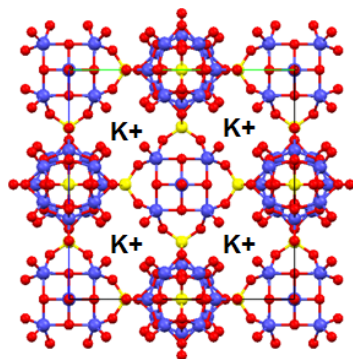


Synthesis and electrical characterization of novel materials for electrochemical storage

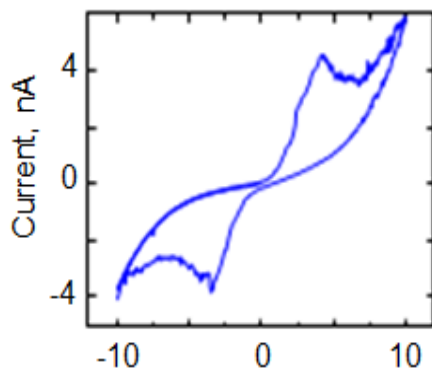
Objectives

fundamental electrochemical studies on *single crystals* in the solid-state

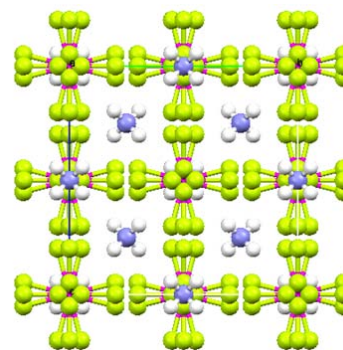
potential applications in new concepts for hybrid/blended electrical energy storage



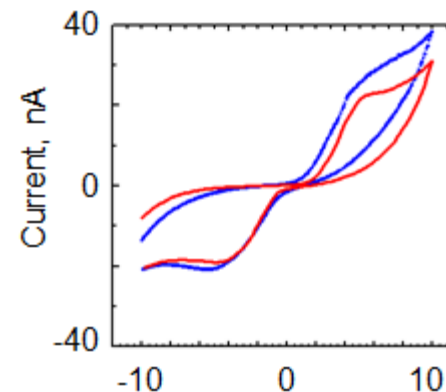
K⁺ intercalated
[(As₆V^{IV}₁₂V^V₃O₅₁)⁻⁹]_∞
Cubic, 16 Å



voltammogram



(NH₄)₂(Ga_{0.3}V_{0.7}F₆)
Cubic, 9 Å



voltammogram

Impact

- charge storage measurements
- capacitors & ultracapacitors
- battery electrodes
- catalysis
- solid state chemistry and physics
- solution chemistry routes

- outreach to middle and high school teachers in Southwest VA
4 workshops; materials and energy
- undergraduate research experience & for underrepresented minorities
- training in materials synthesis and characterization

Outcomes

- solid state electrochemistry
- structure function relationship
- multifunctional materials
- guided synthesis