Argonne NATIONAL LABORATORY

ARGONNE NATIONAL LABORATORY OVERVIEW

January 19, 2023

UChicago Argonne, LLC

U.S. DEPARTMENT OF ENERGY

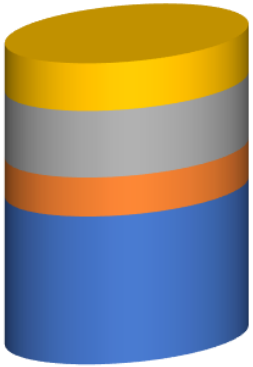
Argonne National Laboratory is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC.

Argonne accelerates science and technology as one of DOE's 17 national laboratories

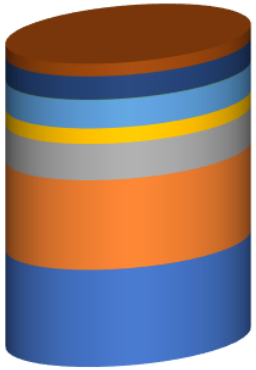
Argonne by the numbers

$1.15 BILLION FY22 BUDGET

Breakdown of total $1150 M budget from all sponsors



Breakdown of $548 M operating budget from Office of Science



PEOPLE

>3,500	Employees
>300	Post-doc appointees
~6,000	Users of 6 research facilities
3	Nobel Laureates in physics

1938 Enrico Fermi

1963 Maria Goeppert Mayer

2003 Alexei Abrikosov

Argonne has evolved to meet changing needs

Sculpture on UChicago campus commemorates first controlled nuclear chain reaction in 1942

1946 1950s 1960s 1970s 1980s 1990s 2000s

- Nuclear energy, chemistry, materials, physics, biology
- Early computers ⇨ high-performance computing ⇨ AI ⇨ exascale
- Proton accelerator ⇨ neutron source ⇨ x-ray source
- Energy storage
- Environmental protection ⇨ climate science
- Clean & efficient energy systems ⇨ deep decarbonization
- Superconductivity
- Disaster response ⇨ Resilient infrastructure
- Quantum science

The Laboratory's signature contributions today

Scientific discoveries

Solving the deepest mysteries in physical, environmental, and biological science

Cutting-edge research facilities

Providing powerful tools for experimentation and computation

Energy and climate solutions

Building on our discoveries to benefit the Midwest, the nation, and the world

Global security advances

Protecting against diverse threats to health, supply chains, and infrastructure

Developing leaders and the STEM workforce

User facilities support researchers from near and far

RECENT USER DEMOGRAPHICS

89% from 50 states, Puerto Rico, and D.C.

11% from 39 other countries

MAJOR UPGRADES UNDERWAY

APS: Dark period starts April 2023 to install a new accelerator system that will increase x-ray brightness 500 times, with first light a year later

ALCF: Early science in April 2023 for the Aurora exascale computer, in production by mid-2024

Broad impact from discovery to deployment

S. DARLING, INTERIM

Advanced energy technologies

- Applied materials
- Energy systems
- Infrastructure analysis
- Transportation and power systems

R. STEVENS

Computing, environmental and life sciences

- Biological and environmental science
- Computational science
- Data science and learning
- Mathematics and computer science

K. LAURIN-KOVITZ

Nuclear technologies and national security

- Chemical and fuel cycle technologies
- Decision and infrastructure sciences
- Nuclear science and engineering
- Strategic security sciences

L. CHAPON

Photon sciences

- Accelerator systems
- X-ray science

K. HAFIDI

Physical sciences and engineering

- Chemical sciences and engineering
- Materials science
- Nanoscience and technology
- Nuclear and particle physics

M. CLIFFORD

Science and technology partnerships and outreach

- Academic and industrial partnerships
- Community STEM engagement
- Entrepreneurship programs
- Technology commercialization

Our strategic initiatives will drive discovery and innovation

We are leading major new projects in microelectronics codesign

CONTINUING	Hard x-ray sciences	AI for science	Autonomous discovery
	Climate action	Quantum information science	Radioisotope discovery
NEW	Clean energy and sustainability	Detection and imaging of signatures	Microelectronics (emerging)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