Kerang Cao, Xavier Maldague, Stefano Sfarra<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2024). Enhancing defect detection in active infrared thermography using adaptive background suppression techniques. *Journal of Thermal Analysis and Calorimetry*, DOI: 10.1007/s10973-024-13668-6.
8. Yi Liu, Yuxin Jiang, Zengliang Gao, Kaixin Liu<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2024). Generative convolutional monitoring method for online flooding recognition in packed towers. *Journal of the Taiwan Institute of Chemical Engineers*, 165, 105719.
9. Yi Liu, Qing Yu, Kaixin Liu<sup>\*</sup>, Ningtao Zhu, **Yuan Yao**<sup>\*</sup> (2024). Stable 3D deep convolutional autoencoder method for ultrasonic testing of defects in polymer composites. *Polymers*, 16(11), 1561.
10. Husnain Ali, Rizwan Safdar, Muhammad Hammad Rasool, Hirra Anjum, Yuanqiang Zhou, **Yuan Yao**, Le Yao, Furong Gao<sup>\*</sup> (2024). Advanced industrial monitoring of physio-chemical processes using novel integrated machine learning approach. *Journal of Industrial Information Integration*, 42, 100709.
11. Husnain Ali, Rizwan Safdar, Yuangiang Zhou, **Yuan Yao**, Le Yao, Zheng Zhang, Muhammad Hammad Rasool, Furong Gao<sup>\*</sup> (2024). Robust statistical industrial fault monitoring: a machine learning-based distributed CCA and low frequency control charts. *Chemical Engineering Science*, 299, 120460.
12. Husnain Ali, Zheng Zhang, Rizwan Safdar, Muhammad Hammad Rasool, **Yuan Yao**, Le Yao, Furong Gao<sup>\*</sup> (2024). Fault detection using machine learning based dynamic ICA-distributed CCA: application to industrial chemical process. *Digital Chemical Engineering*, 11, 100156.
13. Yung-Min Lin, Jia-Lin Kang<sup>\*</sup>, **Yuan Yao** (2024). Handling domain drift and unknown fault detection in rotating machinery using few-shot learning with data scaling. *Journal of Adaptive Control and Signal Processing*, DOI: 10.1002/acs.3932.



## 2023

14. Yi Liu, Fumin Wang, Kaixin Liu, Miranda Mostacci, **Yuan Yao**<sup>\*</sup>, Stefano Sfarra<sup>\*</sup> (2023). Deep convolutional autoencoder thermography for artwork defect detection. *Quantitative InfraRed Thermography Journal*, 21(6), 367-383.
15. Rui Chen, Jian-Guo Wang, Xiang-Yun Ye, **Yuan Yao**<sup>\*</sup>, Zhong-Tao Xie, Shi-Wei Ma, Li-Lan Liu (2023). Data-driven root cause diagnosis of process disturbances by exploring causality change among variables. *Journal of Process Control*, 129, 103062.
16. Jian-Guo Wang, Rui Chen, Jing-Ru Su, Hui-Min Shao, **Yuan Yao**<sup>\*</sup>, Shi-Wei Ma, Li-Lan Liu (2023). Root cause diagnosis of plant-wide oscillations based on fuzzy kernel multivariate Granger causality. *Journal of the Taiwan Institute of Chemical Engineers*, 149, 104928.
17. Yun Dai, Chao Yang, Yi Liu<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2023). Latent-enhanced variational adversarial active learning assisted soft sensor. *IEEE Sensors Journal*, 23(14), 15762-15772.
18. Kaixin Liu, Mingkai Zheng, Yi Liu<sup>\*</sup>, Jianguo Yang, **Yuan Yao**<sup>\*</sup> (2023). Deep autoencoder thermography for defect detection of carbon fiber composites. *IEEE Transactions on Industrial Informatics*, 19(5): 6429-6438.
19. Mingwei Jia, Junhao Hu, Yi Liu<sup>\*</sup>, Zengliang Gao, **Yuan Yao**<sup>\*</sup> (2023). Topology-guided graph learning for process fault diagnosis. *Industrial & Engineering Chemistry Research*, 62(7), 3238–3248.
20. Mingwei Jia, Danya Xu, Tao Yang, Yi Liu<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2023). Graph convolutional network soft sensor for process quality prediction. *Journal of Process Control*, 123, 12-25.
21. Kaixin Liu, Kai-Lun Huang, Stefano Sfarra, Jianguo Yang, Yi Liu<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2023). Factor analysis thermography for defect detection of panel paintings. *Quantitative InfraRed Thermography Journal*, 20(1), 25-37.
22. Kaixin Liu, Fumin Wang, Yuxiang He, Yi Liu<sup>\*</sup>, Jianguo Yang, **Yuan Yao**<sup>\*</sup> (2023). Data-augmented manifold learning thermography for defect detection and evaluation of polymer composites. *Polymers*, 15(1), 173.
23. Yi Liu, Fumin Wang, Zhili Jiang, Stefano Sfarra, Kaixin Liu<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2023). Generative deep learning-based thermographic inspection of artwork. *Sensors*, 23(14), 6362.
24. Yi Liu, Yuxin Jiang, Zengliang Gao, Kaixin Liu<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2023). Convolutional neural network-based machine vision for non-destructive detection of flooding in packed columns. *Sensors*, 23, 2658.



25. Junhua Zheng, Yangxuan Liu, Yi Liu, Beiping Hou, **Yuan Yao**, Le Zhou\* (2023). Semi-supervised process data regression and application based on latent factor analysis model. *IEEE Transactions on Instrumentation & Measurement*, 72, 2527511.
26. Yi-Ting Tsai, Yu-Kai Huang, Zhen-Feng Jiang, **Yuan Yao**, Pei-Hsuan Lo, Yu-Chiang Chao, Bi-Hsuan Lin, Chun Che Lin\* (2023). Cation substitution-induced partial inversion to pervade short-wave infrared light for improving the accuracy of artificial intelligence image recognition system. *ACS Materials Letters*, 5, 738–743.

## 2022

27. Ching-Mei Wen, Zhengbing Yan, Yu-Chen Liang, Haibin Wu, Le Zhou, **Yuan Yao**\* (2022). A control chart-based symbolic conditional transfer entropy method for root cause analysis of process disturbances. *Computers & Chemical Engineering*, 164, 107902.
28. Haibin Wu, Yu-Han Lo, Le Zhou, **Yuan Yao**\* (2022). Process modeling by integrating quantitative and qualitative information using a deep embedding network and its application to an extrusion process. *Journal of Process Control*, 115, 48-57.
29. Kaixin Liu, Qing Yu, Yi Liu\*, Jianguo Yang, **Yuan Yao**\* (2022). Convolutional graph thermography for subsurface defect detection in polymer composites. *IEEE Transactions on Instrumentation and Measurement*, 71, 1-11.
30. Jian-Guo Wang, Hui-Min Shao, **Yuan Yao**\*, Jian-Long Liu, Hua-Ping Sun, Shi-Wei Ma (2022). Electroencephalograph-based emotion recognition using convolutional neural network without manual feature extraction. *Applied Soft Computing*, 128, 109534.
31. Kaixin Liu, Qing Yu, Weiyao Lou, Stefano Sfarra, Yi Liu\*, Jianguo Yang, **Yuan Yao**\* (2022). Manifold learning and segmentation for ultrasonic inspection of defects in polymer composites. *Journal of Applied Physics*, 132, 024901.
32. Yi Liu, Mingkai Zheng, Kaixin Liu, **Yuan Yao**\*, Stefano Sfarra\* (2022). TriMap thermography with convolutional autoencoder for enhanced defect detection of polymer composites. *Journal of Applied Physics*, 131, 144901.
33. Wei Qi, Tzu-Heng Chiu, Yi-Kai Kao, **Yuan Yao**\*, Yu-Ho Chen, Hsun Yang, Chen-Chieh Wang, Chia-Hsiang Hsu, Rong-Yeu Chang (2022). Sensor fusion for simultaneous estimation of in-plane permeability and porosity of fiber reinforcement in resin transfer molding. *Polymers*, 14(13), 2652.



34. Yun Dai, Angpeng Liu, Meng Chen, Yi Liu\*, **Yuan Yao**\* (2022). Enhanced soft sensor with qualified augmented samples for quality prediction of the polyethylene process. *Polymers*, 14(21), 4769.
35. Jinchuan Qian, Zhihuan Song, **Yuan Yao**, Zheren Zhu, Xinmin Zhang\* (2022). A review on autoencoder based representation learning for fault detection and diagnosis in industrial processes. *Chemometrics and Intelligent Laboratory Systems*, 231, 104711.
36. Jue Hu, Hai Zhang\*, Stefano Sfarra, Elena Pivarčiová, **Yuan Yao**, Yuxia Duan, Clemente Ibarra-Castanedo, Guiyun Tian, Xavier Maldague (2022). Autonomous dynamic line-scan continuous-wave terahertz non-destructive inspection system combined with unsupervised exposure fusion. *NDT and E International*, 132, 102705.
37. Wei Liu, Beiping Hou, Yaoxin Wang, **Yuan Yao**, Le Zhou\* (2022). Sparse structural principal component thermography for defect signal enhancement in subsurface defects detection of composite materials. *Journal of Nondestructive Evaluation*, 41, Article number: 8.
38. Vasiliki Dritsa, Noemi Orazi, **Yuan Yao**, Stefano Paoloni, Maria Koui, Stefano Sfarra\* (2022). Thermographic imaging in cultural heritage: a short review. *Sensors*, 22(23), 9076.
39. Wei Liu, Beiping Hou, **Yuan Yao**, Le Zhou\* (2022) Signal enhancement in defect detection of CFRP material using a combination of difference of Gaussian convolutions and sparse principal component thermography. *IEEE Access*, 10, 108103-108116.

## 2021

40. Ching-Mei Wen, Stefano Sfarra, Gianfranco Gargiulo, **Yuan Yao**\* (2021). Thermographic data analysis for defect detection by imposing spatial connectivity and sparsity constraints in principal component thermography. *IEEE Transactions on Industrial Informatics*, 17(6), 3901-3909.
41. Hongying Deng, Keyun Yang, Yi Liu\*, Shengchang Zhang, **Yuan Yao**\* (2021). Actively exploring informative data for smart modeling of industrial multiphase flow processes. *IEEE Transactions on Industrial Informatics*, 17(12), 8357-8366.
42. Kaiyi Zheng, **Yuan Yao**\* (2021). Automatic three-dimensional reconstruction of subsurface defects by segmenting ultrasonic point cloud. *Journal of the Taiwan Institute of Chemical Engineers*, 120, 24-32.



43. Jian-Guo Wang, Hui-Min Shao, **Yuan Yao**<sup>\*</sup>, Jian-Long Liu, Shi-Wei Ma (2021). A personalized feature extraction and classification method for motor imagery recognition. *Mobile Networks and Applications*, 26, 1359–1371.
44. Kai-Lun Huang, Stefano Sfarra, Ching-Mei Wen, **Yuan Yao**<sup>\*</sup>, Chunhui Zhao (2021). Exploratory factor analysis for defect identification with active thermography. *Measurement Science and Technology*, 32(4), 114010.
45. Kaixin Liu, Yuwei Tang, Weiyao Lou, Yi Liu<sup>\*</sup>, Jianguo Yang, **Yuan Yao**<sup>\*</sup> (2021). A thermographic data augmentation and signal separation method for defect detection. *Measurement Science and Technology*, 32(4), 045410.
46. Katherine Tu, Clemente Ibarra-Castanedo, Stefano Sfarra<sup>\*</sup>, **Yuan Yao**<sup>\*</sup>, Xavier P. V. Maldague (2021). Multiscale analysis of solar loading thermographic signals for wall structure inspection. *Sensors*, 21(8), 2806.
47. Kaixin Liu, Zhengyang Ma, Yi Liu<sup>\*</sup>, Jianguo Yang, **Yuan Yao**<sup>\*</sup> (2021). Enhanced defect detection in carbon fiber reinforced polymer composites via generative kernel principal component thermography. *Polymers*, 13(5), 825.
48. Kaixin Liu, Stefano Perilli, Arsenii O. Chulkov, **Yuan Yao**, Mohammed Omar, Vladimir Vavilov, Yi Liu<sup>\*</sup>, Stefano Sfarra<sup>\*</sup> (2021). Defining the thermal features of sub-surface reinforcing fibres in non-polluting thermo-acoustic insulating panels: a numerical-thermographic-segmentation approach. *Infrastructures*, 6(9), 131.

## 2020

49. Yi Liu, Han-Sheng Chen, Haibin Wu, Yun Dai, **Yuan Yao**<sup>\*</sup>, Zhengbing Yan<sup>\*</sup> (2020). Simplified Granger causality map for data-driven root cause diagnosis of process disturbances. *Journal of Process Control*, 95, 45–54.
50. Yi Liu, Chao Yang, Mingtao Zhang, Yun Dai, **Yuan Yao**<sup>\*</sup> (2020). Development of adversarial transfer learning soft sensor for multi-grade processes. *Industrial & Engineering Chemistry Research*, 59(37), 16330-16345.
51. Le Zhou, Yao-Chen Chuang, Shao-Heng Hsu, **Yuan Yao**<sup>\*</sup>, Tao Chen<sup>\*</sup> (2020). Prediction and uncertainty propagation for completion time of batch processes based on data-driven modeling. *Industrial & Engineering Chemistry Research*, 59, 14374–14384.
52. Kaixin Liu, Yingjie Li, Jianguo Yang, Yi Liu<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2020). Generative principal component thermography for enhanced defect detection and analysis. *IEEE Transactions on Instrumentation and Measurement*, 69(10), 8261-8269.



53. Haibin Wu, Kaiyi Zheng, Stefano Sfarra, Yi Liu, **Yuan Yao**\* (2020). Multiview learning for subsurface defect detection in composite products: a challenge on thermographic data analysis. *IEEE Transactions on Industrial Informatics*, 16(9), 5996-6003.
54. Yi Liu, Kaixin Liu, Jianguo Yang, **Yuan Yao**\* (2020). Spatial-neighborhood manifold learning for nondestructive testing of defects in polymer composites. *IEEE Transactions on Industrial Informatics*, 16(7), 4639-4649.
55. Jinlin Zhu, **Yuan Yao**\*, Furong Gao (2020). Multiphase two-dimensional time-slice dynamic system for batch process monitoring. *Journal of Process Control*, 85, 184-198.
56. Jian-Guo Wang\*, Xue-Zhi Cai, **Yuan Yao**\*, Chunhui Zhao, Bang-Hua Yang, Shi-Wei Ma, Sen Wang (2020). Statistical process fault isolation using robust nonnegative garrote. *Journal of the Taiwan Institute of Chemical Engineers*, 107, 24-34.
57. Feifei Huang, Ruihao Li, Gan Wang, Jueting Zheng, Yongxiang Tang, Junyang Liu, Yang Yang, **Yuan Yao**\*, Jia Shi\*, Wenjing Hong\* (2020). Automatic classification of single-molecule charge transport data with an unsupervised machine-learning algorithm. *Physical Chemistry Chemical Physics*, 22, 1674-1681.
58. Cheng-Hung Chou, Hai-Bin Wu, Jia-Lin Kang\*, David Shan Hill Wong, **Yuan Yao**, Shi-Shang Jang, Yao-Chen Chuang, John Di-Yi Ou (2020). Physically consistent soft-sensor development using sequence-to-sequence neural networks. *IEEE Transactions on Industrial Informatics*, 16(4), 2829-2838.

### C. Conference Presentations

#### 2024

1. Dun-Yi Ke, **Yuan Yao**\* (2024). Analyzing plating thickness distribution in PCB manufacturing: A global/local simulation approach for copper plating processes. *11th Asian Symposium on Process Systems Engineering (PSE Asia 2024)*, Penang, Malaysia.
2. I-Yen Wu, Jia-Lin Kang, Yu-Jeng Lin, **Yuan Yao**\*, David Shan-Hill Wong (2024). Developing a health index for estimating remaining useful life using empirical mode decomposition and slow feature analysis. *11th Asian Symposium on Process Systems Engineering (PSE Asia 2024)*, Penang, Malaysia.



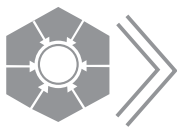
3. Wei-Shiang Lin, Carlo Olivieri, Fabrizio Sarasini, Stefano Sfarra, **Yuan Yao**<sup>\*</sup> (2024). Advanced fibre orientation detection in composite materials using laser spot thermography and physics-informed neural networks. *17th Quantitative Infrared Thermography Conference (QIRT 2024)*, Zagreb, Croatia.
4. Fumin Wang, Zhili Jiang, **Yuan Yao**, Yi Liu<sup>\*</sup> (2024). Three-dimensional convolution assisted thermal image generation for defect detection in composite materials. *17th Quantitative Infrared Thermography Conference (QIRT 2024)*, Zagreb, Croatia.
5. Jie-Ning Chen, Jia-Lin Kang<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2024). Fast Fourier transform-based synthetic method for chemical process data augmentation and fault classification. *34th European Symposium on Computer Aided Process Engineering / 15th International Symposium on Process Systems Engineering (ESCAPE34/PSE24)*, Florence, Italy.
6. Keng-Sheng Lin, Chia-Hsi Wu, Chia-Hui Kuan, **Yuan Yao**<sup>\*</sup>, Hung-Ping Tung, David Shan Hill Wong, Sheng-Tsaing Tseng, Nan-Jung Hsu (2024). A physics-guided data-driven model for capacity loss prediction in lithium-ion batteries. *34th European Symposium on Computer Aided Process Engineering / 15th International Symposium on Process Systems Engineering (ESCAPE34/PSE24)*, Florence, Italy.
7. Po-Chun Mao, Yu-Ting Liu, **Yuan Yao**<sup>\*</sup> (2024). Physics-informed neural networks in model predictive control for regulating density in polymer blending. *34th European Symposium on Computer Aided Process Engineering / 15th International Symposium on Process Systems Engineering (ESCAPE34/PSE24)*, Florence, Italy.
8. I-Yen Wu, David Shan-Hill Wong, Yu-Jeng Lin, Jia-Lin Kang<sup>\*</sup>, **Yuan Yao**<sup>\*</sup> (2024). Data depth-based non-parametric control chart for condition monitoring of rolling element bearings. *34th European Symposium on Computer Aided Process Engineering / 15th International Symposium on Process Systems Engineering (ESCAPE34/PSE24)*, Florence, Italy.
9. Wei Shiang Lin, Stefano Sfarra, **Yuan Yao**<sup>\*</sup> (2024). Study of indoor air quality impact during building demolition: a case study of the 2009 L'Aquila earthquake reconstruction. *11th International Symposium on the Conservation of Monuments in the Mediterranean Basin (MONUBASIN 2024)*, Athens, Greece.
10. Yu-Chen Liang, Yi-Hsiang Cheng, Zhen Yu Hung, **Yuan Yao**<sup>\*</sup> (2024). Small leak detection in pipelines using deep learning and statistical control chart. *IEEE 13th Data Driven Control and Learning Systems Conference (DDCLS'24)*, Kaifeng, China.



11. Jiahao Jiang, Zhili Jiang, Fumin Wang, **Yuan Yao**, Yi Liu\* (2024). Defect detection of composite materials using channel attention and convolutional autoencoder. *IEEE 13th Data Driven Control and Learning Systems Conference (DDCLS'24)*, Kaifeng, China.
12. Wei-Yang Chung, **Yuan Yao**\* (2024). Non-destructive evaluation of curing processes in seismic and soundproof building materials using ultrasonic testing. *20th World Conference on Non-Destructive Testing (20th WCNDT)*, Incheon, Korea.
13. Wei-Yang Chung, Stefano Sfarra, **Yuan Yao**\* (2024). Silicone sealant defect detection via 3D image reconstruction from multiple ultrasonic sensors. *SPIE Smart Structures + Nondestructive Evaluation 2024*, Long Beach, United States.

## 2023

14. Chun-Han Chang, Stefano Sfarra, Nan-Jung Hsu, **Yuan Yao**\* (2023). Spatial structure analysis for subsurface defect detection in materials using active infrared thermography and adaptive fixed-rank kriging. *Advanced Infrared Technology and Applications 2023 (AITA 2023)*, Venice, Italy.
15. Po-Chun Mao, **Yuan Yao**\* (2023). Discriminative edge-group sparse principal component analysis for process fault diagnosis. *Foundations of Process/Product Analytics and Machine learning 2023 (FOPAM 2023)*, Davis, United States.
16. Zhen-Feng Jiang, David Shan-Hill Wong\*, **Yuan Yao**\*, Jia-Lin Kang\*, Yao-Chen Chuang, Shi-Shang Jang, John D.Y. Ou (2023). Physics guided machine learning model predictive control of a high density poly-ethylene slurry reactor. *Foundations of Process/Product Analytics and Machine learning 2023 (FOPAM 2023)*, Davis, United States.
17. Wen-An Lee, **Yuan Yao**, Jia-Lin Kang\* (2023). Descriptive process attribute sequence to sequence rolling for zero-shot fault diagnosis. *Foundations of Process/Product Analytics and Machine learning 2023 (FOPAM 2023)*, Davis, United States.
18. Tung-Yu Hsiao, **Yuan Yao**\* (2023). A physics-informed neural network for pulsed thermography-based defect detection and parameter estimation. *13th European Conference on Non-Destructive Testing (ECNDT 2023)*, Lisbon, Portugal.
19. Yu-Ting Liu, Chuan-Yu Wu, Tao Chen, **Yuan Yao**\* (2023). Multi-fidelity surrogate modeling for chemical processes with physics-informed neural networks. *33rd European Symposium on Computer Aided Process Engineering (ESCAPE33)*, Athens, Greece.



20. Zhen-Feng Jiang, David Shan-Hill Wong\*, Jia-Lin Kang\*, **Yuan Yao\***, Yao-Chen Chuang (2023). Polymer grade transition control via reinforcement learning trained with a physically consistent memory sequence-to-sequence digital twin. *33rd European Symposium on Computer Aided Process Engineering (ESCAPE33)*, Athens, Greece.
21. Jia-En Xie, Jia-Lin Kang\*, Cheng-Huang Chou, **Yuan Yao**, David Shan-Hill Wong (2023). Series-parallel double pipe heat exchangers fouling estimation using CFD. *11th World Congress of Chemical Engineering (WCCE 11)*, Buenos Aires, Argentina.
22. Mingwei Jia, Danya Xu, Tao Yang, **Yuan Yao**, Yi Liu\* (2023). Dynamic graph learning soft sensor in process industry. *IEEE 12th Data Driven Control and Learning Systems Conference (DDCLS'23)*, Xiangtan, China.
23. Yu-Kuan Yeh, **Yuan Yao\*** (2023). Global/local modeling nickel-gold plating process in PCB manufacturing for analysis of plating thickness distribution. *2023 International Conference on Electronics Packaging (ICEP 2023)*. Kumamoto, Japan.
24. Tung-Yu Hsiao, Nan-Jung Hsu, Stefano Sfarra, **Yuan Yao\*** (2023). Adaptive fixed rank kriging based thermographic data processing for material defect detection. *SPIE Smart Structures + Nondestructive Evaluation 2023*, Long Beach, United States.

## 2022

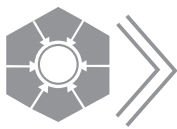
25. Wen-An Lee, **Yuan Yao**, Jia-Lin Kang\* (2022). Development of unknown identification capabilities for chemical process fault diagnosis using autoencoder generative network. *10th Asian Symposium on Process Systems Engineering (PSE Asia 2022)*, Chennai, India.
26. Po-Wei Yeh, Ming-Li Huang, **Yuan Yao\*** (2022). Root cause diagnosis of process disturbances based on edge-group sparse principal component analysis and transfer entropy. *32nd European Symposium on Computer Aided Process Engineering (ESCAPE32)*, Toulouse, France.
27. Kai-Lun Huang, David Shan Hill Wong\*, **Yuan Yao\*** (2022). System identification with physics informed neural network. *32nd European Symposium on Computer Aided Process Engineering (ESCAPE32)*, Toulouse, France.
28. Tung-Yu Hsiao, Stefano Sfarra, Yi Liu, **Yuan Yao\*** (2022). Application of Hilbert-Huang transform to thermographic data analysis for enhanced nondestructive testing of materials. *16th Quantitative InfraRed Thermography Conference (QIRT 2022)*, Paris, France.



29. Kaixin Liu, R. Saminathan, Hung-Kun Shih, Stefano Sfarra, Jianguo Yang, Yi Liu\*, **Yuan Yao**\* (2022). Detection and evaluation of fabric defects using warp-weft statistical analysis. *SPIE Smart Structures + Nondestructive Evaluation 2022*, Long Beach, California, United States.
30. Stefano Sfarra\*, **Yuan Yao** (2022). The contribution of mock-ups for the inspection of cultural heritage objects: a short review centered on infrared thermography technique. *Analysing Art 2022: New Technologies – New Applications*, Florence, Italy.
31. Zhen-Feng Jiang, Xi-Zhan Wei, Jia-Lin Kang\*, David Shan-Hill Wong\*, **Yuan Yao**\*, Yao-Cheng Chuang, Shi-Shang Jang, John Di-Yi Ou (2022). Development of a data-driven nonlinear dynamic model for a high density polyethylene reactor using a sequence-to-sequence model with attention and application in model predictive control of grade transition. *14th International Symposium on Process Systems Engineering (PSE 2021+)*, Kyoto, Japan.

## 2021

32. Ching-Mei Wen, **Yuan Yao**\* (2021). Symbolic transfer entropy for root cause analysis of process disturbances. *31st European Symposium on Computer Aided Process Engineering (ESCAPE-31)*, Istanbul, Turkey.
33. Mingwei Jia, Yun Dai, Danya Xu, Tao Yang, **Yuan Yao**, Yi Liu (2021). Deep graph network for process soft sensor development. *2021 International Conference on Information, Cybernetics, and Computational Social Systems (ICCSS 2021)*, Beijing, China.
34. Mingkai Zheng, Kaixin Liu, Nanxin Li, **Yuan Yao**, Yi Liu (2021). Deep autoencoder for non-destructive testing of defects in polymer composites. *2021 International Conference on Information, Cybernetics, and Computational Social Systems (ICCSS 2021)*, Beijing, China.
35. Yun Dai, Qing Yu, Yi Liu, **Yuan Yao**, Tao Yang (2021). Enhanced soft sensor with qualified augmented data using centroid measurement criterion. *2021 International Conference on Information, Cybernetics, and Computational Social Systems (ICCSS 2021)*, Beijing, China.
36. Wei Hng Lim, Stefano Sfarra, **Yuan Yao**\* (2021). A physics-informed neural network method for defect Identification in polymer composites based on pulsed thermography. *16th International Workshop on Advanced Infrared Technology & Applications (AITA 2021)*, Online.



37. Rui Chen, Jian-Guo Wang, Junjie Pan, **Yuan Yao** (2021). Classification of Coronary artery lesions based on XGBoost. *2021 International Conference on Life System Modeling and Simulation & International Conference on Intelligent Computing for Sustainable Energy and Environment (ISMS2021 & ICSEE2021)*, Hangzhou, China.
38. Wei Hng Lim, **Yuan Yao**<sup>\*</sup>, David Shan-Hill Wong (2021). Defect detection of carbon fiber reinforced polymer with a physically constrained deep learning method. *3rd International Conference on Industrial Artificial Intelligence (IAI 2021)*, Shenyang, China.
39. Kaixin Liu, Weiyao Lou, Jianguo Yang, **Yuan Yao**, Yi Liu<sup>\*</sup> (2021). Manifold learning automatic defect detection for ultrasonic inspection of composite materials. *3rd International Conference on Industrial Artificial Intelligence (IAI 2021)*, Shenyang, China.

## 2020

40. Tzu-Tang Liu, **Yuan Yao**<sup>\*</sup> (2020). Small data integration for process modeling by feature learning via deep convolutional autoencoder. *9th Asian Symposium on Process Systems Engineering (PSE Asia 2020)*. Taipei, Taiwan.
41. Hung-Pin Hsu, **Yuan Yao**<sup>\*</sup> (2020). Infrared thermography-based statistical process control for defect detection in vacuum-assisted resin transfer molding. *9th Asian Symposium on Process Systems Engineering (PSE Asia 2020)*. Taipei, Taiwan.
42. Jing Ru Su, **Yuan Yao**<sup>\*</sup>, Jian-Guo Wang, Longfei Deng, Jianlong Liu (2020). Granger causality detection based on neural network. *IEEE 8th Data Driven Control and Learning Systems Conference (DDCLS 2020)*, Liuzhou, China.
43. Fei Wang, Jian-Guo Wang, Xiangyun Ye, **Yuan Yao**<sup>\*</sup>, Jun-Jiang Liu (2020). An improved Granger causal analysis framework based on redundancy index. *IEEE 8th Data Driven Control and Learning Systems Conference (DDCLS 2020)*, Liuzhou, China.
44. Xiang-Yun Ye, Jian-Guo Wang, Fei Wang, **Yuan Yao**<sup>\*</sup>, Jun-Jiang Liu (2020). Root cause diagnosis framework based on Granger causality with the combination of normal and fault data. *IEEE 8th Data Driven Control and Learning Systems Conference (DDCLS 2020)*, Liuzhou, China.



#### D. Patents

1. 姚遠, 楊政毅. 非接觸式纖維滲透率量測系統及其方法. 2019.5.13 - 2039.5.12 (Publication date: 2023.8.15), 中國大陸, CN111929212B.
2. Yuan Yao, Cheng-Yi Yang. Non-contact fiber permeability measurement system and method thereof. 2019.11.1-2041.2.17 (Publication date: 2022.10.4), United States, US11460392B2.
3. 姚遠, 邱子恆, 張榮語, 許嘉翔, 王智偉, 孫士博, 黃松煒, 楊巡, 蔡在恆. 樹脂轉移模製系統的流動特性的測量系統和測量方法. 2018.5.4-2038.5.4 (Publication date: 2021.6.22), 中國大陸, CN108790218B.
4. Yuan Yao, Tzu-Heng Chiu, Rong-Yeu Chang, Chia-Hsiang Hsu, Chih-Wei Wang, Shih-Po Sun, Sung-Wei Huang, Hsun Yang, Tsai-Heng Tsai. Method for measuring a flowing property in a resin transfer molding system. 2019.10.29-2038.3.14 (Publication date: 2022.3.16), United States, US10946597B2.

#### E. Other

1. Associate Editor of *Quantitative InfraRed Thermography Journal*
2. Associate Editor of *Frontiers in Chemical Engineering*
3. Editorial Board Member of *Sensors*
4. I&EC Research 2020 Class of Influential Researchers



## Publications of Tung-Han Yang (楊東翰)

### A. Journal Papers (\* Corresponding author)

#### 2024

1. Ting-Hsin Hu, Cheng-Yu Wu, Zong Ying He, Yi Chen, Liang-Ching Hsu, Chih-Wen Pao, Jui-Tai Lin, Chun-Wei Chang, Shang-Cheng Lin, Rachel Osmundsen, Lee Casalena, Kun Han Lin, Shan Zhou, **Tung-Han Yang\***. Unconventional Hexagonal Close-Packed High-Entropy Alloy Surfaces Synergistically Accelerate Alkaline Hydrogen Evolution. *Advanced Science* **2024**, in press.
2. Yueh-Chun Hsiao, Cheng-Yu Wu, Chih-Heng Lee, Wen-Yang Huang, Ho Viet Thang, Chong-Chi Chi, Wen-Jing Zeng, Chih-Yi Lin, Jui-Tai Lin, Adrian M. Gardner, Hansaem Jang, Yi-Hong Liu, Islam M. A. Mekhemer, Ming-Yen Lu, Ying-Rui Lu, Ho-Hsiu Chou, Chun-Hong Kuo, Shan Zhou, Hsin-Yi Tiffany Chen\*, Alexander J. Cowan\*, Sung-Fu Hung\*, Jien-Wei Yeh\*, and **Tung-Han Yang**. A Library of Seed@High-Entropy-Alloy Core-Shell Nanocrystals with Controlled Facets for Catalysis. *Advanced Materials* **2024**, in press.
3. Chi-Cheng Hung, Han-Yuan Liu, Yu-Mei Haung, Shang-Cheng Lin, and **Tung-Han Yang\***. Replacing Pd with Ag Nanocatalysts to Mitigate Hydrogen Embrittlement and Enhance Peel Strength in Industrial-Scale Electroless Cu Deposition on Surface-Modified Substrates. *ACS Applied Nano Materials* **2024**, in press.
4. Cheng-Yu Wu, Yueh-Chun Hsiao, Yi Chen, Kun-Han Lin, Tsung-Ju Lee, Chong-Chi Chi, Jui-Tai Lin, Liang-Ching Hsu, Hsin-Jung Tsai, Jia-Qi Gao, Chun-Wei Chang, I-Ting Kao, Chia-Ying Wu, Ying-Rui Lu, Chih-Wen Pao, Sung-Fu Hung, Ming-Yen Lu, Shan Zhou, and **Tung-Han Yang\***. A Catalyst Family of High-Entropy-Alloy Atomic Layers with Square Atomic Arrangements Comprising Iron- and Platinum-Group Metals. *Science Advances* **2024**, 10, ead13693.
5. Shang-Cheng Lin, Chun-Wei Chang, Meng-Hsuan Tsai, Chih-Hao Chen, Jui-Tai Lin, Chia-Ying Wu, I-Ting Kao, Wen-Yang Jao, Chia-Hsin Wang, Wen-Yueh Yu, Chi-Chang Hu, Kun-Han Lin\* and **Tung-Han Yang\***. Decreasing the O<sub>2</sub>-to-H<sub>2</sub>O<sub>2</sub> Kinetic Energy Barrier on Dilute Binary Alloy Surfaces with Controlled Configurations of Isolated Active Atoms. *Advanced Functional Materials* **2024**, 34, 2314281.



6. Chi-Cheng Hung, Cheng-Yu Wu, Jui-Tai Lin, Chia-Hung Wu, An-Pang Tu, Tzu-Chien Wei, and **Tung-Han Yang\***. Pd Nanocubes Enclosed by {100} Facets for Activating Electroless Cu Deposition on Liquid Crystal Polymer Substrates with Strong Adhesion Strength. *Electrochimica Acta* **2024**, 489, 144254. (Invited Article)

## 2023

7. Yi-Hong Liu, Chia-Jui Hsieh, Liang-Ching Hsu, Kun-Han Lin, Yueh-Chun Hsiao, Chong-Chi Chi, Jui-Tai Lin, Chun-Wei Chang, Shang-Cheng Lin, Cheng-Yu Wu, Jia-Qi Gao, Chih-Wen Pao, Yin-Mei Chang, Ming-Yen Lu, Shan Zhou, and **Tung-Han Yang\***. Toward Controllable and Predictable Synthesis of High-Entropy Alloy Nanocrystals. *Science Advances* **2023**, 9, eadf9931. (*Highlighted in NSRRC Research News & NSTC Natural Sciences Library Services Project Newsletter*)
8. Jui-Tai Lin, Yi-Hong Liu, Chi-Yen Tsao, Cheng-Yu Wu, Chia-Jui Hsieh, Meng-Zhe Chen, Chun-Wei Chang, Yueh-Chun Hsiao, Hsin-Lung Chen, and **Tung-Han Yang\***. Toward a Quantitative Understanding of Crystal-Phase Engineering of Ru Nanocrystals. *Chemistry of Materials* **2023**, 35, 4276.
9. Cheng-Yu Wu<sup>+</sup>, Cam-Hoa Mac<sup>+</sup>, **Tung-Han Yang**<sup>+</sup>, Khanh Nguyen, Shih-Kai Lo, Yen Chang, Po-Liang Lai, Hsing-Wen Sung\*, and Yu-Jung Lin\*. Nanoscale Photocatalytic Hydrogen Production System Mitigates Inflammation by Harnessing Glycolysis Waste. *Chemical Engineering Journal* **2023**, 476, 146614. (+Equal Contribution)
10. **Tung-Han Yang**<sup>+</sup>, Peng Wang<sup>+</sup>, and Dong Qin\*. Preserving the Shape of Silver Nanocrystals. *Journal of Materials Chemistry C* **2023**, 11, 7872. (+Equal Contribution)
11. Kei Kwan Li, Chia-Ying Wu, **Tung-Han Yang**, Dong Qin, and Younan Xia\*. Quantification, Exchange, and Removal of Surface Ligands on Noble-Metal Nanocrystals. *Accounts of Chemical Research* **2023**, 56, 12, 1517.

## 2022

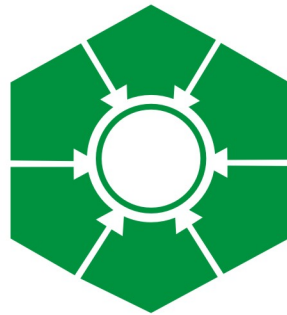
12. Chia-Jui Hsieh, Yi-Hong Liu, Chi-Yen Tsao, Jui-Tai Lin, Chong-Chi Chi, Chun-Wei Chang, Yueh-Chun Hsiao, Cheng-Yu Wu, and **Tung-Han Yang\***. Bromide-Mediated Reduction Kinetics and Oxidative Etching for Manipulating the Twin Structure and Facet of Pd Nanocrystals for Catalysis. *Advanced Materials Interfaces* **2022**, 9, 2201036.

**2021**

13. **T. H. Yang**, J. Ahn, S. Shi, and D. Qin\*. Understanding the Role of Poly(vinylpyrrolidone) in Stabilizing and Capping Colloidal Silver Nanocrystals. *ACS Nano* 2021, 15, 14242.
14. **T. H. Yang**, J. Ahn, S. Shi, P. Wang, R. Gao, and D. Qin\*. Noble-Metal Nanoframes and Their Catalytic Applications. *Chemical Reviews* 2021, 121, 796.

**2020**

15. **T. H. Yang** and D. Qin\*. Capturing the Equilibration Pathway of Nanomaterials Metastable in Both Crystal Structure and Morphology. *Matter* 2020, 2, 519.
16. **T. H. Yang**<sup>+</sup>, Y. Shi<sup>+</sup>, A. Janssen<sup>+</sup>, and Y. Xia\*. Surface Capping Agents and Their Roles in Shape-Controlled Synthesis of Colloidal Metal Nanocrystals. *Angewandte Chemie International Edition* 2020, 59, 2. (+Equal Contribution)
17. **T. H. Yang**, S. Zhou, M. Zhao, and Y. Xia\*. Quantitative Analysis of the Multiple Roles Played by Halide Ions in Controlling the Growth Patterns of Palladium Nanocrystals. *ChemNanoMat* 2020, 6, 576.



National Tsing Hua University  
Department of Chemical Engineering  
國立清華大學 化學工程學系



<http://www.che.nthu.edu.tw>