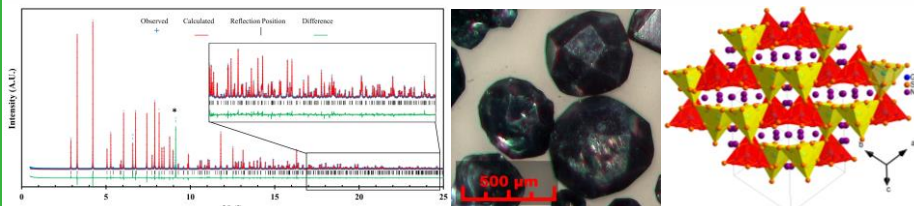
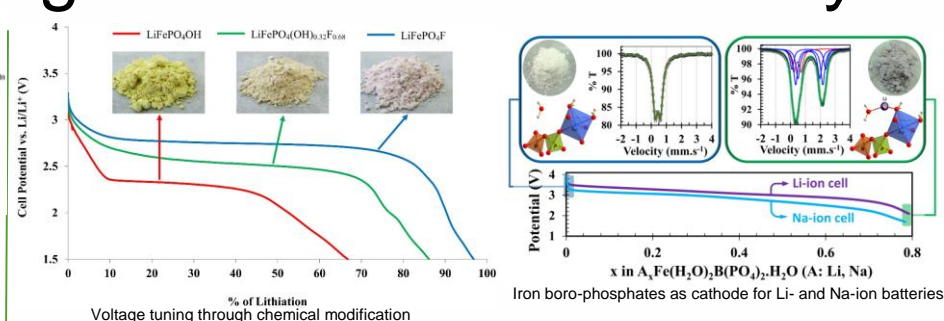


# Materials Innovation through Solid State Chemistry



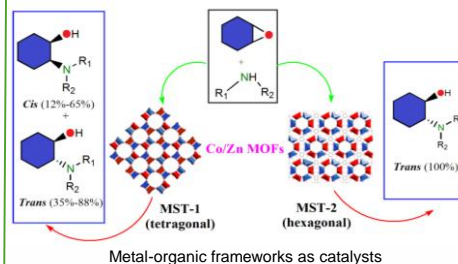
## Research Topics

- Lithium-ion batteries, Sodium-ion batteries, Lithium-sulfur batteries
- Complex chalcogenides for thermoelectrics, super-ionic conductor and magnetic semiconductor
- Metal-Organic Frameworks (MOFs) for catalysis and gas storage
- Understanding structure-property-correlations

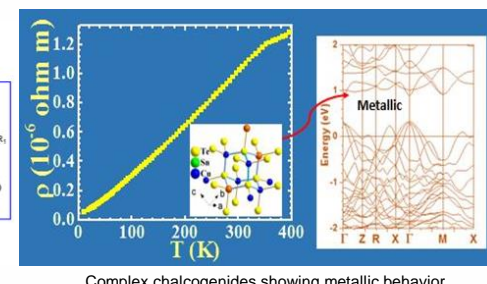


Voltage tuning through chemical modification

Iron boro-phosphates as cathode for Li- and Na-ion batteries



Metal-organic frameworks as catalysts



Complex chalcogenides showing metallic behavior

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## Keywords

- Batteries; Electrochemistry; Thermoelectrics; Catalysis; Magnetism; Chalcogenides; Oxides; MOFs; Synthesis; X-ray crystallography

## Representative publications

- H. Yaghoobnejad Asl and A. Choudhury, "A Combined Theoretical and Experimental Approach to the Discovery of Electrochemically Active Mixed Polyanionic Phosphatonitrates,  $AFePO_4NO_3$  ( $A = NH_4/Li, K$ )" *Chem. Mater.* 2016 **28** (14), 5029 – 5036.
- A. Pariyar, H. Yaghoobnejad Asl, and A. Choudhury, "Tetragonal versus Hexagonal: Structure Dependent Catalytic Activity of Co-Zn Bimetallic Metal Organic Frameworks" *Inorg. Chem.* 2016, **55** (18), 9250 – 9257.
- A. Adhikary, S. Mohapatra, S. H. Lee, Y. S. Hor, P. Adhikari, W.-Y. Ching, A. Choudhury, "Metallic Ternary Telluride with Sphalerite Superstructure" *Inorg. Chem.* 2016, **55**(5), 2114 – 2122.