

**P-138**

## **The Upgraded APS – Status, Early Results, and Emerging Opportunities**

Stefan Vogt

Argonne National Laboratory, USA

**Session: Plenary Session**

### **Abstract Body**

Synchrotron facilities have had a profound impact on a wide array of scientific and industrial challenges, from advancing therapeutics to enhancing energy related materials relevant for batteries or solar cells. The advent of 4th-generation synchrotrons—boasting ultra-bright, tightly focused X-ray beams—marks a new era in imaging and analysis capabilities, and their application in corresponding applications.

The Advanced Photon Source (APS) has recently completed its major upgrade, resulting in X-ray beams that are up to 500 times brighter than before. This dramatic increase in beam brightness not only enhances spatial resolution and sensitivity but also significantly accelerates imaging throughput. The upgraded APS opens new frontiers across materials science, biological research, and beyond, and is in particular enabling high-impact experiments in complex, extreme environments where traditional techniques fall short.

In this presentation, we will provide an update on the current status of the upgraded APS, showcase some early, groundbreaking results, and explore the exciting new opportunities that this enhanced facility offers. These advancements are poised to drive innovations in fields ranging from energy storage to bio-medical applications, and we will highlight key areas where the APS upgrade is set to have a transformative impact.