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Electrically conducting zeoate frameworks

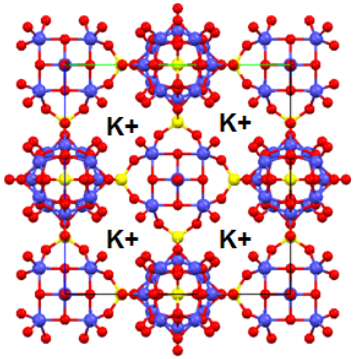
DMR 0943971

Synthesis and electrical characterization of novel materials for electrochemical storage

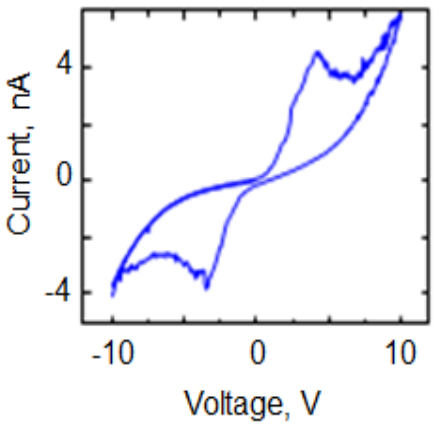
Objectives

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

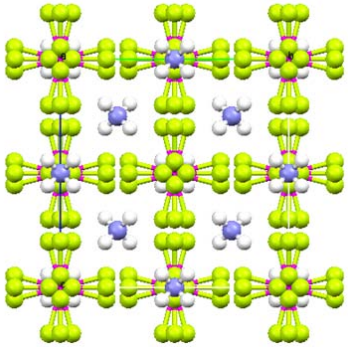
potential applications in new concepts for hybrid/blended electrical energy storage



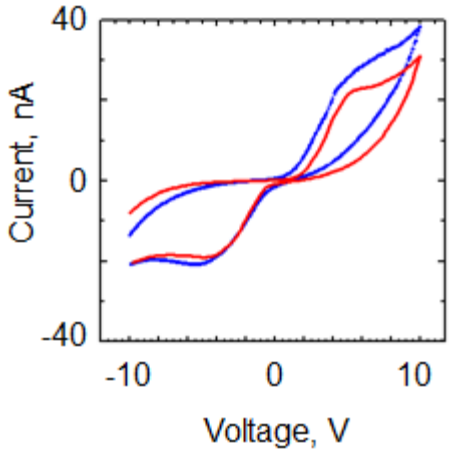
K+ intercalated
$[(As_6V^{IV}_{12}V^{V}_{3}O_{51})^{-9}]\infty$
Cubic, 16 Å



voltammogram



$(NH_4)_2(Ga_{0.3}V_{0.7}F_6)$
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