Bioelectrocatalysis for Sustainability

➢ **Renewable Energy**
  - Enzyme engineering for biofuel oxidation for fuel cell and battery applications
  - Developing materials strategies for promoting substrate channeling in catalytic cascades for energy storage and conversion
  - Bioinformatics and synthetic biology approaches to improving extracellular electron transfer in microbial electrochemical applications including energy efficient bioremediation and self powered sensing

➢ **Electrification of the chemical industry**
  - Design of enzymatic and microbial biocatalysts for electrosynthesis of commodity chemicals (ammonia), value-added chemicals (pharmaceuticals), and materials (biopolymers)
  - Solar-assisted electrochemical production of value-added chemicals

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**Recognitions**
- ACS DAC Electrochemistry Award
- Fellow of AAAS, the Royal Society of Chemistry, Electrochemical Society, and the International Society of Electrochemistry
- Missouri Inventor of the Year
- Society of Electroanalytical Chemistry Reilley Award
- International Society of Electrochemistry Bioelectrochemistry Prize
- Academy of Science of St. Louis Innovation Award
- Editor-in-chief of ACS Au journals