

# 周鶴修 副教授

## HO-HSU CHOU, ASSOCIATE PROFESSOR

- 國立清華大學 學士，民國九十四年
- 國立清華大學 博士，民國九十九年
- B.S. National Tsing-Hua University, 2005
- Ph.D. National Tsing-Hua University, 2010



### 主要研究領域

本實驗室研究核心主題為軟性功能材料與永續能源技術開發，研究項目分述如下：

#### ▪ 仿皮膚之高分子材料與元件技術開發

藉由分子設計、合成與分子工程等技術，開發具伸縮性及皮膚相容性之高分子材料，應用於穿戴裝置、電子皮膚、智能機器人等技術。

#### ▪ 功能性分子材料開發

發展具有光電特性之材料，包含有機小分子與高分子材料、碳奈米材料、有機金屬材料以及共價有機骨架，有機太陽能電池，有機發光二極體顯示器與照明元件之應用，以及軟性光電元件之研究與開發。

#### ▪ 人工光合與永續能源技術開發

有機半導體材料設計與製作，包含光催化產氫、水分解、氮氣合成、二氧化碳光還原之永續能源技術開發。

#### ▪ 電子皮膚與仿生感測元件技術開發

模擬皮膚所具有之可伸縮性，壓力與溫度感測功能，開發整合性之電子皮膚系統。

### 代表作 (Selected Publications)

- C.-L. Chang, W.-C. Lin, C.-Y. Jia, L.-Y. Ting, J. Jayakumar, M. H. Elsayed, Y.-Q. Yang, Y.-H. Chan, W.-S. Wang, C.-Y. Lu, P.-Y. Chen, and **H.-H. Chou\*** "Low-Toxic Cycloplatinated Polymer Dots with Rational Design of Acceptor Co-monomers for Enhanced Photocatalytic Efficiency and Stability" *Appl. Catal. B: Environ.* 2019, 118436
- P.-J. Tseng, C.-L. Chang, Y.-H. Chan, L.-Y. Ting, P.-Y. Chen, C.-H. Liao, M.-L. Tsai, and **H.-H. Chou\*** "Design and Synthesis of Cycloplatinated Polymer Dots as Photocatalysts for Visible-Light-Driven Hydrogen Evolution" *ACS Catalysis* 2018, 8, 7766-7772
- H.-H. Chou**, A. Nguyen, A. Chortos, J. W. F. To, C. Lu, J. Mei, T. Kurosawa, W.-G. Bae, J. B.-H. Tok, and Z. Bao, "A Chameleon-Inspired Stretchable Electronic Skin with Interactive Color-Changing Controlled by Tactile Sensing" *Nat. Commun.*, 2015, 6, 8011.
- B. C.K. Tee†, A. Chortos†, A. Berndt†, A. Nguyen, A. Tom, A. McGuire, Z. C. Lin, K. Tien, W.-G. Bae, H. Wang, P. Mei, **H.-H. Chou**, B. Cui, K. Deisseroth, T. N. Ng, Z. Bao "A skin-inspired organic digital mechanoreceptor" *Science*, 2015, 350, 313–316.
- H.-H. Chou**, Y.-H. Chen, H.-P. Hsu, W.-H. Chang, Y.-H. Chen and C.-H. Cheng, "Synthesis of Diimidazolylstilbenes as n-Type Blue Fluorophores: Alternative Dopant Materials for Highly Efficient Electroluminescent Devices", *Adv. Mater.*, 2012, 24, 5867–5871.

### Main Research Interests

The research in our group is focused on developing the soft functional materials and sustainable energy. The research objectives include:

#### ▪ Skin-inspired Polymeric Materials and Devices

Design and synthesis of stretchable, skin-compatible materials and their applications in wearables, stretchable electronics, electronic skin, and smart robots.

#### ▪ Functional Materials

Developing the optoelectronic materials, including organic and polymer materials, carbon nano materials and organometallic materials, covalent organic frameworks

#### ▪ Artificial Photosynthesis

Design and fabrication of organic semiconductors, including photocatalysis, water-splitting, ammonia synthesis, carbon dioxide photoreduction for the sustainable energy.

#### ▪ Electronic Skin and Biomimetic Sensor

Developing a stretchable and high performance integrated electronic skin system to mimic the pressure and temperature sensing of human skin.