

## **High throughput discovery of metal oxide solar fuels materials and recent progress in mapping their phase behavior**

John Gregoire  
Caltech  
gregoire@caltech.edu

The High Throughput Experimentation (HTE) group within the Joint Center for Artificial Photosynthesis (JCAP) has developed a series of materials synthesis, screening and characterization techniques and assembled them into pipelines for the discovery of solar fuels materials. While providing an overview of the pipelines, I will highlight critical HTE processes that require integration with materials theory and computer science to accelerate materials discovery. Particular attention will be given to recent advancements in the rapid analysis of x-ray diffraction data to observe phase behavior in high-order composition spaces.