

CURRICULUM VITAE

Sung-Fu Hung

Department of Applied Chemistry
National Yang Ming Chiao Tung University
1001 University Road, Hsinchu 300, Taiwan
Phone: +886-3-5712121 #31946
Email: sungfuhung@nycu.edu.tw
ORCID: [0000-0002-7423-2723](https://orcid.org/0000-0002-7423-2723)
Publication articles: [92](#); total citation: [17359](#)
H index: [47](#) ; i10 index: [68](#) ; i100 index: [34](#)
2023 World's Top 2% Scientists: [0.74%](#) (74347/210199 (ns))



RESEARCH INTERESTS

1. Synthesis of nanostructural materials for (photo-)electrocatalysts
2. (Photo-)electrocatalysis: oxygen evolution reaction (OER), hydrogen evolution reaction (HER), oxygen reduction reaction (ORR), and CO₂ reduction reaction (CO₂RR)
3. Flow systems for scalable water and CO₂ electrolysis
4. Development of *in-situ* techniques for (photo-)electrocatalysts: hard/soft X-ray absorption spectroscopy (XAS), high-energy-resolution fluorescence-detection X-ray absorption spectroscopy (HERFD-XAS), X-ray diffraction (XRD), Raman spectroscopy

EDUCATION

- National Taiwan University** Sept. 2014 - Jun. 2018
Ph.D in Chemistry (Advisor: Prof. Hao Ming Chen)
Thesis: Development of High-efficient Electrocatalysts and Photoelectrocatalysts and their in-/ex-situ analysis
- National Tsing-Hua University** Sept. 2008 - Aug. 2010
Master of Science in Materials Science and Engineering (Advisor: Prof. Chih-Huang Lai)
Thesis: The Study on Cadmium Sulfide Buffer Layer Prepared by Chemical Bath Deposition on CIGS Solar Cell Application
- National Tsing-Hua University** Sept. 2004 - Aug. 2008
Bachelor of Science in Materials Science and Engineering (Major) and Chemistry (Minor)

WORK EXPERIENCE

- Assistant Professor, National Yang Ming Chiao Tung University** Feb 2021 - present
- Assistant Professor, National Chiao Tung University** Aug 2020 - Jan 2021
- Postdoctoral Research Fellow, University of Toronto** May 2019 - May 2020
Advisor: Prof. Ted Sargent
- Postdoctoral Research Fellow, National Taiwan University** Sept. 2018 - May 2019
Advisor: Prof. Hao Ming Chen
- Research Associate, Nanyang Technological University** Feb. 2014 - Sept. 2014
Advisor: Prof. Bin Liu
- Research Assistant, National Taiwan University** Sept. 2013 - Feb. 2014
Advisor: Prof. Hao Ming Chen
- Research Assistant, Academia Sinica** Sept. 2010 - Aug. 2012
Advisor: Prof. Jiann-T'suen Lin and Prof. Shu-Hua Chien

HONORS

1. **ChemNanoMat Early Career Researchers, 2024**
2. Everlight Thesis Award in Green Chemistry, 2024
3. Lam Research Outstanding Science Award, 2023
4. **Journal of Materials Chemistry A Emerging Investigators, 2023**
5. Green Chemistry Application and Innovation Award, 2023
6. **World's Top 2% Scientists, 2023 (Rank (ns)= 74347/210199)**
7. MOST 2030 Young Scholar Fellowship - Emerging Young Scholar, 2021
8. **Fellow of the Higher Education Academy (FHEA), UK, 2021**
9. Yushan Young Scholar, 2020
10. **IUPAC-Solvay International Award for Young Chemists, 2019** (5 winners per year international, the first winner in Taiwan)
11. **Lam Research Award, 2018**
12. The Best Thesis Award in Song-Pei Wu Applied Chemistry, Chemical Society Located in Taipei, 2018
13. Yen Thesis Award, PhD, National Taiwan University, 2018
14. Award of ScinoPharm Taiwan, 2018
15. Dean's Award, College of Science, National Taiwan University, 2018
16. CTCI Scholarship Award for Excellence in Research, 2017
17. Scholarship for doctoral candidate of National Synchrotron Radiation Research Center, 2017
18. Scholarship for doctoral candidate of National Synchrotron Radiation Research Center, 2016
19. Excellent teaching assistant award, National Taiwan University, 2016

GRANTS

1. Ministry of Science and Technology Grant: 2030 Cross-Generation Young Scholars Program - Emerging Young Scholar (NSTC 112-2628-M-A49-001; NSTC 111-2628-M-A49-007; MOST 110-2628-M-A49-002), 2021-2024
2. Featured Areas Research Center Program within the framework of the Higher Education Sprout Project from the Ministry of Education, Taiwan, 2023-2027
3. ITRI - Industry-Academia Cooperative Project, 2021-2025
4. Yushan Young Scholar Program, 2020-2024
5. Junior Faculty Basic Cultivating Support Program, 2024
6. Ministry of Science and Technology Grant: Junior Researcher Program (MOST 110-2113-M-009-007-MY2), 2020-2022
7. Junior Faculty Research Enhancement Project (109W205), 2020
8. Taiwan Postdoctoral Research Abroad Program (MOST 108-2917-I-564-016), 2019-2020

PUBLICATIONS (Published Articles: 92; Revision: 7; Total Citation: 17359)

1. Lin, Z.-Y.; Chang, Y.-C.; Chen, Y.-Y.; Hsu, Y.-H.; Peng, K.-S.; **Hung, S.-F.*** Operando Studies for CO₂/CO Reduction in Flow-Based Devices. *ChemNanoMat* **2024**, e202400070. (Special collection: *Early Career Researcher 2023*) [[link](#)]
2. Wang, X.; Lu, R.; Pan, B.; Yang, C.; Zhuansun, M.; Li, J.; Xu, Y.; **Hung, S.-F.**; Zheng, G.; Li, Y.; Wang, Z.; Wang, Y.* Enhanced Carbon-Carbon Coupling at Interfaces with Abrupt Coordination Number Changes. *ChemSusChem* **2024**, e202400150. [[link](#)]

3. Zhao, S.; **Hung, S.-F.**; Deng, L.; Zeng, W.-J.; Xiao, T.; Li, S.; Kuo, C.-H.; Chen, H.-Y.; Hu, F.; Peng, S.* Constructing regulable supports via non-stoichiometric engineering to stabilize ruthenium nanoparticles for enhanced pH-universal water splitting. *Nature Commun.* **2024**, *15*, 2728. [[link](#)]
4. Duan, X.; Sha, Q.; Li, P.; Li, T.; Yang, G.; Liu, W.; Yu, E.; Zhou, D.; Fang, J.; Chen, W.; Chen Y.; Zheng, L.; Liao, J.; Wang, Z.; Li, Y.; Yang, H.; Zhang, G.; Zhuang, Z.; **Hung, S.-F.**; Jing, C.; Luo, J.; Bai, L.; Dong, J.; Xiao, H.; Liu, W.; Kuang, Y.;* Liu, B.;* Sun, X.* Dynamic Chloride ion Adsorption on Single Iridium Atom Boosts Seawater Oxidation Catalysis. *Nature Commun.* **2024**, *15*, 1973. [[link](#)]
5. Lin, T.-Y.;* Hsieh, C.-F.; Kanai, A.; Yashiro, T.; Zeng, W.-J.; Ma, J.-J.; **Hung, S.-F.**; Sugiyama, M. Radiation Resistant Chalcopyrite CIGS Solar Cells: Proton Damage Shielding with Cs Treatment and Defect Healing via Heat-light Soaking. *J. Mater. Chem. A* **2024**, *12*, 7536-7548. (**Cover**) [[link](#)]
6. Hao, Y.; **Hung, S.-F.**; Tian, C.; Wang, L.; Chen, Y.-Y.; Zhao, S.; Peng, K.-S.; Zhang, C.; Zhang, Y.; Kuo, C.-H.; Chen, H.-Y.; Peng, S.* Polarized Ultrathin BN Induced Dynamic Electron Interactions for Enhancing Acidic Oxygen Evolution. *Angew. Chem. Int. Ed.* **2024**, *63*, e202402018. [[link](#)]
7. Chi, M.;† Zhao, J.;† Ke, J.;† Liu, Y.; Wang, R.; Wang C.; **Hung, S.-F.**; Lee, T.-J.; Geng, Z.;* Zeng, J.* Bipyridine-confined Silver Single-atom Catalysts Facilitate In-plane C-O Coupling for Propylene Electrooxidation. *Nano Lett.* **2024**, *24*, 1801-1807. [[link](#)]
8. Miao, R. K.; Wang, N.; **Hung, S.-F.**; Huang, W.-Y.; Zhang, J.; Zhao, Y.; Ou, P.; Wang, S.; Edwards J. P.; Tian, C.; Han, J.; Xu, Y.; Fan, M.; Huang, J. E.; Xiao, Y. C.; Ip, A. H.; Liang, H.; Sargent, E. H.;* Sinton, D.* Electrified Cement Production via Anion-mediated Electrochemical Calcium Extraction. *ACS Energy Lett.* **2023**, *8*, 4694-4701. [[link](#)]
9. Hao, Y.; **Hung, S.-F.**; Zeng, W.-J.; Wang, Y.; Zhang, C.; Kuo, C.-H.; Wang, L.; Zhao, S.; Zhang, Y.; Chen, H.-Y.; Peng, S.* Switching the Oxygen Evolution Mechanism on Atomically Dispersed Ru for Enhanced Acidic Reaction Kinetics. *J. Am. Chem. Soc.* **2023**, *145*, 23659-23669. [[link](#)]
10. Jia, J.-F.; Hao, T. T.; Chen, P.-H.; Wu, F.-Y.; **Hung, S.-F.**;* Suen, N.-T.* Direct Electrosynthesis of Metal Nanoparticle on Ti₃C₂T_x-Mxene during Hydrogen Evolution. *Inorg. Chem.* **2023**, *62*, 19230-19237. (**Cover**) [[link](#)]
11. Deng, L.; **Hung, S.-F.**; Zhao, S.; Zeng, W.-J.; Lin, Z.-Y.; Hu, F.; Xie, Y.; Yin, L.; Li, L.; Peng, S.* Unveiling Coordination Transformation for Dynamically Enhanced Hydrogen Evolution Catalysis. *Energy Environ. Sci.* **2023**, *16*, 5220-5230. [[link](#)]
12. Yang, X.; Wang, S.; Li, H.; Peng, J.; Zeng, W.-J.; Tsai, H.-J.; **Hung, S.-F.**; Indris, S.; Li, F.; Hua, W.* Boosting the Ultra-stable High-Na-Content P2-Type Layered Cathode Materials with Zero Strain Cation Storage via a Lithium Dual-Site Substitution Approach. *ACS Nano* **2023**, *17*, 18616-18628. [[link](#)]
13. Deng, L.; **Hung, S.-F.**; Lin, Z.-Y.; Zhang, Y.; Zhang, C.; Hao, Y.; Liu, S.; Kuo, C.-H.; Chen, H.-Y.; Peng, J.; Wang, J.; Peng, S.* Valence Oscillation of Ru Active Sites for Efficient and Robust Acidic Water Oxidation. *Adv. Mater.* **2023**, *35*, 2305939. [[link](#)]
14. Zhang, Q.;† Tsai, H.-J.;† Li, F.; Ding, J.; He, Q.; Wei, Z.; Liu, Y.; Lin, Z.-Y.; Yang, X.; Chen, Z.; Yang, X.; Tang, Q.;* Yang, H. B.;* **Hung, S.-F.**;* and Zhai, Y.* Boosting the Proton-coupled Electron Transfer via Fe-P Atomic Pair for Enhanced Electrochemical CO₂ Reduction. *Angew. Chem. Int. Ed.* **2023**, *62*, e202311550. (†These authors equally contribute to this work) [[link](#)]
15. Chen, R.;† Zhao, J.;† Li, Y.; Cui, Y.; Lu, Y.-R.; **Hung, S.-F.**; Wang, S.; Wang, W.; Huo, G.; Zhao, Y.; Liu, W.; Wang, J.; Xiao, H.; Li, X.;* Huang, Y.; Liu, B.* Operando Mössbauer

- Spectroscopic Tracking the Metastable State of Atomically Dispersed Tin in Copper Oxide for Selective CO₂ Electroreduction. *J. Am. Chem. Soc.* **2023**, *145*, 20683-20691. [[link](#)]
16. Wang, Q.; Wang, H.; Cao, H.; Tung, C.-W.; Liu, W.; Wang, W.; Zhu, C.; Zhang, Z.; **Hung, S.-F.**; Cai, W.; Cheng, Y.; Chen, H. M.; Wang, Y.-G.; Li, Y.; Yang, H. B.; Huang, Y.; Li, J.; Liu, B. Atomic Metal-nonmetal Catalytic Pair Drives Efficient Hydrogen Oxidation Catalysis in Fuel Cells. *Nature Catal.* **2023**, *6*, 916-926. [[link](#)]
 17. He, Q.; Ding, J.; Tsai, H.-J.; Liu, Y.; Wei, M.; Zhang, Q.; Wei, Z.; Chen, Z.; Huang, J.; **Hung, S.-F.**;* Yang, H.; Zhai, Y.* Boosting Photocatalytic Hydrogen Peroxide Production by Regulating Electronic Configuration of Single Sb Atoms via Carbon Vacancies in Carbon Nitrides. *J. Colloid Interface Sci.* **2023**, *651*, 18-26. [[link](#)]
 18. Ji, S.-J.; Cao, L.-W.; Zhang, P.; Wang, G.-B.; Lu, Y.-R.; Suen, N.-T.*; **Hung, S.-F.**.* Chen, H. M.* Dealloying Induced Zeolite-like Metal Framework of AB₂ Laves Phase Intermetallic Electrocatalysts. *J. Am. Chem. Soc.* **2023**, *145*, 17892-17901. [[link](#)]
 19. Wu, Q.;† Du, R.;† Wang, P.; Waterhouse, G. I.N.*; Li, J.; Qiu, Y.; Yan, K.; Zhao, Y.; Zhao, W.-W.; Tsai, H.-J.; Chen, M.-C.; **Hung, S.-F.**.* Wang, X.*; Chen, G.* Nanograin boundary-abundant Cu₂O-Cu Nanocubes with High C₂⁺ Selectivity and Good Stability during Electrochemical CO₂ Reduction at a Current Density of 500 mA/cm². *ACS Nano* **2023**, *17*, 12884-12894. (†These authors equally contribute to this work) [[link](#)]
 20. Hu, F.; Yu, D.; Zeng, W.-J.; Lin, Z.-Y.; Han, S.; Sun, Y.; Wang, H.; Ren, J.; **Hung, S.-F.**.* Li, L.*; Peng, S.* Active Site Tailoring of Metal-Organic Frameworks for Highly Efficient Oxygen Evolution. *Adv. Energy Mater.* **2023**, *13*, 2301224. [[link](#)]
 21. Ren, X.; Zhao, J.; Li, X.*; Shao, J.; Pan, B.; Salamé, A.; Boutin, E.; Groizard, T.; Wang, S.; Ding, J.; Zhang, X.; Huang, W.-Y.; Zeng, W.-J.; Liu, C.; Li, Y.; **Hung, S.-F.**.* Huang, Y.; Robert, M.*; Liu, B.* *In-Situ* Spectroscopic Probe of the Intrinsic Structure Feature of Single-Atom Center in Electrochemical CO/CO₂ Reduction to Methanol with a Phthalocyanine Cobalt Complex. *Nature Commun.* **2023**, *14*, 3401. (Featured in the Editors' highlight) [[link](#)]
 22. Wu, F.-Y.; Tsai, H.-J.; Lee, T.-J.; Lin, Z.-Y.; Peng, K.-S.; Chen, P.-H.; Hiraoka, N.; Liao, Y.-F.; Hu, C.-W.; Hsu, S.-H.; Lu, Y.-R.*; **Hung, S.-F.*** Copper-Barium-Decorated-Carbon-Nanotube Composite for Electrocatalytic CO₂ Reduction to C₂ Products. *J. Mater. Chem. A* **2023**, *11*, 13217-13222. (Themed collection: *Journal of Materials Chemistry A Emerging Investigators*) [[link](#)]
 23. Fan, M.;† Miao, R. K.;† Ou, P.;† Xu, Y.;† Lin, Z.-Y.; Lee, T.-J.; **Hung, S.-F.**; Xie, K.; Huang, J. E.; Ni, W.; Li, J.; Zhao, Y.; Ozden, A.; O'Brien, C. P.; Chen, Y.; Xiao, Y. C.; Liu, S.; Wicks, J.; Wang, X.; Abed, J.; Shirzadi, E.; Sargent, E. H.*; Sinton, D.* Single-site Decorated Copper Enables Energy- and Carbon-efficient Electroproduction of Synthetic Methane. *Nature Commun.* **2023**, *14*, 3314. (†These authors equally contribute to this work) [[link](#)]
 24. Wang, N.; Ou, P.; Chang, Y.; Wang, Z.; **Hung, S.-F.**; Abed, J.; Ozden, A.; Yan, Y.; Peng, T.; Xu, A.; Li, Y.; Zhuang, T.; Wicks, J.; Lu, Y.-R.; Rasouli, A. S.; Luo, M.; Li, C. Y.; Wang, X.; Dong, C.-L.; Sinton, D.; Liang, H.; Sargent, E. H. Doping Shortens the Metal: Metal Distance and Promotes OH Coverage in Non-Noble Acidic OER Catalysts. *J. Am. Chem. Soc.* **2023**, *145*, 7829-7836. [[link](#)]
 25. Wei, Z.; Ding, J.; Duan, X.; Chen, G.-L.; Wu, F.-Y.; Zhang, L.; Yang, X.; Zhang, Q.; He, Q.; Chen, Z.; Huang, J.; **Hung, S.-F.**.* Yang, X.*; Zhai, Y.* Enhancing Selective Electrochemical CO₂ Reduction by In Situ Constructing Tensile Strained Cu Catalysts. *ACS Catal.* **2023**, *13*, 4711-4718. [[link](#)]
 26. Chang, C.-J.; Lai, Y.-A.; Chu, Y.-C.; Peng, C.-K.; Tan, H.-Y.; Pao, C.-W.; Lin, Y.-G.*; **Hung, S.-F.**; Chen, H.-C.; Chen, H. M.* Lewis Acidic Support Boosts C-C coupling in Pulsed Electrochemical CO₂ Reaction. *J. Am. Chem. Soc.* **2023**, *145*, 6953-6965. [[link](#)]

27. Deng, Y.;† Zhao, J.;† Wang, S.;† Chen, R.; Tsai, H.-J.; Zeng, W.-J.; **Hung, S.-F.**; Xu, W.; Wang, J.; Li, X.;* Liu, B.;* Huang, Y.* Operando Spectroscopic Analysis of Axial Oxygen Coordinated Single-Sn-Atom Sites for Electrochemical CO₂ Reduction. *J. Am. Chem. Soc.* **2023**, *145*, 7242-7251. (†These authors equally contribute to this work, **Cover**) [[link](#)]
28. Zhang, J.;† Wang, Q.;† Qiu, C.; Gan, L.-Y.; Ding, J.; Li, F.; Wang, T.; Liu, Y.; Wang, Y.; Tao, H.; **Hung, S.-F.*** Yang, H.;* Liu, B.* Boosting Activity of Fe-N₄ Sites in Single-Fe-Atom Catalysts via Sulfur in the Second Coordination Sphere for Direct Methanol Fuel Cells. *Cell Rep. Phys. Sci.* **2023**, *4*, 101330. (†These authors equally contribute to this work) [[link](#)]
29. Wang, N.;† Ou, P.;† **Hung, S.-F.**;† Huang, J. E.; Ozden, A.; Grigioni, I.; Chen, C.; Abed, J.; Yan, Y.; Bertens, K.; Peng, T.; Wang, Z.; Ip, A. H.; Sinton, D.; Liu, Y.; Liang, H.;* Sargent, E. H.* Strong-proton-adsorption Co-based Electrocatalysts for Active and Stable Neutral Seawater Splitting. *Adv. Mater.* **2023**, *35*, 2210057. (†These authors equally contribute to this work) [[link](#)]
30. Luo, M.;† Wang, Z.;† Li, F.;† Ozden, A.;† Huang, J. E.;† **Hung, S.-F.**; Wang, Y.; Li, J.; Nam, D.-H.; Li, C. Y.; Xu, Y.; Lum, Y.; Ren, Y.; Fan, L.; Dinh, C.-T.; Liu, Y.; Chen, B.; Wicks, J.; Chen, H.; Sinton, D.; Sargent, E. H.* Coordination Polymer Electrocatalysts Enable Efficient CO-to-acetate Conversion by Stabilizing Isolated Cu Sites. *Adv. Mater.* **2023**, *35*, 2209567. (†These authors equally contribute to this work) [[link](#)]
31. Hua, W.;†* Zhang, J.;† Wang, S.;† Zheng, Y.; Li, H.; Tseng, J.; Wu, Z.; Shen, C.-H.; Dolotko, O.; Liu, H.; **Hung, S.-F.**; Tang, W.;* Li, M.; Knapp, M.; Ehrenberg, H.; Indris, S.;* Guo, X.* Long-Range Cationic Disorder Induces two Distinct Degradation Pathways in Co-free Ni-rich Layered Cathodes. *Angew. Chem. Int. Ed.* **2023**, *62*, e202214880. (†These authors equally contribute to this work, **Frontispiece**) [[link](#)]
32. Liang, Y.;† Zhao, J.;† Yang, Y.;† **Hung, S.-F.**; Li, J.; Zhang, S.; Zhao, Y.; Zhang, A.; Wang, C.; Appadoo, D.; Zhang, L.; Geng, Z.;* Li, F.;* Zeng, J.* Stabilizing Copper Sites in Coordination Polymers toward Efficient Electrochemical C-C Coupling. *Nature Commun.* **2023**, *14*, 474. (†These authors equally contribute to this work) [[link](#)]
33. Lee, S.;† Park, S. M.;† Jung, E. D.;† Zhu, T.;† Pina, J. M.; Anwar, H.; Wu, F.-Y.; Chen, G.-L.; Dong, Y.; Cui, T.; Wei, M.; Bertens, K.; Wang, Y.-K.; Chen, B.; Filletter, T.; **Hung, S.-F.**; Won, Y.-H.; Kim, K.-H.; Hoogland, S.; Sargent, E. H.* Dipole Engineering Through the Orientation of Interface Molecules for Efficient InP Quantum Dot Light-Emitting Diodes. *J. Am. Chem. Soc.* **2022**, *144*, 20923-20930. (†These authors equally contribute to this work) [[link](#)]
34. Xu, A.;† **Hung, S.-F.**;† Cao, A.;† Wang, Z.;† Karmodak, N.; Huang, J. E.; Yan, Y.; Rasouli, A. S.; Ozden, A.; Wu, F.-Y.; Lin, Z.-Y.; Tsai, H.-J.; Lee, T.-J.; Li, F.; Luo, M.; Wang, Y.; Wang, X.; Abed, J.; Wang, Z.; Nam, D.-H.; Li, C. Y.; Ip, A. H.; Sinton, D.; Dong, C.;* Sargent, E. H.* Stable Cu: Alkali Earth Metal Oxide Interfaces for Electrochemical CO₂ to Alcohols by Selective Hydrogenation. *Nature Catal.* **2022**, *5*, 1081-1088. (†These authors equally contribute to this work) [[link](#)]
35. Zhang, J.;† Cao, X.;† Jiang, Y.;† **Hung, S.-F.**; Liu, W.; Yang, H.; Xu, C.-Q.; Li, D.-S.; Zhang, T.;* Li, Y.;* Li, J.; Liu, B.* Surface Enrichment of Ir on IrRu Alloy for Efficient and Stable Water Oxidation Catalysis in Acid. *Chem. Sci.* **2022**, *13*, 12114-12121. (†These authors equally contribute to this work)[[link](#)]
36. Lu, Y.-H.;† Tsai, H.-J.;† Huang, W.-Y.; Lee, T.-J.; Lin, Z.-Y.; Hsu, S.-H.;* **Hung, S.-F.*** A Nitrogen-doped Graphene-supported Nickel-single-atom Catalyst in the Flow Cell Meets the Industrial Criteria of Carbon Dioxide Reduction Reaction to Carbon Monoxide. *Front. Catal.* **2022**, *2*, 915971. (†These authors equally contribute to this work) [[link](#)]
37. Lu, Y.-R.;† Chen, H.-C.;† Liu, K.; Liu, M.; Chan, T.-S.; **Hung, S.-F.*** Turn the Trash into Treasure: Egg-White-Derived Single-Atom Electrocatalysts Boost Oxygen Reduction

- Reaction. *ACS Sustain. Chem. Eng.* **2022**, *10*, 6736-6742. (†These authors equally contribute to this work, **Cover**) [[link](#)]
38. Rasouli, A. S.; Wang, X.; Wick, J.; Dinh, C.-T.; Abed, J.; Wu, F.-Y.; **Hung, S.-F.**; Bertens, K.; Huang, J. E.; Sargent, E. H.* Ga doping disrupts C-C coupling and promotes methane electroproduction on CuAl catalysts. *Chem Catal.* **2022**, *2*, 908-916. [[link](#)]
39. **Hung, S.-F.;*** Wu, F.-Y.; Lu, Y.-H.; Lee, T.-J.; Tsai, H.-J.; Chen, P.-H.; Lin, Z.-Y.; Chen, G.-L.; Huang, W.-Y.; Zeng, W.-J. Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**) [[link](#)]
40. Chang, C.-C.;
- * Ku, M.-S.; Lien, W.-H.; **Hung, S.-F.** Unveiling the Bonding Nature for C₃ Intermediates in CO₂ Reduction Reaction Through Oxygen-Deficient Cu₂O(110) Surface - A DFT Study. *J. Phys. Chem. C* **2022**, *126*, 5502-5512. (**Cover**) [[link](#)]
41. Wang, X.;
- † Ou, P.;
- † Ozden, A.; **Hung, S.-F.**; Tam, J.; Gabardo C. M.; Howe, J. Y.; Sisler, J.; Bertens, K.; Garcia de Arquer, F. P.; Miao, R. K.; O'Brien, C. P.; Wang, Z.; Abed, J.; Sun, M.; Ip, A. H.; Sinton, D.; Sargent, E. H.* Efficient electrosynthesis of C₃ fuel from carbon monoxide. *Nature Energy* **2022**, *7*, 170-176. (†These authors equally contribute to this work) [[link](#)]
42. **Hung, S.-F.;**† Xu, A.;
- † Wang, X.;
- † Li, F.;
- † Hsu, S.-H.; Li, Y.; Wick, J.; Cervantes, E. G.; Rasouli, A. S.; Li, C. Y.; Luo, M.; Nam, D.-H.; Wang, N.; Peng, T.; Yan, Y.; Lee, G.; Sargent, E. H.* A Metal-Supported Single-Atom Catalytic Site Enables Carbon Dioxide Hydrogenation. *Nature Commun.* **2022**, *13*, 819. (†These authors equally contribute to this work) [[link](#)]
43. Wang, N.;
- † Xu, A.;
- † Ou, P.;
- † **Hung, S.-F.;**† Ozden, A.; Lu, Y.-R.; Abed, J.; Wang, Z.; Yan, Y.; Sun, M.; Xia, Y.; Han, M.; Han, J.; Yao, K.; Wu, F.-Y.; Chen, P. H.; Vomiero, A.; Seifitokaldani, A.; Sun, X.; Sinton, D.; Liu, Y.;
- * Sargent, E. H.;
- * Liang, H.* Boride-Derived Oxygen-Evolution Catalysts. *Nature Commun.* **2021**, *12*, 6089. (†These authors equally contribute to this work) [[link](#)]
44. Peng, T.;
- † Zhuang, T.-T.;
- † Yan, Y. ;
- † Qian, J.;
- † Dick, G.; Behaghel de Bueren, J.; **Hung, S.-F.**; Zhang, Y.; Wang, Z.; Wicks, J.; Garcia de Arquer, F. P.; Abed, J.; Wang, N.; Sedighian Rasouli, A.; Lee, G.; Wang, M. ; He, D.; Wang, Z.; Liang, Z.; Song, L.; Wang, X.; Chen, B.; Ozden, A.; Lum, Y.; Leow, W. R.; Luo, M.; Motta Meira, D.; Ip, A.; Luterbacher, J.;
- * Zhao, W.;
- * Sargent, E. H.* Ternary alloys enable efficient production of methoxylated chemicals via selective electrocatalytic hydrogenation of lignin monomers. *J. Am. Chem. Soc.* **2021**, *143*, 17226-17235. [[link](#)]
45. Chen, Z.; Niu, H.; Ding, J.; Liu, H.; Zuo, W.; Han L.; Guo, Y.;
- * **Hung, S.-F.;*** Zhai, Y.* Unraveling the Origin of Sulfur-doped Fe-N-C Single Atom Catalyst for Enhanced Oxygen Reduction Activity: Effect of Fe-spin State Tuning. *Angew. Chem. Int. Ed.* **2021**, *60*, 25404-25410. [[link](#)]
46. Zhang, J.; Xu, W.; Liu, Y.; **Hung, S.-F.**; Liu, W.; Lam, Z.; Tao, H. B.; Yang, H. B.; Cai, W.; Xiao, H.; Chen, H.;
- * Liu, B.* *In-situ* Precise Tuning of Intermediate Adsorption Energy on Bimetallic Surface for Boosting Oxygen Reduction Catalysis. *Nano Lett.* **2021**, *21*, 7753-7760. [[link](#)]
47. Li, X.; Zeng, Y.; Tung, C.-W.; Lu, Y.-R.; Baskaran, S.; **Hung, S.-F.**; Wang, S.; Xu, C.-Q.;
- * Wang, J.; Chan, T.-S.; Chen, H. M.; Jiang, J.; Yu, Q.; Huang, Y.;
- * Li, J.; Zhang, T.; Liu, B.* Unveiling the In Situ Generation of Monovalent Fe(I) Site in Single-Fe-Atom Catalyst for Electrochemical CO₂ Reduction. *ACS Catal.* **2021**, *11*, 7292-7301. [[link](#)]
48. Xu, Y.;
- † Li, F.;
- † Xu, A.; Edwards, J. P.; **Hung, S.-F.**; Gabardo C. M.; O'Brien, C. P.; Liu, S.; Wang, X.; Li, Y.; Wicks, J.; Miao, R. K.; Liu, Y.; Li, J.; Huang, J. E.; Abed, J.; Wang, Y.;

- Sargent, E. H.;* Sinton, D.* Low Coordination Number Copper Catalysts for Electrochemical CO₂ Methanation in a Membrane Electrode Assembly. *Nature Commun.* **2021**, *12*, 2932. (†These authors equally contribute to this work) [[link](#)]
49. Li, X.; Cao, C.-S.; **Hung, S.-F.**; Lu, Y.-R.; Cai, W.; Rykov, A. I.; Miao, S.; Xi, S.; Yang, H.; Hu, Z.; Wang, J.; Zhao, J.; Alp, E. E.; Xu, W.; Chan, T.-S.; Chen, H.; Xiong, Q.; Xiao, H.; Huang, Y.;* Li, J.;* Zhang, T.; Liu, B.* Identification of the Electronic and Structural Dynamics of Catalytic Centers in Single-Fe-Atom Material. *Chem* **2020**, *6*, 3440-3454. [[link](#)]
50. Li, Y.;† Xu, A.;† Lum, Y.;† Wang, X.;† **Hung, S.-F.**; Chen, B.; Wang, Z.; Xu, Y.; Li, F.; Abed, J.; Rasouli, A. S.; Wick, J.; Sagar, L. K.; Peng, T.; Ip, A. H.; Sinton, D.; Jiang, H.; Li, C.;* Sargent, E. H.* Promoting CO₂ Methanation via Ligand-stabilized Metal Oxide Clusters as Hydrogen-donating Motifs. *Nature Commun.* **2020**, *11*, 6190. (†These authors equally contribute to this work) [[link](#)]
51. **Hung, S.-F.*** Electrochemical Flow Systems Enable Renewable Energy Industrial Chain of CO₂ Reduction. *Pure Appl. Chem.* **2020**, *92*, 1937-1951. (Invited article in Diamond Jubilee Issue to celebrate the 60th anniversary of Pure and Applied Chemistry) [[link](#)]
52. Ozden, A.;† Li, F.;† Garcia de Arquer, F. P.; Rosas-Hernández, A.; Thevenon, A.; Wang, Y.; **Hung, S.-F.**; Wang, X.; Chen, B.; Li, J.; Wicks, J.; Luo, M.; Wang, Z.; Agapie, T.;* Peters, J.;* Sargent, E. H.;* Sinton, D.* High-rate and efficient ethylene electrosynthesis using a catalyst:promoter:transport layer. *ACS Energy Lett.* **2020**, *5*, 2811-2818. (†These authors equally contribute to this work) [[link](#)]
53. Wang, Q.; Xu, C.-Q.;* Liu, W.; **Hung, S.-F.**; Yang, H. B.;* Gao, J.; Cai, W.; Chen, H. M.; Li, J.; Liu, B.* Coordination Engineering of Iridium Nanocluster Bifunctional Electrocatalyst for Highly Efficient and pH-universal Overall Water Splitting. *Nature Commun.* **2020**, *11*, 4246. [[link](#)]
54. Jiang, L.;† Liu, K.;† **Hung, S.-F.**; Zhou, L.; Qin, R.; Zhang, Q.; Liu, P.; Gu, L.; Chen, H. M.; Fu, G.; Zheng, N.* Facet Engineering Accelerates Spillover Hydrogenation on Highly Diluted Metal Nanocatalysts. *Nature Nanotechnol.* **2020**, *15*, 848-853. (†These authors equally contribute to this work) [[link](#)]
55. **Hung, S.-F.*** In-situ X-ray Techniques for non-noble Electrocatalysts. *Pure Appl. Chem.* **2020**, *92*, 733-749. (Invited review for IUPAC-Solvay International Award for Young Chemists) [[link](#)]
56. Cai, W.; Chen, R.; Yang, H.; Tao, H. B.; Wang, H.-Y.; Gao, J.; Liu, W.; Liu, S.; **Hung, S.-F.**; Liu, B.* Amorphous versus Crystalline in Water Oxidation Catalysis: A Case Study of NiFe alloy. *Nano Lett.* **2020**, *20*, 4278-4285. [[link](#)]
57. Wang, X.;† Wang, Z.;† García de Arquer, F. P.; Dinh, C.-T.; Ozden, A.; Li, C. Y.; Nam, D.-H.; Li, J.; Liu, Y.-S.; Wicks, J.; Chen, Z.; Chi, M.; Chen, B.; Wang, Y.; Tam, J.; Howe, J. Y.; Proppe, A.; Todorović, P.; Li, F.; Zhuang, T.-T.; Gabardo C. M.; Kirmani, A. R.; McCallum, C.; **Hung, S.-F.**; Lum, Y.; Luo, M.; Min, Y.; Xu, A.; O'Brien, C. P.; Stephen, B.; Sun, B.; Ip, A. H.; Richter, L. J.; Kelley, S. O.; Sinton, D.; Sargent, E. H.* Efficient Electrically powered CO₂-to-ethanol via Suppression of Deoxygenation. *Nature Energy* **2020**, *5*, 478-486. (†These authors equally contribute to this work) [[link](#)]
58. Wang, X.;† Xu, A.;† Li, F.; **Hung, S.-F.**; Nam, D.-H.; Gabardo, C. M.; Wang, Z.; Xu, Y.; Ozden, A.; Rasouli, A. S.; Ip, A. H.; Sinton, D.; Sargent, E. H.* Efficient Methane Electrosynthesis Enabled by Tuning Local CO₂ Availability. *J. Am. Chem. Soc.* **2020**, *142*, 3525-3531. (†These authors equally contribute to this work) [[link](#)]
59. Gao, J.;† Yang, H. B.;† Huang, X.;† **Hung, S.-F.**; Cai, W.; Jia, C.; Miao, S.; Chen, H. M.; Yang, X.; Huang, Y.;* Zhang, T.; Liu, B.* Enabling Direct H₂O₂ Production in Acidic Media through Rational Design of Transition Metal Single Atom Catalyst. *Chem* **2020**, *6*, 658-674. (†These authors equally contribute to this work) [[link](#)]

60. Li, F.;† Li, C. Y.;† Wang, Z.;† Li, J.;† Nam, D.-H.; Lum, Y.; Luo, M.; Wang, X.; Ozden, A.; **Hung, S.-F.**; Chen, B.; Wang, Y.; Wicks, J.; Xu, Y.; Li, Y.; Gabardo C. M.; Dinh, C.-T.; Wang, Y.; Zhuang, T.-T.; Sinton, D.; Sargent, E. H.* Cooperative CO₂-to-ethanol Conversion via Enriched Intermediates at Molecule: Metal Catalyst Interfaces. *Nature Catal.* **2020**, *3*, 75-82. (†These authors equally contribute to this work) [[link](#)]
61. Liu, S.; Yang, H. B.; **Hung, S.-F.**; Ding, J.; Cai, W.; Liu, L.; Gao, J.; Li, X.; Ren, X.; Kuang, Z.; Huang, Y.* Zhang, T.; Liu, B.* Elucidating the Electrocatalytic CO₂ Reduction Reaction over a Model Single-Atom Nickel Catalyst. *Angew. Chem. Int. Ed.* **2020**, *59*, 798-803. (**Inside Cover**) [[link](#)]
62. Chang, C.-J.; **Hung, S.-F.**; Hsu, C.-S.; Chen, H.-C.; Lin, S.-C.; Liao, Y.-F.; Chen, H. M.* Quantitatively Unraveling the Redox Shuttle of Spontaneous Oxidation/Electroreduction of CuO_x on Silver Nanowires Using in Situ X-ray Absorption Spectroscopy. *ACS Cent. Sci.* **2019**, *5*, 1998-2009. (**Front Cover**) [[link](#)]
63. **Hung, S.-F.**;† Zhu, Y.;† Tzeng, G.-Q.;† Chen, H.-C.; Hsu, C.-S.; Liao, Y.-F.; Ishii, H.; Hiraoka, N.; Chen H. M. *In Situ* Spatially Coherent Identification of Phosphide-based Catalysts: Crystallographic Latching for High-efficient Overall Water Electrolysis. *ACS Energy Lett.* **2019**, *4*, 2813-2820. (†These authors equally contribute to this work) [[link](#)]
 ➤ *Highlighted in the virtual issue “Why Seeing is Not Always Believing: Common Pitfalls in Photocatalysis and Electrocatalysis” in ACS Energy Letters.*
64. Chen, R.; **Hung, S.-F.**; Zhou, D.; Gao, J.; Yang, C.; Tao, H.; Yang, H. B.; Zhang, L.; Xiong, Q.; Chen H. M.; Liu, B.* Layered Structure Causes Bulk NiFe Layered Double Hydroxide Unstable in Alkaline Oxygen Evolution Reaction. *Adv. Mater.* **2019**, *31*, 1903909. [[link](#)]
65. Yuan, L.; **Hung, S.-F.**; Tang, Z.-R.; Chen, H. M.; Xiong, Y.; Xu, Y.-J.* Dynamic Evolution of Atomically Dispersed Cu Species for CO₂ Photoreduction to Solar Fuels. *ACS Catal.* **2019**, *9*, 4824-4833. [[link](#)]
66. Chen, G.;† Zhu, Y.;† Chen, H. M.; Hu, Z.; **Hung, S.-F.**; Ma, N.; Dai, J.; Lin, H.-J.; Chen, C.-T.; Zhou, W.* Shao, Z.* An Amorphous Nickel-Iron-Based Electrocatalyst with Unusual Local Structures for Ultrafast Oxygen Evolution Reaction. *Adv. Mater.* **2019**, *31*, 1900883. (†These authors equally contribute to this work) [[link](#)]
67. Jiao, J.;† Lin, R.;† Liu, S.;† Cheong, W.-C.;† Zhang, C.; Chen Z.; Pan, Y.; Wu, K.; **Hung, S.-F.**; Chen, H. M.; Zheng, L. R.; Lu, Q.; Yang, X.; Xu, B.; Xiao, H.* Li, J.; Wang, D.; Peng, Q.; Chen, C.* Li, Y. Cu Atom-pair Catalyst Anchored on Alloy Nanowires for Selective and Efficient Electrochemical Reduction of CO₂. *Nature Chem.* **2019**, *11*, 222-228. (†These authors equally contribute to this work) [[link](#)]
68. Gao, J.; Xu, C.-Q.; **Hung, S.-F.**; Liu, W.; Cai, W.; Zeng, Z.; Jia, C.; Chen, H. M.; Xiao, H.; Li, J.* Huang, Y.* Liu, B.* Breaking Long-Range Order in Iridium Oxide by Alkali Ion for Efficient Water Oxidation. *J. Am. Chem. Soc.* **2019**, *141*, 3014-3023. [[link](#)]
 ➤ *One of the most highly cited publications in JACS for the period 2019-2019.*
69. **Hung, S.-F.**;† Chan, Y.-T.;† Chang, C.-C.; Tsai, M.-K.* Liao, Y.-F.; Hiraoka, N.; Hsu, C.-S.; Chen, H. M.* Identification of Stabilizing High-valent Active Sites by *Operando* High-energy Resolution Fluorescence-detected X-ray Absorption Spectroscopy for High-Efficiency Water Oxidation. *J. Am. Chem. Soc.* **2018**, *140*, 17263-17270. (†These authors equally contribute to this work) [[link](#)]
 ➤ *Highlighted in NSRRC 2019 Newsletter.*
70. Hsu, S.-H.; **Hung, S.-F.**; Wang, H.-Y.; Xiao, F.-X.; Zhang, L.; Yang, H.; Chen, H. M.; Lee, J.-M.; Liu, B.* Tuning the Electronic Spin State of Catalysts by Strain Control for Highly Efficient Water Electrolysis. *Small Methods* **2018**, *2*, 1800001. [[link](#)]

71. Hsu, S.-H.;[†] Miao, J.;[†] Zhang, L.; Gao, J.; Wang, H.; Tao, H.; **Hung, S.-F.**; Vasileff, A.; Qiao, S. Z.;* Liu, B.* An Earth-Abundant Catalyst-Based Seawater Photoelectrolysis System with 17.9% Solar-to-Hydrogen Efficiency. *Adv. Mater.* **2018**, *30*, 1707261. ([†]These authors equally contribute to this work) [[link](#)]
72. **Hung, S.-F.**;[†] Chen, Z.-Z.;[†] Chang, C.-C.; Hsu, C.-S.; Tsai, M.-K.; Kang, C.-C.; Chen, H. M. Dual-Hole Excitons Activated Photoelectrolysis in Neutral Solution. *Small* **2018**, *14*, 1704047. ([†]These authors equally contribute to this work, *Frontispiece*) [[link](#)]
73. Yang, H.; **Hung, S.-F.**; Liu, S.; Yuan, K.; Miao, S.; Zhang, L.; Huang, X.; Wang, H.-Y.; Cai, W.; Chen, R.; Gao, J.; Yang, X.; Chen, W.; Huang, Y.* Chen, H. M.; Li, C.; Zhang, T.* Liu, B.* Atomically Dispersed, Low valent Ni(I) as the Active Site for Electrochemical CO₂ Reduction. *Nature Energy* **2018**, *3*, 140-147. [[link](#)]
74. Ma, L.; **Hung, S.-F.**; Zhang, L.; Cai, W.; Yang, H. B.; Chen, H. M.; Liu, B.* High Spin State Promotes Water Oxidation Catalysis at Neutral pH in Spinel Cobalt Oxide. *Ind. Eng. Chem. Res.* **2018**, *57*, 1441-1445. [[link](#)]
75. **Hung, S.-F.**;[†] Hsu, Y.-Y.;[†] Chang, C.-J.; Hsu, C.-S.; Suen, N.-T.; Chan, T.-S.; Chen, H. M. Unraveling Geometrical Site Confinement in Iron-Doped Electrocatalysts toward Oxygen Evolution Reaction. *Adv. Energy Mater.* **2018**, *8*, 1701686. (*Back Cover*) [[link](#)]
 ➤ Highlighted as a **research news** in National Synchrotron Radiation Research Center.
76. Ma, Q.;[†] Hu, C.;[†] Liu, K.; **Hung, S.-F.**; Ou, D.; Chen, H. M.; Fu, G.; Zheng, N. Identifying the Electrocatalytic Sites of Nickel Disulfide in Alkaline Hydrogen Evolution Reaction. *Nano Energy* **2017**, *41*, 148-153. ([†]These authors equally contribute to this work) [[link](#)]
77. Hu, C.;[†] Ma, Q.;[†] **Hung, S.-F.**; Chen, Z.; Ren, B.; Chen, H. M.* Fu, G.* Zheng, N.* In Situ Electrochemical Production of Ultrathin Nickel Nanosheets for Efficient Hydrogen Evolution Electrocatalysis. *Chem* **2017**, *3*, 122-133. ([†]These authors equally contribute to this work) [[link](#)]
78. Suen, N.-T.; **Hung, S.-F.**; Quan, Q.; Zhang, N.; Xu, Y.-J.* Chen, H. M.* Electrocatalysis for the Oxygen Evolution Reaction: Recent Development and Future Perspectives. *Chem. Soc. Rev.* **2017**, *46*, 337-365. (*Front Cover*) [[link](#)]
79. Wang, H.-Y.; **Hung, S.-F.**; Hsu, Y.-Y.; Zhang, L.; Miao, J.; Chan, T.-S.; Xiong, Q.; Liu, B.* In-Situ Spectroscopic Identification of μ -OO Bridging on Spinel Co₃O₄ Water Oxidation Electrocatalyst. *J. Phys. Chem. Lett.* **2016**, *7*, 4847-4853. [[link](#)]
80. Gao, J.; Jia, C.; Zhang, L.; Wang, H.* Yang, Y.; **Hung, S.-F.**; Hsu, Y.-Y.; Liu, B.* Tuning Chemical Bonding of MnO₂ through Transition-Metal Doping for Enhanced CO Oxidation. *J. Catal.* **2016**, *341*, 82-90. [[link](#)]
81. **Hung, S.-F.**; Tung, C.-W.; Chan, T.-S.* Chen, H. M.* In-Situ Morphological Transformation and Investigation of Electrocatalytic Properties of Cobalt Oxide Nanostructures toward Oxygen Evolution. *CrystEngComm* **2016**, *18*, 6008. [[link](#)]
82. Yang, H. B.; Miao, J.; **Hung, S. F.**; Chen, J.; Tao, H. B.; Wang, X.; Zhang, L.; Chen, R.; Gao, J.; Chen, H. M.; Dai, L.* Liu, B.* Identification of Catalytic Sites for Oxygen Reduction and Oxygen Evolution in N-Doped Graphene Materials: Development of Highly Efficient Metal-Free Bifunctional Electrocatalyst. *Science Adv.* **2016**, *2*, e1501122. [[link](#)]
83. **Hung, S.-F.**;[†] Xiao, F.-X.;[†] Hsu, Y.-Y.; Suen, N.-T.; Yang, H. B.; Chen, H. M.* Liu, B.* Iridium Oxide-Assisted Plasmon-Induced Hot Carriers: Improvement on Kinetics and Thermodynamics of Hot Carriers. *Adv. Energy Mater.* **2016**, *6*, 1501339. ([†]These authors equally contribute to this work, *Back Cover*) [[link](#)]
 ➤ Highlighted in *MaterialsViewsChina* and *NSRRC 2016 Newsletter*.

84. Wang, H.-Y.; **Hung, S.-F.**; Chen, H.-Y.; Chan, T.-S.; Chen, H. M.*; Liu, B.* In Operando Identification of Geometrical-Site-Dependent Water Oxidation Activity of Spinel Co_3O_4 . *J. Am. Chem. Soc.* **2016**, *138*, 36–39. [link]
85. **Hung, S.-F.**†; Yu, Y.-C.;†; Suen, N.-T.; Tzeng, G.-Q.; Tung, C.-W.; Hsu, Y.-Y.; Hsu, C.-S.; Chang, C.-K.; Chan, T.-S.; Sheu, H.-S.; Lee, J.-F.; Chen, H. M.* The Synergistic Effect of a Well-Defined Au@Pt Core-Shell Nanostructure Toward Photocatalytic Hydrogen Generation: Interface Engineering to Improve the Schottky Barrier and Hydrogen-Evolved Kinetics. *Chem. Commun.* **2016**, *52*, 1567-1570. (†These authors equally contribute to this work, *Inside Cover*) [link]
 ➤ Highlighted as a **research news** in National Synchrotron Radiation Research Center.
86. Xiao, F.-X.; Zeng, Z.; Hsu, S.-H.; **Hung, S.-F.**; Chen, H. M.*; Liu, B.* Light-Induced in Situ Transformation of Metal Clusters to Metal Nanocrystals for Photocatalysis. *ACS Appl. Mater. Interfaces* **2015**, *7*, 28105–28109. [link]
87. Hsu, Y.-Y.; Suen, N.-T.; Chang, C.-C.; **Hung, S.-F.**; Chen, C.-L.*; Chan, T.-S.*; Dong, C.-L.; Chan, C.-C.; Chen, S.-Y.; Chen, H. M.* Heterojunction of Zinc Blende/Wurtzite in $\text{Zn}_{1-x}\text{Cd}_x\text{S}$ Solid Solution for Efficient Solar Hydrogen Generation: X-Ray Absorption/Diffraction Approaches. *ACS Appl. Mater. Interfaces* **2015**, *7*, 22558–22569. [link]
88. Xiao, F.-X.; **Hung, S.-F.**; Tao, H. B.; Miao, J.; Yang, H. B.; Liu, B.* Spatially Branched Hierarchical ZnO Nanorod-TiO₂ nanotube Array Heterostructures for Versatile Photocatalytic and Photoelectrocatalytic Applications: Towards Intimate Integration of 1D–1D Hybrid Nanostructures. *Nanoscale* **2014**, *6*, 14950–14961. [link]
89. Xiao, F.-X.; Miao, J.; Tao, H. B.; **Hung, S.-F.**; Wang, H.-Y.; Yang, H. B.; Chen, J.; Chen, R.; Liu, B.* One-Dimensional Hybrid Nanostructures for Heterogeneous Photocatalysis and Photoelectrocatalysis. *Small* **2015**, *11*, 2115–2131. [link]
90. Yang, H. B.; Miao, J.; **Hung, S.-F.**; Huo, F.; Chen, H. M.*; Liu, B.* Stable Quantum Dot Photoelectrolysis Cell for Unassisted Visible Light Solar Water Splitting. *ACS Nano* **2014**, *8*, 10403–10413. [link]
91. Xiao, F.-X.; **Hung, S.-F.**; Miao, J.; Wang, H.-Y.; Yang, H.; Liu, B.* Metal-Cluster-Decorated TiO₂ Nanotube Arrays: a Composite Heterostructure Toward Versatile Photocatalytic and Photoelectrochemical Applications. *Small* **2014**, *11*, 554–567. [link]
92. Hsu, S.-H.; **Hung, S.-F.**; Chien, S.-H.* CdS Sensitized Vertically Aligned Single Crystal TiO₂ Nanorods on Transparent Conducting Glass with Improved Solar Cell Efficiency and Stability Using ZnS Passivation Layer. *J. Power Sources* **2013**, *233*, 236–243. [link]

ACADEMIC ACTIVITIES

Committees & Organizers & Reviewers

◆ Organizer:

1. Session 5 Electrochemical Driven Conversion, International Conference on Green Electrochemical Technologies, Hsinchu, Taiwan, 2023
2. Session 3 Material Science, 8th National Tsing Hua University/Keio University Symposium of Advanced Chemistry, 2022
3. Symposium 2 Photocatalysis and Photosynthesis in the Material Research Society-Taiwan International Conference (MRSTIC), 2021

◆ Review Editor Board - *Frontiers in Catalysis*, *Frontiers*, 2021

◆ Guest Editor - Special Issue "Nanomaterials for Electrochemical Energy Conversion" *Nanomaterials*, MDPI, 2021.

◆ Peer Review:

2024: *Sci. China Chem.*; *Inorg. Chem.*; *iScience*; *Inter. J. Hydrog. Energy*; *ACS Omega*; *ChemCatChem*

2023: *Catal. Sci. Technol.*; ***Angew. Chem. Int. Ed.***; *Mater. Today Sustain.*; *ACS Appl. Nano Mater.*; *Catal. Commun.*

2022: *Catal. Sci. Technol.*; *Nanoscale Horiz.*; *New J. Chem.*; *J. Catal.*; *J. Solid State Electrochem.*; *J. Chin. Chem. Soc.*; *Catalysts*; *Energies*; ***Nature***; *Symmetry*; ***Nature Catal.***

2021: *Catal. Sci. Technol.*; *Nanoscale Horiz.*; *Inorg. Chem. Commun.*

- ◆ **Thesis award referee** - Annual Meeting of Chemical Society Located in Taipei, Taipei, Taiwan, 2022
- ◆ **Oral contest referee** - International Conference on Green Electrochemical Technologies, Hsinchu, Taiwan, 2023
- ◆ **Poster referee:**
 1. Chemistry National Meeting, , New Taipei, Taiwan, 2024
 2. 68th Annual Meeting of Taiwan Institute of Chemical Engineering, Kaohsiung, Taiwan, 2022

Cooperators

1. Prof. Edward Sargent (*Department of Electrical and Computer Engineering, University of Toronto*)
2. Prof. Bin Liu (*School of Chemical Biochemical Engineering, Nanyang Technological University*)
3. Prof. David Sinton (*Department of Mechanical and Industrial Engineering, University of Toronto*)
4. Prof. Fengwang Li (*School of Chemical Biochemical Engineering, The University of Sydney*)
5. Prof. Yueming Zhai (*The Institute for Advanced Studies, Wuhan University*)
6. Prof. Nian-Tzu Suen (*College of Chemistry and Chemical Engineering, Yangzhou University*)
7. Prof. Shengjie Peng (*College of Materials Science and Technology, Nanjing University of Aeronautics and Astronautics*)
8. Prof. Weibo Hua (*School of Chemical Engineering and Technology, Xi'an Jiaotong University*)
9. Prof. Xuning Li (*Dalian Institute of Chemical Physics, Chinese Academy of Sciences*)
10. Prof. Chun-Chih Chang (*Department of Chemical and Materials Engineering, Chinese Culture University*)
11. Prof. Tung-Han Yang (*Department of Chemical Engineering, National Tsing Hua University*)
12. Dr. Ying-Rui Lu (*National Synchrotron Radiation Research Center*)
13. Dr. Chih-Wei Hu (*National Synchrotron Radiation Research Center*)
14. Dr. Yen-Fa Liao (*National Synchrotron Radiation Research Center*)

Oral presentation & Invited talk

1. **Invited talk** - Chemistry National Meeting, New Taipei, Taiwan, 2024
2. **Invited talk** - TW-TH Bilateral Catalysis Symposium, Bangkok, Thailand, 2023.
3. **Invited talk** - Department of Medicinal and Applied Chemistry, Kaohsiung Medical University, Kaohsiung, Taiwan, 2023.
4. **Invited talk** - International Conference on Green Electrochemical Technologies, Taipei, Taiwan, 2023
5. **Invited talk** - Department of Chemistry, National Changhua University of Education, Changhua, Taiwan, 2023.
6. 18th National Conference on Hydrogen Energy and Fuel Cells, 2023.
7. **Invited talk** - Taiwan-Japan Symposium on Reaction Control, Hsinchu, Taiwan, 2023.

8. **Invited talk** - Green Chemistry Workshop, Tainan, Taiwan, 2023.
9. **Invited talk** - Taiwan International Conference on Catalysts, Tainan, Taiwan, 2023.
10. **Invited talk** - Annual Meeting of Chemical Society Located in Taipei, Kaohsiung, Taiwan, 2023
11. **Invited talk** - International Conference on Green Electrochemical Technologies, Hsinchu, Taiwan, 2022
12. **Invited talk** - Taiwan International Conference on Catalysts, Taipei, Taiwan, 2022
13. **Invited talk** - Annual Meeting of Chemical Society Located in Taipei, Taipei, Taiwan, 2022
14. **Invited talk** - Institute of Analytical and Environmental Sciences, National Tsing Hua University, Hsinchu, Taiwan, 2022.
15. **Invited talk** - Fall Meeting of Analytical Chemistry, Pingtung, Taiwan, 2022
16. **Invited talk** - 68th Annual Meeting of Taiwan Institute of Chemical Engineering, Kaohsiung, Taiwan, 2022
17. **Invited talk** - Hsinchu-branch Meeting of Chemical Society Located in Taipei, Hsinchu, Taiwan, 2021
18. **Invited talk** - XAS Journal Club from Europe and Asia-Oceania, 2021.
19. **Invited talk** - Department of Engineering and System Science, National Tsing Hua University, Hsinchu, Taiwan, 2021.
20. **Invited talk** - Department of Chemical Engineering, National Tsing Hua University, Hsinchu, Taiwan, 2021.
21. **Invited talk** - Department of Material Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan, 2021.
22. **Invited talk** - Annual Meeting of Chemical Society Located in Taipei, Taoyuan, Taiwan, 2021
23. **Invited talk** - Department of Chemical Engineering, National Cheng Kung University, Tainan, Taiwan, 2021.
24. **Invited talk** - Department of Chemistry, National Tsing Hua University, Hsinchu, Taiwan, 2020.
25. **Invited talk** - Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan, 2020.
26. **Invited talk** - Department of Material Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan, 2020.
27. **Invited talk** - Annual Meeting of Catalysis Society of Taiwan, Taipei, Taiwan, 2020.
28. **Invited talk** - Department of Material Science and Engineering, Fuzhou University, Fujian, China, 2019.
29. **Invited talk** - Department of Electrical and Computer Engineering, Toronto University, Canada, 2018.
30. 24th User's Meeting & Workshops, National Synchrotron Radiation Research Center, Hsinchu, Taiwan, 2018.
➤ *Award of Recognition in student oral presentation in material science*
31. Symposium for Peking University-National Taiwan University, Taipei, Taiwan, 2018.
32. **HERCULES** (Higher European Research Course for Users of Large Experimental Systems) **European School**, 25 Feb - 30 Mar, Grenoble, France, 2018.
33. 23rd User's Meeting & Workshops, National Synchrotron Radiation Research Center, Hsinchu, Taiwan, 2017.
➤ *Award of Recognition in student oral presentation in material science*
34. Symposium for Peking University-National Taiwan University, Peking, China, 2017.
35. 253rd ACS National Meetings & Expositions, San Francisco, USA, 2017.
36. **Invited talk** - National Synchrotron Radiation Research Center, Hsinchu, Taiwan, 2017.

37. 22nd User's Meeting & Workshops, National Synchrotron Radiation Research Center, Hsinchu, Taiwan, 2016.
➤ *Award of Outstanding Research in student oral presentation in material science*
38. 3th Annual Junior Chemist Meeting on Frontier Molecular Science, Yilan, Taiwan, 2016.

Poster presentation

1. 28th User's Meeting & Workshops, National Synchrotron Radiation Research Center, Hsinchu, Taiwan, 2022
2. 26th User's Meeting & Workshops, National Synchrotron Radiation Research Center, Hsinchu, Taiwan, 2020
3. 25th User's Meeting & Workshops, National Synchrotron Radiation Research Center, Hsinchu, Taiwan, 2019
4. IUPAC 2019, Paris, France, 2019
5. Annual Meeting of Chemical Society Located in Taipei, Kaohsiung, Taiwan, 2018
➤ *Outstanding Poster Award & IUPAC Poster Prize*
6. MRS Fall Meeting, Boston, USA, 2018
7. 12th International Symposium for Chinese Inorganic Chemists, Taipei, Taiwan, 2018
8. Graduate Student Poster Competition, National Taiwan University, 2018
➤ *Outstanding Poster Award of NTU Chemistry, PhD*
9. 3rd ACS Taiwan Chapter Graduate Student Conference, Taipei, Taiwan, 2018
10. 10th Exchange Symposium for Kanagawa University-National Taiwan University, Taipei, Taiwan, 2015

EDUCATIONAL ACTIVITIES

Teaching courses

1. **General Chemistry** (2024) - Textbook: "University Chemistry" Brian B. Laird, McGraw Hill, 2009.
2. **Inorganic Chemistry Research Techniques** (2024) - No assigned textbook.
3. **General Chemistry** (2023) - Textbook: "University Chemistry" Brian B. Laird, McGraw Hill, 2009.
4. **Inorganic Chemistry Research Techniques** (2023) - No assigned textbook.
5. **General Chemistry** (2022) - Textbook: "University Chemistry" Brian B. Laird, McGraw Hill, 2009.
6. **Inorganic Chemistry Research Techniques** (2022) - No assigned textbook.
7. **General Chemistry** (2021) - Textbook: "University Chemistry" Brian B. Laird, McGraw Hill, 2009.
8. **Inorganic Chemistry Research Techniques** (2021) - No assigned textbook.
9. **General Chemistry** (2020) - Textbook: "University Chemistry" Brian B. Laird, McGraw Hill, 2009.

Graduate Students

1. **Yi-Yu Chen** (Master 2024):
➤ *Honorable Mention at Net Zero Tech International Contest at Taiwan, 2023.*
➤ Publications:
(1) Lin, Z.-Y.; Chang, Y.-C.; **Chen, Y.-Y.**; Hsu, Y.-H.; Peng, K.-S.; Hung, S.-F.* Operando Studies for CO₂/CO Reduction in Flow- Based Devices. *ChemNanoMat* **2024**, *accepted*. (Special collection: *Early Career Researcher 2023*)

- (2) Hao, Y.; Hung, S.-F.; Tian, C.; Wang, L.; **Chen, Y.-Y.**; Zhao, S.; Peng, K.-S.; Zhang, C.; Zhang, Y.; Kuo, C.-H.; Chen, H.-Y.; Peng, S.* Polarized Ultrathin BN Induced Dynamic Electron Interactions for Enhancing Acidic Oxygen Evolution. *Angew. Chem. Int. Ed.* **2024**, e202402018.

2. **Kang-Shun Peng** (Master 2024):

➤ *Lam Research Outstanding Science Award, 2023.*

➤ *Honorable Mention at Net Zero Tech International Contest at Taiwan, 2023.*

➤ Publications:

- (1) Lin, Z.-Y.; Chang, Y.-C.; Chen, Y.-Y.; Hsu, Y.-H.; **Peng, K.-S.**; Hung, S.-F.* Operando Studies for CO₂/CO Reduction in Flow- Based Devices. *ChemNanoMat* **2024**, *accepted*. (Special collection: *Early Career Researcher 2023*)
- (2) Hao, Y.; Hung, S.-F.; Tian, C.; Wang, L.; Chen, Y.-Y.; Zhao, S.; **Peng, K.-S.**; Zhang, C.; Zhang, Y.; Kuo, C.-H.; Chen, H.-Y.; Peng, S.* Polarized Ultrathin BN Induced Dynamic Electron Interactions for Enhancing Acidic Oxygen Evolution. *Angew. Chem. Int. Ed.* **2024**, e202402018.
- (3) Wu, F.-Y.; Tsai, H.-J.; Lee, T.-J.; Lin, Z.-Y.; **Peng, K.-S.**; Chen, P.-H.; Hiraoka, N.; Liao, Y.-F.; Hu, C.-W.; Hsu, S.-H.; Lu, Y.-R.*; Hung, S.-F.* Copper-Barium-Decorated-Carbon-Nanotube Composite for Electrocatalytic CO₂ Reduction to C₂ Products. *J. Mater. Chem. A* **2023**, *11*, 13217-13222. (Themed collection: *Journal of Materials Chemistry A Emerging Investigators*)

3. **Meng-Cheng Chen** (Master 2024):

➤ *Honorable Mention at Net Zero Tech International Contest at Taiwan, 2023.*

➤ Publications:

- (1) Wu, Q.;† Du, R.;† Wang, P.; Waterhouse, G. I.N.*; Li, J.; Qiu, Y.; Yan, K.; Zhao, Y.; Zhao, W.-W.; Tsai, H.-J.; **Chen, M.-C.**; Hung, S.-F.*; Wang, X.*; Chen, G.* Nanograin boundary-abundant Cu₂O-Cu Nanocubes with High C₂+ Selectivity and Good Stability during Electrochemical CO₂ Reduction at a Current Density of 500 mA/cm². *ACS Nano* **2023**, *17*, 12884-12894.

4. **Jian-Jie Ma** (Master 2024):

➤ *Excellent Poster Prize at the 2024 Chemistry National Meeting.*

➤ *Honorable Mention for poster competition in electrochemical driven conversion at International Conference on Green Electrochemical Technologies, 2023*

➤ *Honorable Mention at Net Zero Tech International Contest at Taiwan, 2023.*

➤ Publications:

- (1) Lin, T.-Y.*; Hsieh, C.-F.; Kanai, A.; Yashiro, T.; Zeng, W.-J.; **Ma, J.-J.**; Hung, S.-F.; Sugiyama, M. Radiation Resistant Chalcopyrite CIGS Solar Cells: Proton Damage Shielding with Cs Treatment and Defect Healing via Heat-light Soaking. *J. Mater. Chem. A* **2024**, *12*, 7536-7548. (**Cover**)

5. **Guan-Lin Chen** (Master 2024): Silver-Modified Cu₂O Nanocavities for Electrocatalytic CO₂ Reduction to C₂+Product.

➤ Publications:

- (1) Wei, Z.; Ding, J.; Duan, X.; **Chen, G.-L.**; Wu, F.-Y.; Zhang, L.; Yang, X.; Zhang, Q.; He, Q.; Chen, Z.; Huang, J.; Hung, S.-F.*; Yang, X.*; Zhai, Y.* Enhancing Selective Electrochemical CO₂ Reduction by In Situ Constructing Tensile Strained Cu Catalysts. *ACS Catal.* **2023**, *13*, 4711-4718.
- (2) Lee, S.;† Park, S. M.;† Jung, E. D.;† Zhu, T.;† Pina, J. M.; Anwar, H.; Wu, F.-Y.; **Chen, G.-L.**; Dong, Y.; Cui, T.; Wei, M.; Bertens, K.; Wang, Y.-K.; Chen, B.; Filleter, T.; Hung, S.-F.; Won, Y.-H.; Kim, K.-H.; Hoogland, S.; Sargent, E. H.* Dipole Engineering

Through the Orientation of Interface Molecules for Efficient InP Quantum Dot Light-Emitting Diodes. *J. Am. Chem. Soc.* **2022**, *144*, 20923-20930.

- (3) Hung, S.-F.;* Wu, F.-Y.; Lu, Y.-H.; Lee, T.-J.; Tsai, H.-J.; Chen, P.-H.; Lin, Z.-Y.; **Chen, G.-L.**; Huang, W.-Y.; Zeng, W.-J. Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**)

6. **Hsin-Jung Tsai** (Master 2023): Carbon Nanofiber-supported Nickel Single-Atom Catalyst for the Industrial CO₂-to-CO Conversion.

- *Honorable Mention in Chao-Ting Chang Inorganic Chemistry, Chemical Society Located in Taipei, 2024*
- *Everlight Thesis Award in Green Chemistry, 2024*
- *Graduate Student Thesis Award, Distinguished Honor, Department of Applied Chemistry, National Yang Ming Chiao Tung University, 2023*
- *Gold Award at the 3rd College Green Chemistry Creative Competition, 2023.*
- *IUPAC Poster Prize, 2023.*
- *Excellent Poster Prize at the Annual Meeting of Chemical Society Located in Taipei, 2023.*
- *Gold Award for poster competition in electrochemical driven conversion at International Conference on Green Electrochemical Technologies, 2022*
- *Third place of SDGs Student Research Poster Award at 2022 Conference on Institutional Research and Sustainable Development Goals/University Social Responsibility.*
- *Judges' Award of Wah Lee Materials Competition in the Materials Research Society, Taiwan, 2022.*
- Publications:

- (1) Yang, X.; Wang, S.; Li, H.; Peng, J.; Zeng, W.-J.; **Tsai, H.-J.**; Hung, S.-F.; Indris, S.; Li, F.; Hua, W.* Boosting the Ultra-stable High-Na-Content P2-Type Layered Cathode Materials with Zero Strain Cation Storage via a Lithium Dual-Site Substitution Approach. *ACS Nano* **2023**, *17*, 18616-18628.
- (2) Zhang, Q.;† **Tsai, H.-J.**;† Li, F.; Ding, J.; He, Q.; Wei, Z.; Liu, Y.; Lin, Z.-Y.; Yang, X.; Chen, Z.; Yang, X.; Tang, Q.* Yang, H. B.* Hung, S.-F.* and Zhai, Y.* Boosting the Proton-coupled Electron Transfer via Fe-P Atomic Pair for Enhanced Electrochemical CO₂ Reduction. *Angew. Chem. Int. Ed.* **2023**, *62*, e202311550.
- (3) He, Q.; Ding, J.; **Tsai, H.-J.**; Liu, Y.; Wei, M.; Zhang, Q.; Wei, Z.; Chen, Z.; Huang, J.; Hung, S.-F.* Yang, H.; Zhai, Y.* Boosting Photocatalytic Hydrogen Peroxide Production by Regulating Electronic Configuration of Single Sb Atoms via Carbon Vacancies in Carbon Nitrides. *J. Colloid Interface Sci.* **2023**, *651*, 18-26.
- (4) Wu, Q.;† Du, R.;† Wang, P.; Waterhouse, G. I.N.* Li, J.; Qiu, Y.; Yan, K.; Zhao, Y.; Zhao, W.-W.; **Tsai, H.-J.**; Chen, M.-C.; Hung, S.-F.* Wang, X.* Chen, G.* Nanograin boundary-abundant Cu₂O-Cu Nanocubes with High C₂₊ Selectivity and Good Stability during Electrochemical CO₂ Reduction at a Current Density of 500 mA/cm². *ACS Nano* **2023**, *17*, 12884-12894.
- (5) Wu, F.-Y.; **Tsai, H.-J.**; Lee, T.-J.; Lin, Z.-Y.; Peng, K.-S.; Chen, P.-H.; Hiraoka, N.; Liao, Y.-F.; Hu, C.-W.; Hsu, S.-H.; Lu, Y.-R.* Hung, S.-F.* Copper-Barium-Decorated-Carbon-Nanotube Composite for Electrocatalytic CO₂ Reduction to C₂ Products. *J. Mater. Chem. A* **2023**, *11*, 13217-13222. (Themed collection: *Journal of Materials Chemistry A Emerging Investigators*)
- (6) Deng, Y.;† Zhao, J.;† Wang, S.;† Chen, R.; **Tsai, H.-J.**; Zeng, W.-J.; Hung, S.-F.; Xu, W.; Wang, J.; Li, X.* Liu, B.* Huang, Y.* Operando Spectroscopic Analysis of Axial

Oxygen Coordinated Single-Sn-Atom Sites for Electrochemical CO₂ Reduction. *J. Am. Chem. Soc.* **2023**, *145*, 7242-7251. (Cover)

- (7) Xu, A.;[†] Hung, S.-F.;[†] Cao, A.;[†] Wang, Z.;[†] Karmodak, N.; Huang, J. E.; Yan, Y.; Rasouli, A. S.; Ozden, A.; Wu, F.-Y.; Lin, Z.-Y.; **Tsai, H.-J.**; Lee, T.-J.; Li, F.; Luo, M.; Wang, Y.; Wang, X.; Abed, J.; Wang, Z.; Nam, D.-H.; Li, C. Y.; Ip, A. H.; Sinton, D.; Dong, C.;* Sargent, E. H.* Stable Cu: Alkali Earth Metal Oxide Interfaces for Electrochemical CO₂ to Alcohols by Selective Hydrogenation. *Nature Catal.* **2022**, *5*, 1081-1088.
 - (8) Lu, Y.-H.;[†] **Tsai, H.-J.**;[†] Huang, W.-Y.; Lee, T.-J.; Lin, Z.-Y.; Hsu, S.-H.;* Hung, S.-F.* A Nitrogen-doped Graphene-supported Nickel-single-atom Catalyst in the Flow Cell Meets the Industrial Criteria of Carbon Dioxide Reduction Reaction to Carbon Monoxide. *Front. Catal.* **2022**, *2*, 915971.
 - (9) Hung, S.-F.;* Wu, F.-Y.; Lu, Y.-H.; Lee, T.-J.; **Tsai, H.-J.**; Chen, P.-H.; Lin, Z.-Y.; Chen, G.-L.; Huang, W.-Y.; Zeng, W.-J. Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**)
7. **Zih-Yi Lin** (Master 2023): Metal-organic-framework-derived Tubular Copper Electrocatalysts for Efficient CO₂ Electroreduction to C₂₊ Products.
- *Honorable Poster Prize* at Taipei International Conference on Catalysts, Taiwan, 2023.
 - *Gold Award at the 3rd Symposium on Nano-Device Circuits and Technologies*, 2023.
 - *Gold Award at the 3rd College Green Chemistry Creative Competition*, 2023.
 - *Honorable Mention for poster competition in electrochemical driven conversion* at International Conference on Green Electrochemical Technologies, 2022
 - *Third place of SDGs Student Research Poster Award* at 2022 Conference on Institutional Research and Sustainable Development Goals/University Social Responsibility.
 - *Judges' Award of Wah Lee Materials Competition* in the Materials Research Society, Taiwan, 2022.
 - Publications:
 - (1) **Lin, Z.-Y.**; Chang, Y.-C.; Chen, Y.-Y.; Hsu, Y.-H.; Peng, K.-S.; Hung, S.-F.* Operando Studies for CO₂/CO Reduction in Flow- Based Devices. *ChemNanoMat* **2024**, *accepted*. (Special collection: *Early Career Researcher 2023*)
 - (2) Deng, L.; Hung, S.-F.; Zhao, S.; Zeng, W.-J.; **Lin, Z.-Y.**; Hu, F.; Xie, Y.; Yin, L.; Li, L.; Peng, S.* Unveiling Coordination Transformation for Dynamically Enhanced Hydrogen Evolution Catalysis. *Energy Environ. Sci.* **2023**, *16*, 5220-5230.
 - (3) Deng, L.; Hung, S.-F.; **Lin, Z.-Y.**; Zhang, Y.; Zhang, C.; Hao, Y.; Liu, S.; Kuo, C.-H.; Chen, H.-Y.; Peng, J.; Wang, J.; Peng, S.* Valence Oscillation of Ru Active Sites for Efficient and Robust Acidic Water Oxidation. *Adv. Mater.* **2023**, *35*, 2305939.
 - (4) Zhang, Q.;[†] Tsai, H.-J.;[†] Li, F.; Ding, J.; He, Q.; Wei, Z.; Liu, Y.; **Lin, Z.-Y.**; Yang, X.; Chen, Z.; Yang, X.; Tang, Q.;* Yang, H. B.;* Hung, S.-F.;* and Zhai, Y.* Boosting the Proton-coupled Electron Transfer via Fe-P Atomic Pair for Enhanced Electrochemical CO₂ Reduction. *Angew. Chem. Int. Ed.* **2023**, *62*, e202311550.
 - (5) Hu, F.; Yu, D.; Zeng, W.-J.; **Lin, Z.-Y.**; Han, S.; Sun, Y.; Wang, H.; Ren, J.; Hung, S.-F.;* Li, L.;* Peng, S.* Active Site Tailoring of Metal-Organic Frameworks for Highly Efficient Oxygen Evolution. *Adv. Energy Mater.* **2023**, *13*, 2301224.
 - (6) Wu, F.-Y.; Tsai, H.-J.; Lee, T.-J.; **Lin, Z.-Y.**; Peng, K.-S.; Chen, P.-H.; Hiraoka, N.; Liao, Y.-F.; Hu, C.-W.; Hsu, S.-H.; Lu, Y.-R.;* Hung, S.-F.* Copper-Barium-Decorated-Carbon-Nanotube Composite for Electrocatalytic CO₂ Reduction to C₂ Products. *J.*

Mater. Chem. A **2023**, *11*, 13217-13222. (Themed collection: *Journal of Materials Chemistry A Emerging Investigators*)

- (7) Fan, M.;[†] Miao, R. K.;[†] Ou, P.;[†] Xu, Y.;[†] **Lin, Z.-Y.**; Lee, T.-J.; Hung, S.-F.; Xie, K.; Huang, J. E.; Ni, W.; Li, J.; Zhao, Y.; Ozden, A.; O'Brien, C. P.; Chen, Y.; Xiao, Y. C.; Liu, S.; Wicks, J.; Wang, X.; Abed, J.; Shirzadi, E.; Sargent, E. H.;* Sinton, D.* Single-site Decorated Copper Enables Energy- and Carbon-efficient Electroproduction of Synthetic Methane. *Nature Commun.* **2023**, *14*, 3314.
- (8) Xu, A.;[†] Hung, S.-F.;[†] Cao, A.;[†] Wang, Z.;[†] Karmodak, N.; Huang, J. E.; Yan, Y.; Rasouli, A. S.; Ozden, A.; Wu, F.-Y.; **Lin, Z.-Y.**; Tsai, H.-J.; Lee, T.-J.; Li, F.; Luo, M.; Wang, Y.; Wang, X.; Abed, J.; Wang, Z.; Nam, D.-H.; Li, C. Y.; Ip, A. H.; Sinton, D.; Dong, C.;* Sargent, E. H.* Stable Cu: Alkali Earth Metal Oxide Interfaces for Electrochemical CO₂ to Alcohols by Selective Hydrogenation. *Nature Catal.* **2022**, *5*, 1081-1088.
- (9) Lu, Y.-H.;[†] Tsai, H.-J.;[†] Huang, W.-Y.; Lee, T.-J.; **Lin, Z.-Y.**; Hsu, S.-H.;* Hung, S.-F.* A Nitrogen-doped Graphene-supported Nickel-single-atom Catalyst in the Flow Cell Meets the Industrial Criteria of Carbon Dioxide Reduction Reaction to Carbon Monoxide. *Front. Catal.* **2022**, *2*, 915971.
- (10) Hung, S.-F.;* Wu, F.-Y.; Lu, Y.-H.; Lee, T.-J.; Tsai, H.-J.; Chen, P.-H.; Lin, Z.-Y.; Chen, G.-L.; Huang, W.-Y.; Zeng, W.-J. Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**)

8. **Tsung-Ju Lee** (Master 2023): Cerium-modified Cu₂O Nanowire Enables CO₂RR to C₂+ Products with Industrial-scale Current Density.

- *Honorable Poster Prize* at Taipei International Conference on Catalysts, Taiwan, 2023.
- *Gold Award at the 3rd College Green Chemistry Creative Competition*, 2023.
- *Excellent Poster Prize* at the Annual Meeting of Chemical Society Located in Taipei, 2023.
- *Honorable Mention for poster competition in electrochemical driven conversion* at International Conference on Green Electrochemical Technologies, 2022.
- *Third place of SDGs Student Research Poster Award* at 2022 Conference on Institutional Research and Sustainable Development Goals/University Social Responsibility.
- *Judges' Award of Wah Lee Materials Competition* in the Materials Research Society, Taiwan, 2022.
- Publications:

- (1) Chi, M.;[†] Zhao, J.;[†] Ke, J.;[†] Liu, Y.; Wang, R.; Wang C.; Hung, S.-F.; **Lee, T.-J.**; Geng, Z.;* Zeng, J.* Bipyridine-confined Silver Single-atom Catalysts Facilitate In-plane C-O Coupling for Propylene Electrooxidation. *Nano Lett.* **2024**, *24*, 1801-1807.
- (2) Wu, F.-Y.; Tsai, H.-J.; **Lee, T.-J.**; Lin, Z.-Y.; Peng, K.-S.; Chen, P.-H.; Hiraoka, N.; Liao, Y.-F.; Hu, C.-W.; Hsu, S.-H.; Lu, Y.-R.;* Hung, S.-F.* Copper-Barium-Decorated-Carbon-Nanotube Composite for Electrocatalytic CO₂ Reduction to C₂ Products. *J. Mater. Chem. A* **2023**, *11*, 13217-13222. (Themed collection: *Journal of Materials Chemistry A Emerging Investigators*) [[link](#)]
- (3) Fan, M.;[†] Miao, R. K.;[†] Ou, P.;[†] Xu, Y.;[†] Lin, Z.-Y.; **Lee, T.-J.**; Hung, S.-F.; Xie, K.; Huang, J. E.; Ni, W.; Li, J.; Zhao, Y.; Ozden, A.; O'Brien, C. P.; Chen, Y.; Xiao, Y. C.; Liu, S.; Wicks, J.; Wang, X.; Abed, J.; Shirzadi, E.; Sargent, E. H.;* Sinton, D.* Single-site Decorated Copper Enables Energy- and Carbon-efficient Electroproduction of Synthetic Methane. *Nature Commun.* **2023**, *14*, 3314.

- (4) Xu, A.;[†] Hung, S.-F.;[†] Cao, A.;[†] Wang, Z.;[†] Karmodak, N.; Huang, J. E.; Yan, Y.; Rasouli, A. S.; Ozden, A.; Wu, F.-Y.; Lin, Z.-Y.; Tsai, H.-J.; **Lee, T.-J.**; Li, F.; Luo, M.; Wang, Y.; Wang, X.; Abed, J.; Wang, Z.; Nam, D.-H.; Li, C. Y.; Ip, A. H.; Sinton, D.; Dong, C.;* Sargent, E. H.* Stable Cu: Alkali Earth Metal Oxide Interfaces for Electrochemical CO₂ to Alcohols by Selective Hydrogenation. *Nature Catal.* **2022**, *5*, 1081-1088.
- (5) Lu, Y.-H.;[†] Tsai, H.-J.;[†] Huang, W.-Y.; **Lee, T.-J.**; Lin, Z.-Y.; Hsu, S.-H.;* Hung, S.-F.* A Nitrogen-doped Graphene-supported Nickel-single-atom Catalyst in the Flow Cell Meets the Industrial Criteria of Carbon Dioxide Reduction Reaction to Carbon Monoxide. *Front. Catal.* **2022**, *2*, 915971.
9. **Wen-Jing Zeng** (Master 2023): Chemical-Vapor-Deposited Cobalt Boride Boosts the Alkaline Seawater Electrolysis in Membrane Electrode Assemblies.
- *Excellent Poster Prize* at Taipei International Conference on Catalysts, Taiwan, 2023.
 - *Merck Young Scientist - Rising Star Award*, 2023.
 - *Best Poster Award* at the 3rd Symposium on Nano-Device Circuits and Technologies, 2023.
 - *Excellent Poster Prize* at the Annual Meeting of Chemical Society Located in Taipei, 2023.
 - *Honorable Mention for poster competition in electrochemical driven conversion* at International Conference on Green Electrochemical Technologies, 2022.
 - *Third place of SDGs Student Research Poster Award* at 2022 Conference on Institutional Research and Sustainable Development Goals/University Social Responsibility.
 - *Judges' Award of Wah Lee Materials Competition* in the Materials Research Society, Taiwan, 2022.
 - Publications:
 - (1) Zhao, S.; Hung, S.-F.; Deng, L.; **Zeng, W.-J.**; Xiao, T.; Li, S.; Kuo, C.-H.; Chen, H.-Y.; Hu, F.; Peng, S.* Constructing regulable supports via non-stoichiometric engineering to stabilize ruthenium nanoparticles for enhanced pH-universal water splitting. *Nature Commun.* **2024**, *15*, 2728.
 - (2) Lin, T.-Y.;* Hsieh, C.-F.; Kanai, A.; Yashiro, T.; **Zeng, W.-J.**; Ma, J.-J.; Hung, S.-F.; Sugiyama, M. Radiation Resistant Chalcopyrite CIGS Solar Cells: Proton Damage Shielding with Cs Treatment and Defect Healing via Heat-light Soaking. *J. Mater. Chem. A* **2024**, *12*, 7536-7548. (**Cover**)
 - (3) Hao, Y.; Hung, S.-F.; **Zeng, W.-J.**; Wang, Y.; Zhang, C.; Kuo, C.-H.; Wang, L.; Zhao, S.; Zhang, Y.; Chen, H.-Y.; Peng, S.* Switching the Oxygen Evolution Mechanism on Atomically Dispersed Ru for Enhanced Acidic Reaction Kinetics. *J. Am. Chem. Soc.* **2023**, *145*, 23659-23669.
 - (4) Deng, L.; Hung, S.-F.; Zhao, S.; **Zeng, W.-J.**; Lin, Z.-Y.; Hu, F.; Xie, Y.; Yin, L.; Li, L.; Peng, S.* Unveiling Coordination Transformation for Dynamically Enhanced Hydrogen Evolution Catalysis. *Energy Environ. Sci.* **2023**, *16*, 5220-5230.
 - (5) Yang, X.; Wang, S.; Li, H.; Peng, J.; **Zeng, W.-J.**; Tsai, H.-J.; Hung, S.-F.; Indris, S.; Li, F.; Hua, W.* Boosting the Ultra-stable High-Na-Content P2-Type Layered Cathode Materials with Zero Strain Cation Storage via a Lithium Dual-Site Substitution Approach. *ACS Nano* **2023**, *17*, 18616-18628.
 - (6) Hu, F.; Yu, D.; **Zeng, W.-J.**; Lin, Z.-Y.; Han, S.; Sun, Y.; Wang, H.; Ren, J.; Hung, S.-F.;* Li, L.;* Peng, S.* Active Site Tailoring of Metal-Organic Frameworks for Highly Efficient Oxygen Evolution. *Adv. Energy Mater.* **2023**, *13*, 2301224.
 - (7) Ren, X.; Zhao, J.; Li, X.;* Shao, J.; Pan, B.; Salamé, A.; Boutin, E.; Groizard, T.; Wang, S.; Ding, J.; Zhang, X.; Huang, W.-Y.; **Zeng, W.-J.**; Liu, C.; Li, Y.; Hung, S.-F.;* Huang, Y.; Robert, M.;* Liu, B.* *In-Situ* Spectroscopic Probe of the Intrinsic Structure

Feature of Single-Atom Center in Electrochemical CO/CO₂ Reduction to Methanol with a Phthalocyanine Cobalt Complex. *Nature Commun.* **2023**, *14*, 3401. (Featured in the Editors' highlight)

(8) Deng, Y.;[†] Zhao, J.;[†] Wang, S.;[†] Chen, R.; Tsai, H.-J.; **Zeng, W.-J.**; Hung, S.-F.; Xu, W.; Wang, J.; Li, X.;* Liu, B.;* Huang, Y.* Operando Spectroscopic Analysis of Axial Oxygen Coordinated Single-Sn-Atom Sites for Electrochemical CO₂ Reduction. *J. Am. Chem. Soc.* **2023**, *145*, 7242-7251. (**Cover**)

(9) Hung, S.-F.;* Wu, F.-Y.; Lu, Y.-H.; Lee, T.-J.; Tsai, H.-J.; Chen, P.-H.; Lin, Z.-Y.; Chen, G.-L.; Huang, W.-Y.; **Zeng, W.-J.** Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**)

10. **Wen-Yang Huang** (Master 2023): Metal-Organic-Framework-Derived Ce-doped Cobalt Oxides for Efficient Non-Noble-Metal Acidic Oxygen Evolution Reaction in Membrane Electrode Assemblies.

➤ *Gold Award for poster competition in electrochemical driven conversion* at International Conference on Green Electrochemical Technologies, 2022

➤ Publications:

(1) Miao, R. K.; Wang, N.; Hung, S.-F.; **Huang, W.-Y.**; Zhang, J.; Zhao, Y.; Ou, P.; Wang, S.; Edwards J. P.; Tian, C.; Han, J.; Xu, Y.; Fan, M.; Huang, J. E.; Xiao, Y. C.; Ip, A. H.; Liang, H.; Sargent, E. H.;* Sinton, D.* Electrified Cement Production via Anion-mediated Electrochemical Calcium Extraction. *ACS Energy Lett.* **2023**, *8*, 4694-4701.

(2) Ren, X.; Zhao, J.; Li, X.;* Shao, J.; Pan, B.; Salamé, A.; Boutin, E.; Groizard, T.; Wang, S.; Ding, J.; Zhang, X.; **Huang, W.-Y.**; Zeng, W.-J.; Liu, C.; Li, Y.; Hung, S.-F.;* Huang, Y.; Robert, M.;* Liu, B.* *In-Situ* Spectroscopic Probe of the Intrinsic Structure Feature of Single-Atom Center in Electrochemical CO/CO₂ Reduction to Methanol with a Phthalocyanine Cobalt Complex. *Nature Commun.* **2023**, *14*, 3401.

(3) Lu, Y.-H.;[†] Tsai, H.-J.;[†] **Huang, W.-Y.**; Lee, T.-J.; Lin, Z.-Y.; Hsu, S.-H.;* Hung, S.-F.* A Nitrogen-doped Graphene-supported Nickel-single-atom Catalyst in the Flow Cell Meets the Industrial Criteria of Carbon Dioxide Reduction Reaction to Carbon Monoxide. *Front. Catal.* **2022**, *2*, 915971.

(4) Hung, S.-F.;* Wu, F.-Y.; Lu, Y.-H.; Lee, T.-J.; Tsai, H.-J.; Chen, P.-H.; Lin, Z.-Y.; Chen, G.-L.; **Huang, W.-Y.**; Zeng, W.-J. Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**)

11. **Feng-Yi Wu** (Master 2022): Barium-Copper-Composite-Decorated Carbon Nanotube for Electrocatalytic CO₂ Reduction to C₂ product.

➤ *Award of Recognition for poster competition in material science* at 28th User's Meeting & Workshops, National Synchrotron Radiation Research Center, 2022

➤ *Best Popularity Award* at 28th User's Meeting & Workshops, National Synchrotron Radiation Research Center, 2022

➤ Publications:

(1) Jia, J.-F.; Hao, T. T.; Chen, P.-H.; **Wu, F.-Y.**; Hung, S.-F.;* Suen, N.-T.* Direct Electrosynthesis of Metal Nanoparticle on Ti₃C₂T_x-Mxene during Hydrogen Evolution. *Inorg. Chem.* **2023**, *62*, 19230-19237. (**Cover**)

(2) **Wu, F.-Y.**; Tsai, H.-J.; Lee, T.-J.; Lin, Z.-Y.; Peng, K.-S.; Chen, P.-H.; Hiraoka, N.; Liao, Y.-F.; Hu, C.-W.; Hsu, S.-H.; Lu, Y.-R.;* Hung, S.-F.* Copper-Barium-Decorated-

Carbon-Nanotube Composite for Electrocatalytic CO₂ Reduction to C₂ Products. *J. Mater. Chem. A* **2023**, *11*, 13217-13222. (Themed collection: *Journal of Materials Chemistry A Emerging Investigators*)

- (3) Wei, Z.; Ding, J.; Duan, X.; Chen, G.-L.; **Wu, F.-Y.**; Zhang, L.; Yang, X.; Zhang, Q.; He, Q.; Chen, Z.; Huang, J.; Hung, S.-F.*; Yang, X.*; Zhai, Y.* Enhancing Selective Electrochemical CO₂ Reduction by In Situ Constructing Tensile Strained Cu Catalysts. *ACS Catal.* **2023**, *13*, 4711-4718.
- (4) Lee, S.;† Park, S. M.;† Jung, E. D.;† Zhu, T.;† Pina, J. M.; Anwar, H.; **Wu, F.-Y.**; Chen, G.-L.; Dong, Y.; Cui, T.; Wei, M.; Bertens, K.; Wang, Y.-K.; Chen, B.; Filleter, T.; Hung, S.-F.; Won, Y.-H.; Kim, K.-H.; Hoogland, S.; Sargent, E. H.* Dipole Engineering Through the Orientation of Interface Molecules for Efficient InP Quantum Dot Light-Emitting Diodes. *J. Am. Chem. Soc.* **2022**, *144*, 20923-20930.
- (5) Xu, A.;† Hung, S.-F.;† Cao, A.;† Wang, Z.;† Karmodak, N.; Huang, J. E.; Yan, Y.; Rasouli, A. S.; Ozden, A.; **Wu, F.-Y.**; Lin, Z.-Y.; Tsai, H.-J.; Lee, T.-J.; Li, F.; Luo, M.; Wang, Y.; Wang, X.; Abed, J.; Wang, Z.; Nam, D.-H.; Li, C. Y.; Ip, A. H.; Sinton, D.; Dong, C.*; Sargent, E. H.* Stable Cu: Alkali Earth Metal Oxide Interfaces for Electrochemical CO₂ to Alcohols by Selective Hydrogenation. *Nature Catal.* **2022**, *5*, 1081-1088.
- (6) Rasouli, A. S.; Wang, X.; Wick, J.; Dinh, C.-T.; Abed, J.; **Wu, F.-Y.**; Hung, S.-F.; Bertens, K.; Huang, J. E.; Sargent, E. H.* Ga doping disrupts C-C coupling and promotes methane electroproduction on CuAl catalysts. *Chem Catal.* **2022**, *2*, 908-916.
- (7) Hung, S.-F.*; **Wu, F.-Y.**; Lu, Y.-H.; Lee, T.-J.; Tsai, H.-J.; Chen, P.-H.; Lin, Z.-Y.; Chen, G.-L.; Huang, W.-Y.; Zeng, W.-J. Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**)
- (8) Wang, N.;† Xu, A.;† Ou, P.;† Hung, S.-F.;† Ozden, A.; Lu, Y.-R.; Abed, J.; Wang, Z.; Yan, Y.; Sun, M.; Xia, Y.; Han, M.; Han, J.; Yao, K.; **Wu, F.-Y.**; Chen, P. H.; Vomiero, A.; Seifitokaldani, A.; Sun, X.; Sinton, D.; Liu, Y.*; Sargent, E. H.*; Liang, H.* Boride-Derived Oxygen-Evolution Catalysts. *Nature Commun.* **2021**, *12*, 6089.

12. **Pei-Hsuan Chen** (Master 2022): Enclosed Copper Nanoparticles into Carbon Nanotube Enhances CO₂ Reduction to Multi-Carbon Products.

➤ Publications:

- (1) Jia, J.-F.; Hao, T. T.; **Chen, P.-H.**; Wu, F.-Y.; Hung, S.-F.*; Suen, N.-T.* Direct Electrosynthesis of Metal Nanoparticle on Ti₃C₂T_x-Mxene during Hydrogen Evolution. *Inorg. Chem.* **2023**, *62*, 19230-19237. (**Cover**)
- (2) Wu, F.-Y.; Tsai, H.-J.; Lee, T.-J.; Lin, Z.-Y.; Peng, K.-S.; **Chen, P.-H.**; Hiraoka, N.; Liao, Y.-F.; Hu, C.-W.; Hsu, S.-H.; Lu, Y.-R.*; Hung, S.-F.* Copper-Barium-Decorated-Carbon-Nanotube Composite for Electrocatalytic CO₂ Reduction to C₂ Products. *J. Mater. Chem. A* **2023**, *11*, 13217-13222. (Themed collection: *Journal of Materials Chemistry A Emerging Investigators*)
- (3) Hung, S.-F.*; Wu, F.-Y.; Lu, Y.-H.; Lee, T.-J.; Tsai, H.-J.; **Chen, P.-H.**; Lin, Z.-Y.; Chen, G.-L.; Huang, W.-Y.; Zeng, W.-J. Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**)

13. **Yi-Hsuan Lu** (Master 2022): Enhancing Tandem Catalysis via Incorporating Nickel Porphyrin with Thiophene Substituents on Copper for Efficient CO₂ Electroreduction to C₂ Products.

- *Excellent Thesis Award, Department of Applied Chemistry, National Yang Ming Chiao Tung University, 2022*
- Publications:
 - (1) **Lu, Y.-H.;**† Tsai, H.-J.;† Huang, W.-Y.; Lee, T.-J.; Lin, Z.-Y.; Hsu, S.-H.;* Hung, S.-F.* A Nitrogen-doped Graphene-supported Nickel-single-atom Catalyst in the Flow Cell Meets the Industrial Criteria of Carbon Dioxide Reduction Reaction to Carbon Monoxide. *Front. Catal.* **2022**, *2*, 915971.
 - (2) Hung, S.-F.;* Wu, F.-Y.; **Lu, Y.-H.;** Lee, T.-J.; Tsai, H.-J.; Chen, P.-H.; Lin, Z.-Y.; Chen, G.-L.; Huang, W.-Y.; Zeng, W.-J. Operando X-ray Absorption Spectroscopic Studies of Carbon Dioxide Reduction Reaction in a Modified Flow Cell. *Catal. Sci. Technol.* **2022**, *12*, 2739-2743. (Themed collection: *In situ and operando spectroscopy in catalysis*, **Back cover**)

Graduate Defense committees

1. **Meng-Zhe Yu** (Master, Advisor: Prof. Hsin-Yun Hsu, National Yang Ming Chiao Tung University): *Development of bio-nanohybrid system for per- and polyfluoroalkyl substance degradation, 2024.*
2. **Wei-Tung Lin** (Master, Advisor: Prof. Hsin-Yun Hsu, National Yang Ming Chiao Tung University): *Synthesis of Metal Ion-Incorporated Hollow ZIF-8 for Dye Adsorption, 2023.*
3. **Saravanakumar Muthusamy** (Ph.D, Advisor: Prof. Kuei-Hsien Chen and Prof. Chun-Hong Kuo, National Yang Ming Chiao Tung University): *Development of Non-Precious Single and Dual-atom electrocatalysts for Oxygen Reduction Reaction, 2023.*
4. **Yung-Hsuan Chen** (Master, Advisor: Prof. Tzu-Ying Lin, National Tsing Hua University): *Investigation of the Effects of Alkali Metal Ion Incorporation in the Cu(In,Ga)Se₂-based Solar Cells, 2023.*
5. **Chi Feng Hsieh** (Master, Advisor: Prof. Tzu-Ying Lin, National Tsing Hua University): *The Radiation Tolerance of CIGS Thin Film Solar Cells, 2023.*
6. **Yi-Hong Liu** (Master, Advisor: Prof. Tung-Han Yang, National Tsing Hua University): *Quantitative Analysis of the Reduction Kinetics Responsible for the Formation of High-Entropy-Alloy Nanocrystals, 2023.*
7. **Po-Yu Huang** (Master, Advisor: Prof. Ren-Jei Chung and Prof. Mu-Huai Fang, National Taipei University of Technology): *Highly Efficient and Chemical Stable Metal-Organic Frameworks and Quantum Dots Hybrid Materials with the Applications in Short-Wave Infrared Photodetector, 2023.*
8. **Sanjeevan Rajagopal** (Ph.D, Advisor: Prof. Kuo Chu Hwang, National Tsing Hua University): *Geometry Engineering of Nanomaterials for Photocatalytic and Electrocatalytic Applications, 2022.*
9. **Cheng-Han Lee** (Master, Advisor: Prof. Tzu-Ying Lin, National Tsing Hua University): *Polymeric Approach for High Performance Micrometer-sized Silicon Anode in Li-ion Batteries with Enhanced Mechanical Properties and Conductivity, 2022.*
10. **Guan-Ruei Chen** (Ph.D, Advisor: Prof. Chi-Shen Lee, National Yang Ming Chiao Tung University): *Synthesis and Characterization of Chalcogenides with Complex Structures, and Exploration of Novel Homologous Series, 2022.*
11. **Chun-Sheng Lin** (Master, Advisor: Prof. Pu-Wei Wu, National Yang Ming Chiao Tung University): *Polydopamine Composite as a Surface Functionalization Agent to Fabricate Cu Plated Micro-membrane, 2022.*

12. **Yu-Chen Li** (Master, Advisor: Prof. Tzu-Ying Lin, National Tsing Hua University): *Amorphous $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ Thin Film for Interfacial Modification on Solid State Electrolytes*, 2022.
13. **Chia-Wei Yang** (Master, Advisor: Prof. Chi-Shen Lee, National Yang Ming Chiao Tung University): *Synthesis, Characterization and Thermoelectric Properties of New Chalcogenides PbSb_4Se_5 and $\text{GeSb}_{2-\tau}\text{Bi}_\tau\text{Te}_{4-\gamma}\text{Se}_\gamma$* , 2022.
14. **Te-Jung Chin** (Master, Advisor: Prof. Chi-Shen Lee, National Yang Ming Chiao Tung University): *Characterization and Thermoelectric Properties Analysis of New Ternary Selenides with $\text{Ge}_{n-2}\text{Sb}_4\text{Se}_{n+2}$ Homologous Series ($n=3, 3.5, 3.67$)*, 2022.
15. **Pu-Yang Chen** (Master, Advisor: Prof. Tzu-Ying Lin, National Tsing Hua University): *Unilateral $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ Modification on PEO-PVDF-HFP Composite Electrolyte*, 2022.
16. **Chia-Jui Chang** (Ph.D, Advisor: Prof. Hao Ming Chen, National Taiwan University): *Probing the Structural Transformation of Electrochemical CO_2 Reduction Reaction Catalysts via In/Ex situ Analysis*, 2022.
17. **Po-Yao Sun** (Master, Advisor: Prof. Pu-Wei Wu, National Yang Ming Chiao Tung University): *Polydopamine and Its Compositions as Surface Functionalization Agents for the Fabrications of Composite $\text{Cu}@\text{Cu}_2\text{O}$ Micromembrane to Remove Bromine Ions in Aqueous Solution*, 2021.
18. **Yi-Chen Lin** (Master, Advisor: Prof. Hsueh-Ju Liu, National Yang Ming Chiao Tung University): *A Dianionic Ligand Supported Lewis Acidic and Zwitterionic Tin(II) Complex as Synthons for Multi-Metallic Structures*, 2021.
19. **Tsai-Min Yeh** (Master, Advisor: Prof. Hsin-Yun Hsu, National Yang Ming Chiao Tung University): *Green Synthesis of Redox-Responsive Mesoporous Silica Nanoparticles*, 2021.
20. **Bao-Ting Huang** (Master, Advisor: Prof. Hsin-Yun Hsu, National Yang Ming Chiao Tung University): *Titanium Dioxide Nanomaterial-Mediated Photo-Crosslinking Soy Protein Hydrogel Synthesis*, 2021.
21. **Hao-Cheng Lin** (Master, Advisor: Prof. Hsin-Yun Hsu, National Yang Ming Chiao Tung University):, 2021.
22. **Yi-Yun Lin** (Master, Advisor: Prof. Chi-Shen Lee, National Yang Ming Chiao Tung University): *Synthesis, Characterization and Thermoelectric Properties of Three New Pavonite Selenides in Quaternary Fe-Ge-Sb-Se System*, 2021.
23. **Yu-Ping Hsieh** (Master, Advisor: Prof. Chi-Shen Lee, National Yang Ming Chiao Tung University): *Nickel Oxide Catalyst Supported on Lanthanum Zirconates $\text{NiO}/\text{Ln}_2\text{Zr}_2\text{O}_7$ ($\text{Ln}=\text{La}, \text{Nd}, \text{Gd}, \text{Ho}$) and its effect on the Oxidative Steam Reforming of Ethanol*, 2021.
24. **Hsin-Hui Lee** (Master, Advisor: Prof. Chi-Shen Lee, National Yang Ming Chiao Tung University): *Effect of Y and Ru Substituted Fluorite Structure $\text{Y}_x\text{Zr}_{1-x-y}\text{Ru}_y\text{O}_{2-\delta}$ ($x=0.33-0.57, y=0.01-0.13$) and Ultrasonic Wave-Assisted Ball Milling Catalysts Used in Oxidative Steam Reforming of Ethanol*, 2021.
25. **Zih-Lin Yang** (Master, Advisor: Prof. Hsuan-Yi Huang, National Tsing Hua University): *Synthesis of Size-Tunable CdSe Nanocrystals and Their Optical and Electrochemical Properties*, 2021.
26. **Tsung-Ying Tsai** (Master, Advisor: Prof. Shu-Pao Wu, National Yang Ming Chiao Tung University): *Design and Synthesis of Hydroxycoumarin Derivative Fluorescent Chemosensor and its Applications in Living Cells*, 2020.
27. **Shu-Pei Wu** (Master, Advisor: Prof. Hsin-Yun Hsu, National Yang Ming Chiao Tung University): *Exploration of the Nucleotide-Based Hydrogel Formation and the Biofuel Application*, 2020.

28. **Yi-Ying Lin** (Master, Advisor: Prof. Hsin-Yun Hsu, National Yang Ming Chiao Tung University): *Fabrication of Gallic Acid-Formaldehyde Microspheres for Antibacterial Applications*, 2020.