

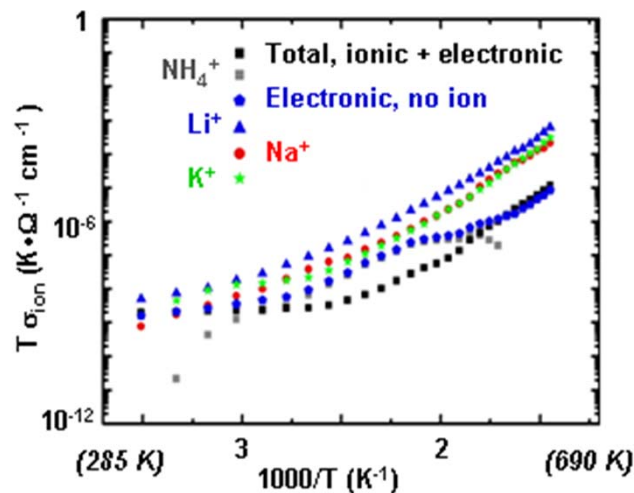
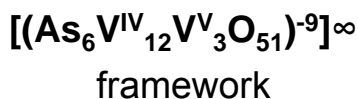
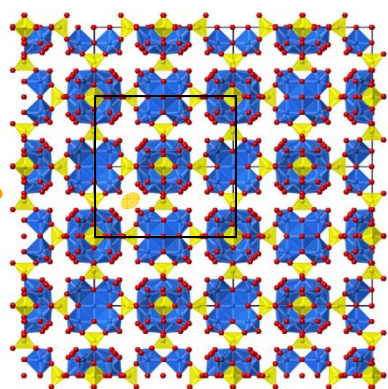
Synthesis of framework materials for energy applications.

Vision

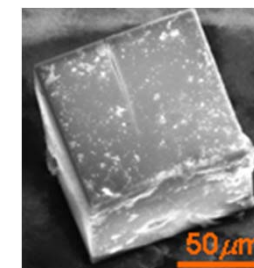
Zeolite-like frameworks → • large internal surface area → new approaches and concepts in energy production, storage and conversion
• tunable properties

Hydrothermally synthesized zeolite-like materials supporting both solid-state conduction by electrons and ionic conduction, for electrical energy storage.

Specifics



- synthesis
- charge storage measurements
- physical & chemical characterization
- x-ray diffraction @ VT
- pressure studies @VT
- ** x-ray @ light sources
- ** magnetism ** neutron diffraction



Impact

- solid state electrochemistry
- capacitors & ultracapacitors
- separation membranes
- battery electrodes • catalysis
- solid state chemistry and physics
- microporous & mesoporous frameworks

- 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

- conductivity mechanisms
- structure function relationship
- multifunctional conducting frameworks
- synthesis parameter space