

Key facts about the Argonne Leadership Computing Facility

The Argonne Leadership Computing Facility (ALCF) provides researchers from national laboratories, academia, and industry with access to high-performance computing capabilities – some of the most powerful in the world – to conduct breakthrough science and engineering research.

Range of research

- ▶ **Basic science research** seeks to understand how nature works. This research includes modeling and simulation of physical, chemical, and biological processes, and high-energy physics.
- ▶ **Applied science and engineering R&D** investigates practical solutions to society's problems. This research focuses primarily on energy resources, environmental management, and national security.

Resources for open science

Supported by the U.S. Department of Energy's Office of Science, the ALCF is one of two leadership computing facilities in the nation dedicated to open science. Any researcher with a question that requires large-scale computing resources can submit a proposal for time on ALCF supercomputers to run program for their experiments. Access to ALCF resources comes through one of three programs:

Innovative and Novel Computational Impact on Theory and Experiment. This program competitively awards large blocks of time for computationally intensive, large-scale research projects that address grand challenges in science and engineering.

ASCR Leadership Computing Challenge. This program allocates time on computational resources at the NERSC and the leadership computing facilities at Argonne and Oak Ridge for special situations of interest to the DOE's energy mission, with an emphasis on high- risk, high-payoff simulations.

Director's Discretionary. This program provides start-up time to researchers who can demonstrate a need for leadership-class resources. These awards are primarily a "first step" for projects working toward an INCITE or ALCC allocation.

Director: **Michael E. Papka**
Deputy Division Director: **Susan Coghlan**
Regular staff: **62**
Number of postdocs: **9**
URL: **www.alcf.anl.gov**



User support and services

Skilled experts at the ALCF enable researchers to conduct breakthrough science on the Blue Gene system in key ways.

Catalysts are computational scientist with domain expertise and work directly with project principal investigators to maximize discovery and reduce time-to-solution.

Performance Engineers help users achieve optimal performance on ALCF resources by working with them to port, tune, and parallelize scientific applications and other software. This includes assessing and improving the algorithms used by applications and the techniques used to implement those algorithms.

Data Analytics and Visualization Experts facilitate the use of tools and methods for high-performance post processing of large datasets, interactive data exploration, batch visualization, and production visualization.

Operations ensures that system hardware and software work reliably and optimally; system tools are matched to the unique system architectures and scale of ALCF resources; the entire system software stack works smoothly together; and I/O performance issues, bug fixes, and requests for system software are addressed.

User Services and Outreach provides frontline services and support to existing and potential ALCF users. The team also provides education and outreach to users, the U.S. Department of Energy, and the broader community.