

Assistant Professor WU, HAO

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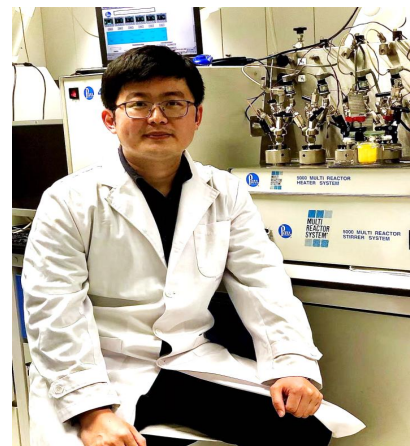
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Academic Qualification

Ph.D. in Chemical Engineering, University of New South Wales (UNSW)

Teaching Area

Energy Materials

Green Catalysis

Solar Energy Conversion and Storage

Instrumental Analysis

Research Area

Photoactive Semiconductors

Hydrogen Production

Charge Dynamics

Photocatalysis

Photoelectrochemical Sensor

Working Experience

2022-present, Assistant Professor, Macau University of Science and Technology, Macau, China

2019-2022, Postdoctoral Fellow, City University of Hong Kong, Hong Kong, China

2015-2019, Teaching/Research Assistant, University of New South Wales (UNSW), Sydney, Australia

Academic Publication (selected)

S. Qu, H. Wu*, Y. H. Ng*, "Clean Production of Hydrogen Peroxide: A Heterogenous Solar-driven Redox Process," *Advanced Energy Materials* DOI: 10.1002/aenm.202301047 (2023)

S. Qu, H. Wu*, Y. H. Ng*, "Thin Zinc Oxide Layer Passivating Bismuth Vanadate for Selective Photoelectrochemical Water Oxidation to Hydrogen Peroxide," *Small* 19 (33), 2300347 (2023)

H. Wu*, L. Zhang, S. Qu, A. Du, J. Tang and Y. H. Ng*, "Polaron-mediated Transport of BiVO₄ Photoanode

for Solar Water Oxidation," **ACS Energy Letters**, 8, 2177-2184, (2023)

W. P. Utomo, **H. Wu***, Y. H. Ng*, "Modulating the Active Sites of Oxygen-Deficient TiO₂ by Copper Loading for Enhanced Electrocatalytic Nitrogen Reduction to Ammonia," **Small** 18 (25), 2200996 (2022)

W. P. Utomo, M. K. H. Leung, Z. Yin, **H. Wu***, Y. H. Ng*, "Advancement of Bismuth-Based Materials for Electrocatalytic and Photo (electro) catalytic Ammonia Synthesis," **Advanced Functional Materials** 32 (4), 2106713 (2022)

H. Wu, L. Zhang, A. Du, R. Irani, R. van de Krol, F. F. Abdi and Y. H. Ng, "Low-bias photoelectrochemical water splitting via mediating trap states and small polaron hopping," **Nature Communications**, 12, 6231, (2022)

H. Wu, X. Y. Kong, X. Wen, S.-P. Chai, E. C. Lovell, J. Tang, Y. H. Ng, "Metal–Organic Framework Decorated Cuprous Oxide Nanowires for Long-lived Charges Applied in Selective Photocatalytic CO₂ Reduction to CH₄," **Angewandte Chemie International Edition** 57 (41), 13613-13617 (2021)

H. Wu, R. Irani, K. Zhang, L. Jing, H. Dai, H. Y. Chung, F. F. Abdi, Y. H. Ng, "Unveiling Carrier Dynamics in Periodic Porous BiVO₄ Photocatalyst for Enhanced Solar Water Splitting," **ACS Energy Letters** 6 (10), 3400-3407 (2021)

H. Wu, T.-H. Tan, R. Liu, H.-Y. Hsu, Y. H. Ng, "Selective Ethanol Oxidation to Acetaldehyde on Nanostructured Zeolitic Imidazolate Framework-8-Wrapped ZnO Photothermocatalyst Thin Films," **Solar RRL** 5 (6), 2000423 (2021)

H. Wu, H. L. Tan, C. Y. Toe, J. Scott, L. Wang, R. Amal, Y. H. Ng, "Photocatalytic and Photoelectrochemical Systems: Similarities and Differences," **Advanced Materials** 32 (18), 1904717 (2020)

H. Wu, Z. Zheng, C. Y. Toe, X. Wen, J. N. Hart, R. Amal, Y. H. Ng, "A Pulse Electrodeposited Amorphous Tunnel Layer Stabilises Cu₂O for Efficient Photoelectrochemical Water Splitting under Visible-light Irradiation," **Journal of Materials Chemistry A** 8 (11), 5638-5646 (2020)

Books

H. Y. Chung, **H. Wu**, X. Wu, C. Su, and Y. H. Ng, Photo- and Electro-Catalytic Processes, **Wiley VCH**, 2022, ISBN-13: 978-3527348596

Professional Certification and Awards

International Association of Advanced Materials (IAAM) Young Scientist Medal, 2022

Certificates of University Staff Development of Learning and Teaching, 2020

Professional Society Membership

Editorial Board Member, Chemical Engineering Journal (Elsevier, IF: 15.1)

Editorial Board Member, Nano Materials Science (Elsevier, IF: 9.9)

Editorial Board Member, Molecular Catalysis (Elsevier, IF: 4.6)

Member, Australian Materials Research Society (AMRS)

Member, Australian Research Council Nanotechnology Network (ARCNN)

Member, Royal Australian Chemical Institute (RACI)