

2019 PSC Priorities Meeting

July 24, 2019



UChicago
Argonne_{LLC}



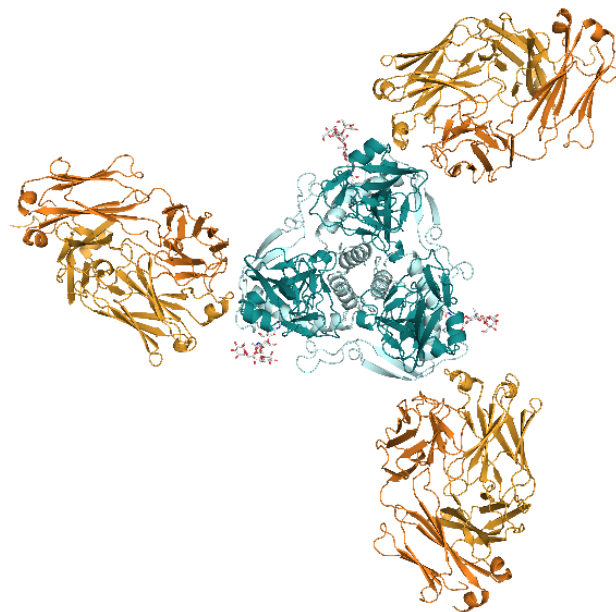
U.S. DEPARTMENT OF
ENERGY

Argonne National Laboratory is a
U.S. Department of Energy laboratory
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Agenda

- PSC – Stephen Streiffer
- XSD – Jonathan Lang
- AES – Patric Den Hartog
- ASD – John Byrd
- APS Upgrade – Jim Kerby

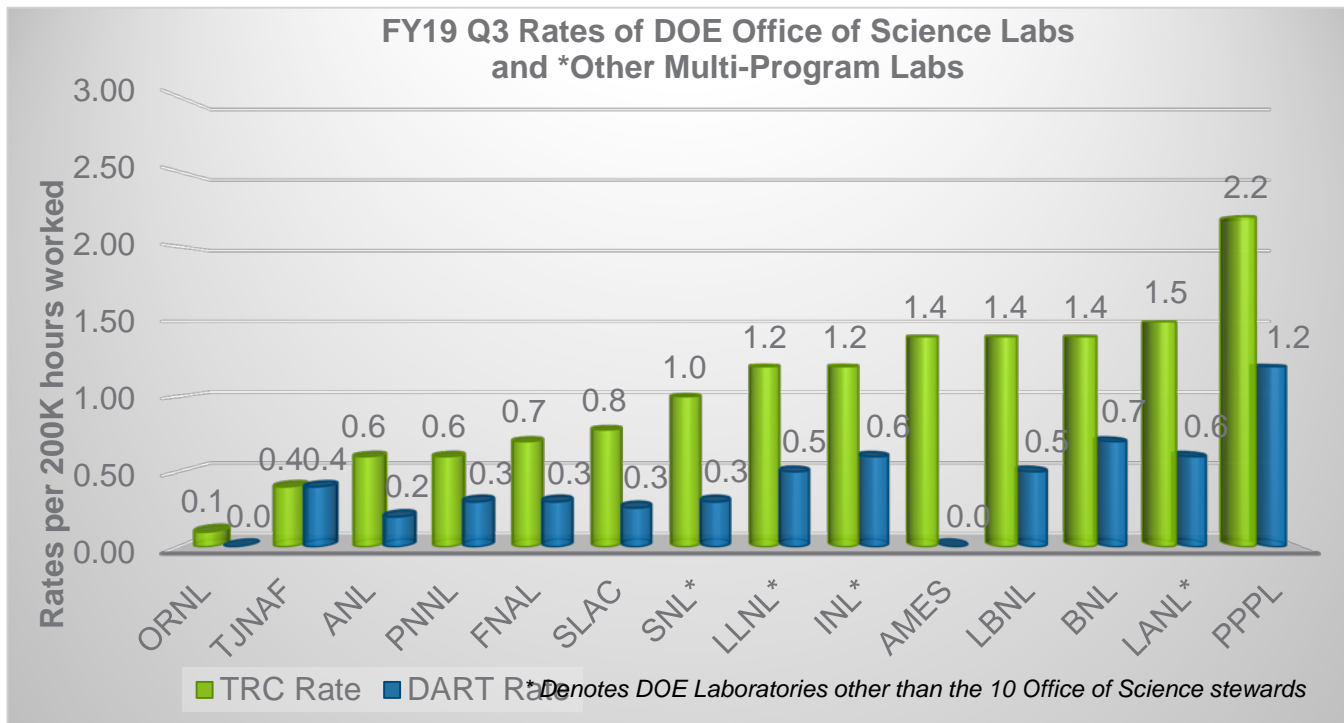


Three antigen-binding fragments of ADI-15946 (orange) are shown bound to the surface glycoprotein of Ebola virus (teal).

B.R. West, C.L. Moyer, L.B. King, M.L. Fusco, J.C. Milligan, S. Hui, E. Ollmann Saphire, "Structural Basis of Pan-Ebolavirus Neutralization by a Human Antibody against a Conserved, Yet Cryptic Epitope," *mBio* **9(5)**, e01674-18 (September/October 2018). DOI: 10.1128/mBio.01674-18.

Safety

- If something happens, report it



Our Impact Argonne Framework and Core Values Guide Our Strategy

LEADERSHIP IN
SCIENCE AND
TECHNOLOGY

OPERATIONAL
EXCELLENCE

WORLD-CLASS
COMMUNITY
OF TALENT

Impact

Safety

Respect

Integrity

Teamwork

Our Major Initiatives Will Help Shape the Future

Continuing initiatives

HARD X-RAY SCIENCES



ADVANCED COMPUTING



ARTIFICIAL INTELLIGENCE FOR SCIENCE

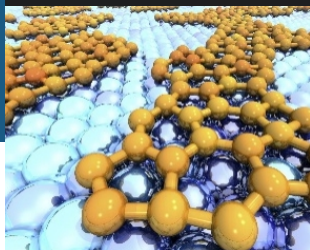


Emerging initiatives

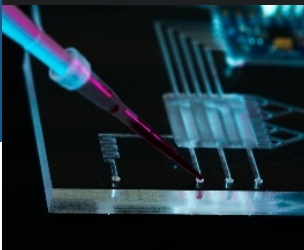
UNIVERSE AS OUR LABORATORY



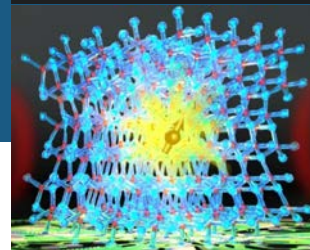
MATERIALS AND CHEMISTRY



MANUFACTURING SCIENCE AND ENGINEERING



QUANTUM INFORMATION SCIENCE

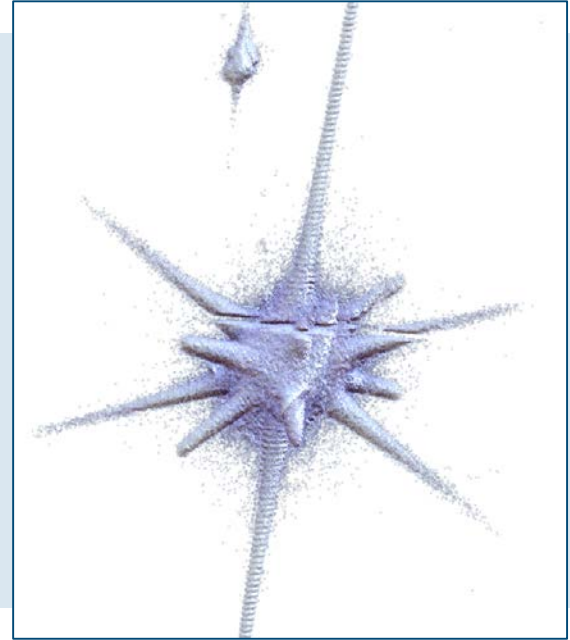


Hard X-ray Sciences Initiative

OUTCOME Multiscale, three-dimensional exploration of complex materials and chemical systems in unprecedented detail

STRATEGY ELEMENTS

- New experimental techniques
- Novel optics and detectors
- Analysis-driven, real-time experimental control
- APS-U project on time and within budget



The Photon Sciences Directorate: Getting to APS 2025

Operate and develop hard x-ray user facilities and advance the forefront of x-ray science, transforming exploration of energy, biological and other functional materials, chemistries and systems, to overcome global challenges to sustainable energy, health, and national security.

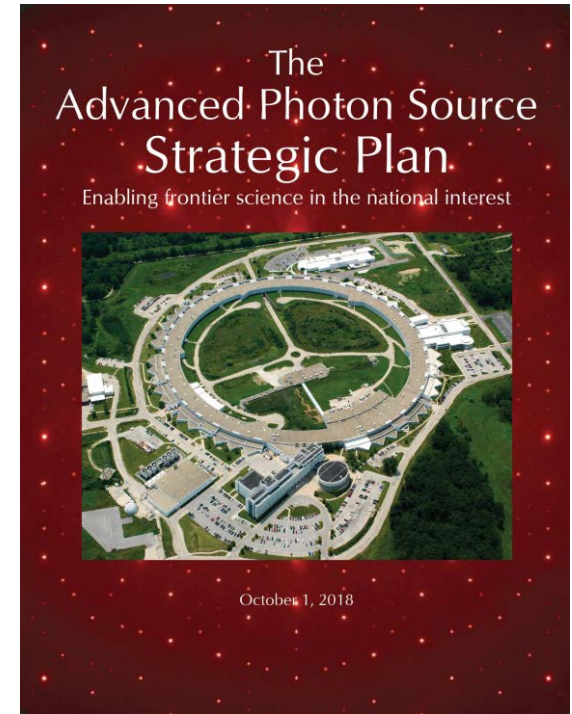


Our Goals:

- **OPERATE**, maintain, and improve the current APS (aligned with APS-U)
- **UPGRADE** to maintain world leadership – the APS-U Project
- **ADVANCE** hard x-ray techniques to exploit APS-U source characteristics
- **LEVERAGE** Computing@Argonne to meet data science challenges
- **PARTNER** across Argonne to advance programs in basic science, energy and national security
- **RESEARCH** concepts for future sources and accelerator technologies

APS Operations and APS-U are Aligned

- Project and Ops meet regularly to coordinate resources
 - MOU between APS and APS-U, defining interfaces
 - Effort Request Agreements (ERAs) between APS-U and divisions
 - Integrated Staffing Plan
- APS Ops and APS-U have agreed on a beamline “roadmap” with program siting changes and a sequence for beamline work
- Ops is responsible for handing over facility to APS-U in the anticipated state, and ensuring that reused technical systems that do not require improvements will support APS 2025
- Ops supports data sciences, instrument/technique development to capitalize on APS-U investment
- APS Infrastructure Master Plan developed, owned by Infrastructure Services

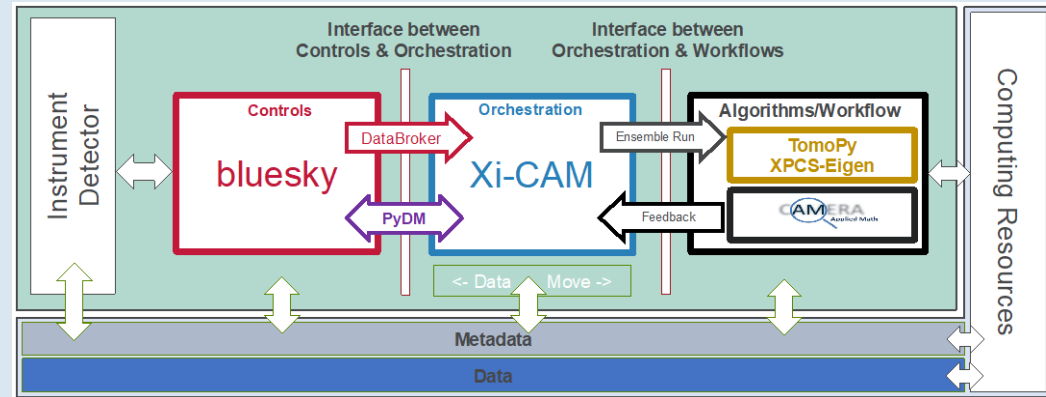


Community Engagement on APS-U Science

- Science engagement is an on-going process
 - Aug. 20 - 21, 2018: Biological Science Opportunities Provided by the APS Upgrade, ANL {MX focus}
 - Aug. 28 - 29, 2018: Opportunities in Biological and Environmental Research Uniquely Enabled by the APS Upgrade {non-MX, BER focus}
 - Sep. 25 - 26, 2018: Condensed Matter Physics, X-Ray Scattering and X-Ray Spectroscopy at the APS Upgrade, ANL
 - Sep. 27 - 28, 2018: Discovery, Synthesis, and Development of Emerging Materials and the Role of the APS Upgrade, ANL
 - Workshops being planned for catalysis and time-resolved chemistry in October 2019

The Year Ahead

- CD-3 approval and continued success in APS-U project execution
- Experimental techniques and data analysis workflows for APS-U feature beamlines
- Begin work on Interface Portfolio Projects
- User and staff preparation for dark time and start-up
- Vision for biological and environmental research
- Next-generation light source concepts



Proposed project to leverage capabilities across light-source complex to develop workflows to collect and analyze data

PACESETTERS

- **Timothy Jonasson, Terry Smith (ASD/RF), and Soonhong Lee (AES/MED)**
 - **Pacesetter Award** for an outstanding effort to timely and safely install a Linac SLAC Linac Energy Doubler (SLED) into the L6 Test Stand for High Power RF Tuning / Conditioning - and installation into L5 to allow return to full energy in support of APS Operations and the Advanced Photon Source Upgrade (APS-U).

- **Kelly Cunningham (PSC/AES)**
 - **Pacesetter Award** for extraordinary effort in a variety of complex tasks with the goal of upgrading the APS websites. Kelly single-handedly managed and implemented on-time migration of the entire website to the cloud, including interfacing with the cloud-hosting vendor; moving the entire APS website to the new Drupal 8 content management system; and implementing a new, much improved Coveo search tool.

25+ YEARS SERVICE AWARDS

Congratulations to the following individuals for 25+ years of dedicated service to Argonne National Laboratory (second quarter 2019):

25 years

Linda DeVito

Sharon Farrell

50 years

Diane Kurtz

30 years

Terry Smith

David Jefferson

55 years

Cedric Putnam

35 years

Timothy Hentsch

Dr. Raj Rajashankar, NE-CAT Associate Director

- Our friend Dr. Kanagalaghata R. Rajashankar of Cornell Univ., long-time Associate Director of the Northeastern Collaborative Access Team (NE-CAT) at Sector 24 passed away on May 22nd, 2019.
- He is survived by his wife of 25 years, Suma, and two daughters, Medha and Manasvi.
- Raj was a valued and admired member of the APS community, and we offer our heartfelt condolences to Raj's family and colleagues.



Dr. Kanagalaghata R. Rajashankar

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