

LIGHTING THE WAY TO A BETTER TOMORROW

Frontier science serving the national interest and positively impacting nearly every aspect of our lives



The APS enables research in nearly every scientific discipline :

- Materials science
- Chemical science
- Environmental, geological, and planetary science
- Physics
- Polymer science
- Biological and life science
- Pharmaceutical research
- Nanoscale research

The U.S. Department of Energy Office of Science's (DOE SC's) Advanced Photon Source (APS) gives scientists access to high-energy, highly penetrating X-ray beams that are the brightest in the world. They are ideal for studying arrangements of molecules and atoms, probing interfaces where materials meet, determining interdependent form and function of biological proteins, and watching chemical processes at the nanoscale.

This remarkable scientific tool helps researchers illuminate answers to the challenges of our world, from developing new forms of energy to sustaining U.S. technological and economic competitiveness to fighting disease. The DOE invests in world-leading research centers such as the APS because of the positive global impacts from the science carried out here.

Thousands of researchers from universities, industries, and research labs around the world come to the APS. Many institutions and companies invest in APS X-ray beamlines. The APS houses technologies comprising one of the most complex machines

in the world, the result of innovative research and development led by scientists, engineers, and technicians from Argonne, other institutions, and industry.

UPGRADED APS

The upgraded APS has significantly increased in coherent flux and is the brightest X-ray light source in the world. It combines a state-of-the-art accelerator with advanced beamline, optics, and detector technologies. The upgraded APS gives researchers a next-generation tool to probe structure and function across length, time, and energy scales, extending U.S. global leadership in hard X-ray science.

NOBEL PRIZE-WINNING RESEARCH

The recipients of the 2009, 2012 and 2024 Nobel Prizes in chemistry published papers on their work based on data collected in part at the APS, as well as other DOE X-ray light sources at national laboratories.

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