Prof. Dr. Benteng Wu

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Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences

Research Interests

Microbial chain elongation; Thermal delamination of end-of-life photovoltaic laminates; Bioleaching

Work and Education Experience

Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences - Professor 2023.02—Present

Emerging Solid Waste High-Value Recycling Research Center Guangzhou

MaREI Center for Energy, Climate and Marine - Postdoctoral Researcher 2022.04—2023.02

Supervisor: Prof. Jerry D. Murphy Cork, Ireland

University College Cork - PhD in Environmental Engineering (Full scholarship) 2019.05—2022.05

Supervisor: Prof. Jerry D. Murphy and Prof. Richen Lin Cork, Ireland

Hefei University of Technology - Master of Engineering 2015.09—2018.07

Supervisor: Prof. Wei Wang Hefei, China

Hefei University of Technology - Bachelor of Engineering 2011.09—2015.07

Water Supply and Drainage Engineering Hefei, China

Research Grants

- **National Natural Science Foundation of China (NSFC) Youth Program,** Mechanism Study on Catalytic Carbon Chain Elongation for n-Caproic Acid Production via Functionalized Biochar, Grant No. 52406281, RMB 300,000, Principal Investigator 2025.01—2027.12
- **CAS Project for Young Scientists in Basic Research,** Novel Methods for Green Recycling of Core Components in New Energy Devices, Grant No. YSBR-098, RMB 20,000,000, Co-Principal Investigator (5/10) 2023.07—2028.07
- **National Key R&D Program of China,** Technology for Large-Scale Continuous Pyrolysis Equipment of End-of-Life Photovoltaic Laminates, Grant No. 2023YFC3906201, RMB 4,200,000, Principal Investigator 2023.12—2027.11
- **Sub-Project of National Key R&D Program of China,** Grant No. 2023YFC3106701-3, RMB 700,000, Principal Investigator 2023-12—2026-11
- **Interreg North-West Europe,** Grant No. NWE964，€3,780,800, Participated 2022.04—2023.02
- **Ireland Environmental Protection Agency,** Grant No. 2018-RE-MS-13, €341,100, Participated 2019.05—2022.05

Publications

Representative Publications

1. **Benteng Wu**, Richen Lin, Jing, Gu, Haoran Yuan, Jerry D. Murphy. Biochar confers significant microbial resistance to ammonia toxicity in n-caproic acid production. **Water Research**, 2024 (IF = 11.5).
2. **Benteng Wu**, Richen Lin, Richard O'Shea, Chen Deng, Karthik Rajendran, Jerry D Murphy. Production of advanced fuels through integration of biological, thermo-chemical and power to gas technologies in a circular cascading bio-based system. ***Renewable and Sustainable Energy Reviews***, 2021 (IF = 16.3).
3. **Benteng Wu**, Richen Lin, Xihui Kang, Chen Deng, Alan DW Dobson, Jerry D Murphy. Improved robustness of ex-situ biological methanation for electro-fuel production through the addition of graphene. ***Renewable and Sustainable Energy Reviews***, 2021 (IF = 16.3).
4. **Benteng Wu**, Richen Lin, Xue Ning, Xihui Kang, Chen Deng, Alan DW Dobson, Jerry D Murphy. An assessment of how the properties of pyrochar and process thermodynamics impact pyrochar mediated microbial chain elongation in steering the production of medium-chain fatty acids towards n-caproate. ***Bioresource Technology***, 2022 (IF = 9.7)
5. **Benteng Wu**, Richen Lin, Xihui Kang, Chen Deng, Ao Xia, Alan DW Dobson, Jerry D Murphy. Graphene addition to digestion of thin stillage can alleviate acidic shock and improve biomethane production. ***ACS Sustainable Chemistry & Engineering***, 2020 (IF = 7.1).

Conferences

1. **Co-chair**: 11th International Conference on Environment, Resources & Energy, Galway, Ireland, 2024-05-24
2. **Keynote Speech:** High-quality recycling of end-of-life new energy devices. **2nd Workshop on Thermal Conversion for Carbon Neutrality**, Datong, China, 2023-08-10.
3. **Oral Presentation:** A perspective on advanced fuels production by integrating biological, thermo-chemical and power to gas technologies in a circular cascading bio-based system. **31st Irish Environmental Researchers Colloquium (Environ 2021)**, Cork, Ireland, 2021-06-16.

Academic and Professional Service

1. **Consulting Expert**, Wind and Solar Recycling Committee, China National Resources Recycling Association, 2023 – Present

Awards

1. **Distinguished Backbone Researcher**, Chinese Academy of Sciences, 2023
2. **Outstanding Youth Contribution Award for Technological Innovation in Circular Economy**, The Nonferrous Metals Society of China, 2023
3. **Chinese Government Award for Outstanding Self-financed Students Abroad** (Ranked 1st in Category A, Ireland Region), China Scholarship Council, 2022