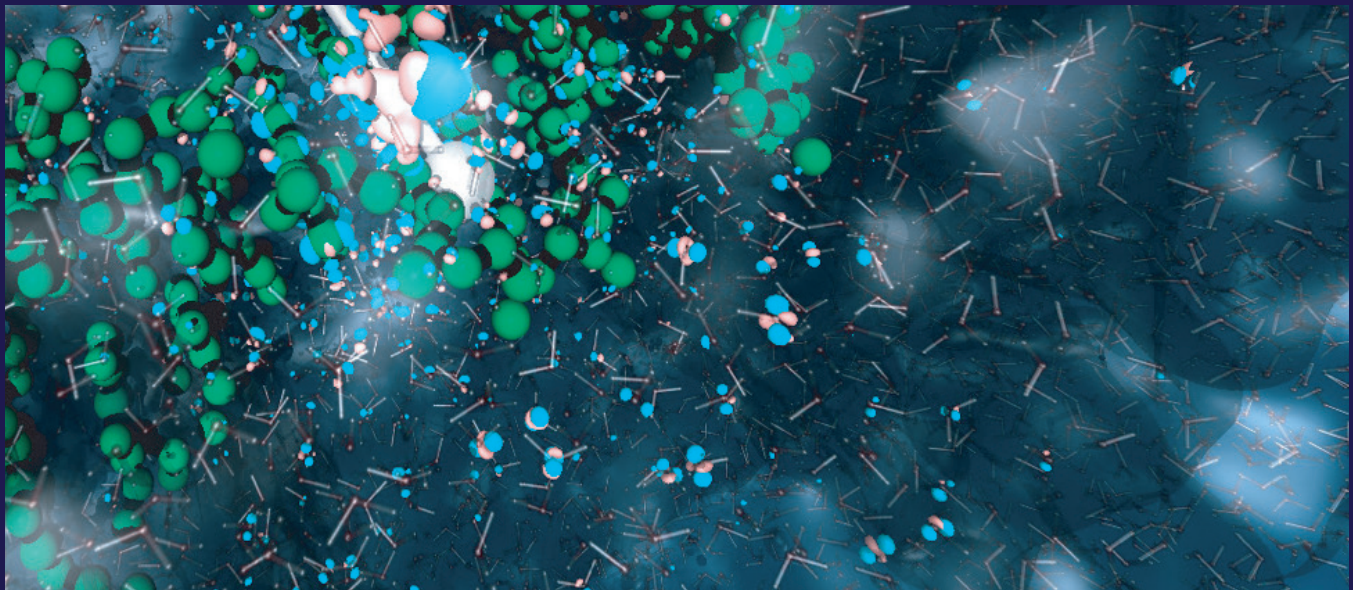


# Argonne Leadership Computing Facility

Accelerating the pace of discovery and innovation

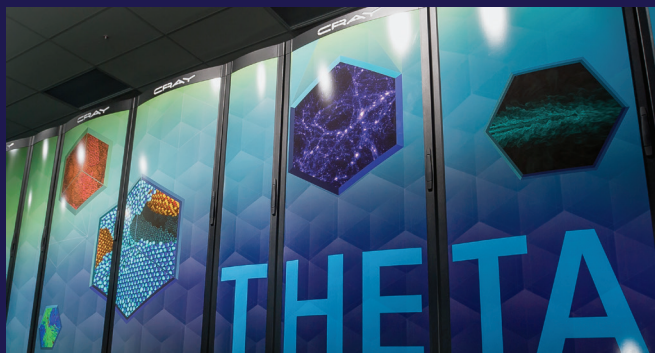


This visualization is a snapshot from a non-equilibrium electron dynamics simulation run on the ALCF's Theta supercomputer.  
Image: Yosuke Kanai and Dillon Yost, University of North Carolina at Chapel Hill

The Argonne Leadership Computing Facility (ALCF), a U.S. Department of Energy (DOE) Office of Science User Facility, provides supercomputing resources and expertise to the scientific and engineering community to accelerate the pace of discovery and innovation in a broad range of disciplines.

## Breakthrough Science and Engineering

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



Theta, an 15.6 petaflops supercomputer, is the engine that drives scientific discoveries at the ALCF.

Biological Sciences	Energy Technologies
Chemistry	Engineering
Computer Science	Materials Science
Earth Science	Physics

### Simulation, Data, and Learning

The ALCF is opening the doors to new areas of scientific computing research through its efforts to support advanced data analytics, artificial intelligence, and machine learning techniques alongside traditional modeling and simulation campaigns.

### World-Class Supercomputing

At over 15 petaflops, the ALCF's supercomputer Theta is capable of performing approximately 15 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.

### Entering the Exascale Era

The ALCF's next-generation system, Aurora, is slated to be one of the nation's first exascale supercomputers when it is delivered in 2022. Designed in collaboration with industry leaders Intel and HPE, 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

Visualization And Data Analysis

Innovative Computational Methods

HPC Systems Administration

Code Porting, Tuning, And Scaling

Technical Support

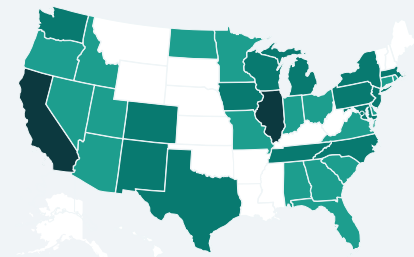
Data Sciences

User Training

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## 2020 BY THE NUMBERS

### U.S. ALCF Users by State



### Node-hours of compute time

# 101M

### Active Projects

# 369

### Facility Users

# 1,174

### Publications

# 246

### ALCF Users by Affiliation

