

呂世源 教授

SHIH-YUAN LU, PROFESSOR

- 國立台灣大學 學士，民國七十二年
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主要研究領域

▪ 奈米材料與結構

我們的研究興趣在於奈米材料與結構之製備、檢測與應用。我們以多種不同的方式（電化學沉積、溶凝膠、水熱法、熱溶劑法等）將各式物質（半導體、金屬、陶瓷及高分子）以多種形式（介孔、片、線、棒、管、粒子、陣列及複材）製備出來，並討論它們在電催化分解水產氫及電化學儲能上之應用。

Main Research Interests

▪ Nanomaterials and nanostructures

We are interested in nanomaterials and nanostructures of a wide variety of substances (semiconductors, metals, ceramics, and polymers) in a wide range of form (mesoporous, sheet, wire, rod, tube, particle, array and composite) prepared via a number of different routes (electrochemical deposition, sol-gel, hydrothermal, solvothermal, etc.) for potential applications in electrocatalytic water splitting and electrochemical energy storage.

代表作 (Selected Publications)

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.



教授簡介

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