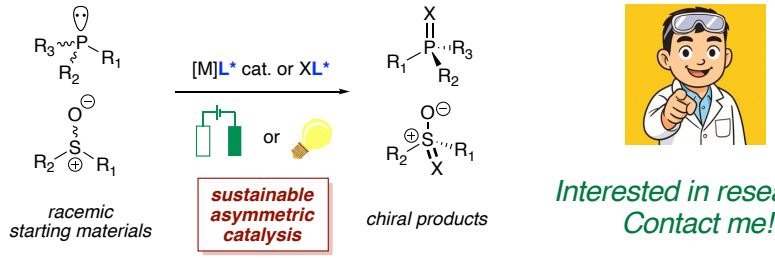
DEPARTMENT OF CHEMISTRY
MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY

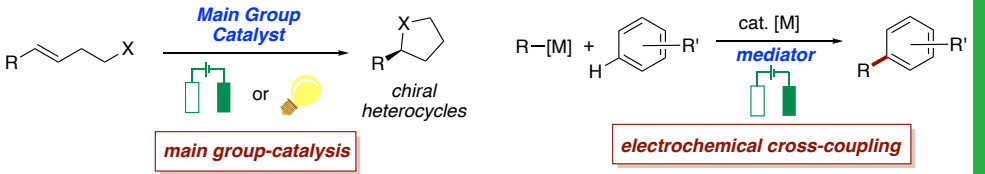
Electrochem. and Photochem. Catalysis for Sustainable Org. Synthesis

Research Directions:

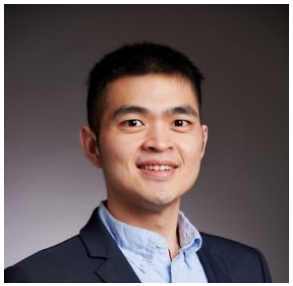
- **Electrochemical Catalysis & Reaction Discovery**
  Explore new bond-forming reactions through electrochemical methods, including gold-catalyzed cross-couplings and redox-driven transformations for sustainable synthesis.
- **Asymmetric Catalysis & Chiral Molecules**
  Design strategies to access chiral phosphines, sulfoxides, and heterocycles, enabling advances in catalysis, pharmaceuticals, and functional materials.
- **Sustainable & Green Chemistry**
  Apply electrochemistry, photochemistry, and main-group catalysis to replace hazardous oxidants and precious metals, advancing environmentally friendly synthesis.

Research Ideas:





Contact Information:



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Key Words:

Electrochemistry; Organic Synthesis; Catalysis; Cross-Coupling; Photochemistry; Green Chemistry

Selected Publication:

Chem **2026** (*in press*) — photocatalytic radical cross-coupling

J. Org. Chem. **2025** — electrochemical fluorination (first author)

JACS **2024** — photocatalytic C–H amination

JACS **2019** — asymmetric catalysis (first author)

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