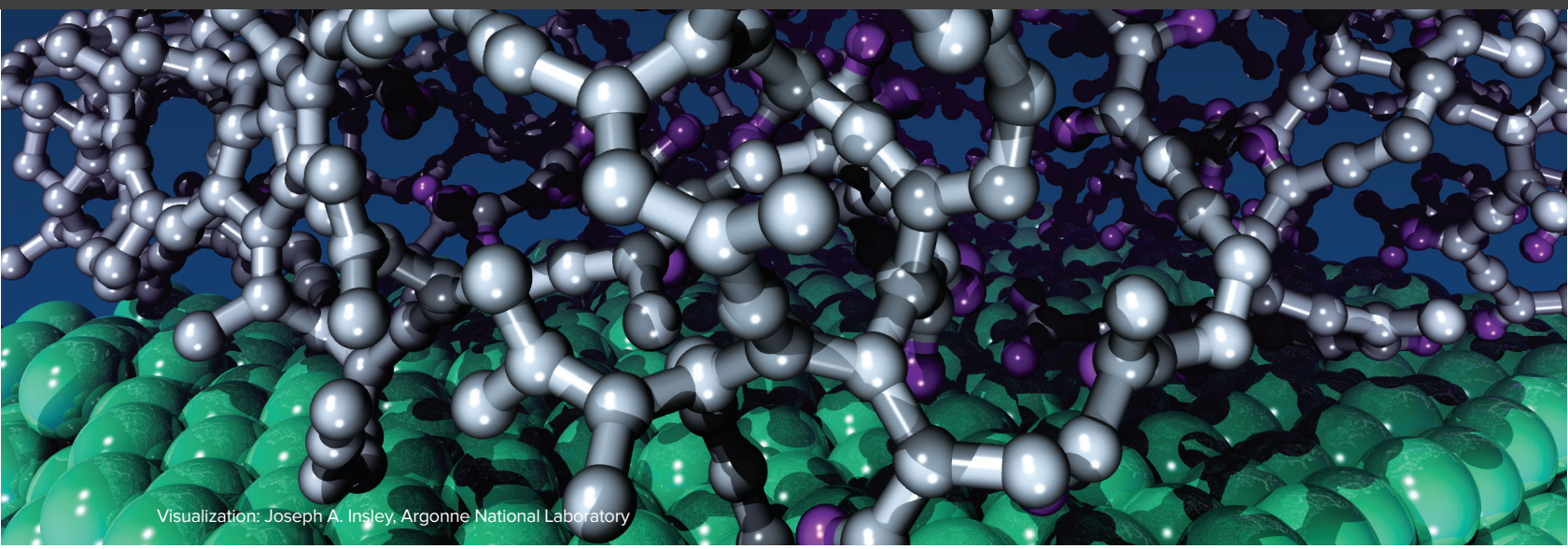
Argonne NATIONAL LABORATORY

ALCF
Argonne Leadership Computing Facility



Visualization: Joseph A. Insley, Argonne National Laboratory

ARGONNE LEADERSHIP COMPUTING FACILITY

The Argonne Leadership Computing Facility (ALCF), a U.S. Department of Energy (DOE) Office of Science User Facility, provides researchers with computing time and staff support to pursue significant breakthroughs in science and engineering. The ALCF is one of two DOE leadership computing facilities in the nation dedicated to open science.

The ALCF Computational Performance Workshop and other training opportunities help prepare researchers to efficiently use the facility's supercomputers.

Breakthrough Science and Engineering

The ALCF's unparalleled combination of resources is helping scientists accelerate their research in many fields, enabling high-impact scientific discoveries and transformative technologies.

- BIOLOGICAL SCIENCES
- CHEMISTRY
- COMPUTER SCIENCE
- EARTH SCIENCE
- ENGINEERING
- MATERIALS SCIENCE
- PHYSICS

U.S. DEPARTMENT OF ENERGY

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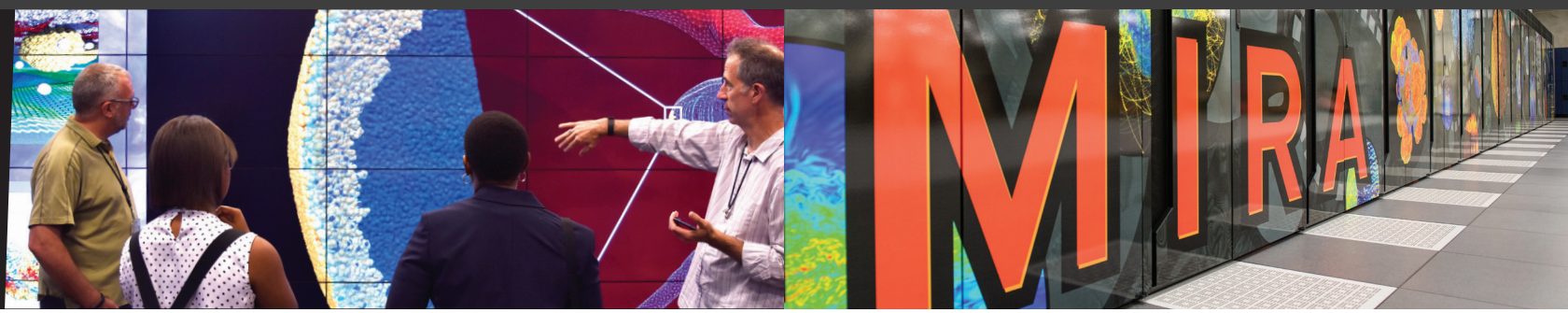
Providing Supercomputing Resources to Advance Discovery and Innovation



Enabling Science

With hundreds of thousands of processors working in parallel, supercomputers can run simulations of extremely complex physical systems and model physical processes that are too small or large, costly, or dangerous to study in a laboratory.

World-Class Supercomputing

At around 10 petaflops each, the ALCF's supercomputers, Mira and Theta, are both capable of approximately 10 quadrillion calculations per second. The facility's high-performance storage and networking infrastructure is designed to efficiently handle massive amounts of data. To further expedite scientific discovery, the ALCF also hosts a powerful visualization cluster for rapid rendering and analysis.

Next-Generation System

The ALCF's next-generation system, Aurora, will deliver a significant boost in computing power. Designed in collaboration with industry leaders Intel and Cray, Aurora will help ensure continued U.S. leadership in high-end computing for scientific research, while also cementing the nation's position as a global leader in the development of next-generation exascale computing systems.

Accessing ALCF Resources

The ALCF is available to any researcher in the world with a large-scale computing problem. Researchers gain access to ALCF systems through competitive, peer-reviewed allocation programs supported by DOE and Argonne National Laboratory, and publish their findings in high-impact journals and publications.

Expertise and Support

The ALCF's team of computational scientists, performance engineers, visualization experts, and support staff has the skills and expertise to ensure users get the most out of the facility's high-performance computing systems.

- Multidisciplinary scientific expertise
- Innovative computational methods
- Code porting, tuning, and scaling
- Data sciences
- Visualization and data analysis
- HPC systems administration
- Technical support
- User training

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