

Synthesis of framework materials for energy applications.

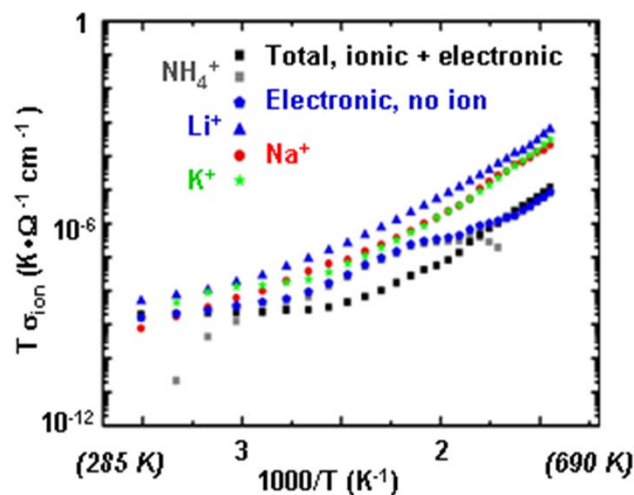
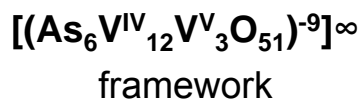
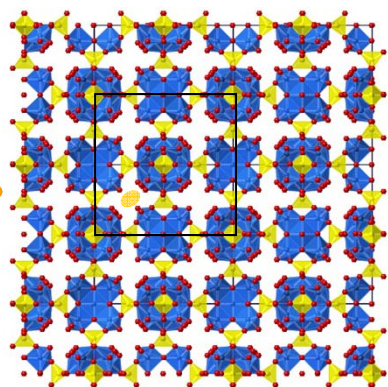


Zeolite-like frameworks

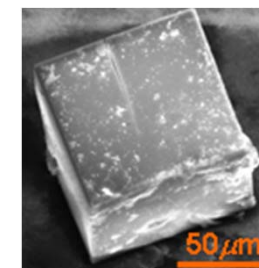
- large internal surface area
- tunable properties

new approaches and concepts in energy production, storage and conversion

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



- synthesis
- charge storage measurements
- physical & chemical characterization
- x-ray diffraction @ VT
- pressure studies @VT



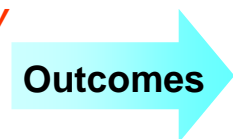
** x-ray @ light sources

** magnetism ** neutron diffraction



- 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



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