

Dynamic Phenomena in Complex Oxides During Electrochemical Process

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Synthesis

- Solution based chemistry
- Solid state synthesis
- Pulsed laser deposition

Novel ceramic materials
Thin film all solid-state
Nano composites

Modeling

- Ab Initio (VASP)
- Cluster Expansion
- Nudge Elastic Band (NEB)

Structure – property
Predicting and explanatory

Characterization

- Electrochemistry
- XRD, SEM, TEM etc.
- in situ UV spectroscopy

In situ techniques under
intense development

Collaborators

University of Florida: Jacob Jones – Time resolved XRD

Cambridge University: Clare Grey – Solid state NMR

Oak Ridge National Laboratory: Aberration corrected TEM/STEM/EELS

Stanford Synchrotron Radiation Light Source: in situ X-ray Absorption Spectroscopy (XAS)

