



# Lawrence Livermore National Laboratory

Lawrence Livermore National Laboratory (LLNL) is preeminent in its ability to harness the power of science and technology to address critical national security challenges.

## Compelling Mission

Since its inception in 1952, LLNL has embraced its role as a “new ideas” laboratory, focusing on novel concepts and innovative approaches to national security science and engineering.

It’s defining responsibility is stockpile stewardship, ensuring the safety, security, and reliability of the nation’s nuclear stockpile. Yet LLNL’s mission is broader than stockpile stewardship, as dangers ranging from nuclear proliferation and terrorism to energy shortages and climate change threaten national security and global stability. The Laboratory’s science and technology are being applied to achieve breakthroughs for counterterrorism and nonproliferation, defense and intelligence, energy and environmental security.

## Strategic Partnerships

LLNL engages in partnerships with other laboratories, research universities, and high-technology industries to solve pressing national and global problems. Livermore has particularly strong partnerships with Sandia National Laboratories and Los Alamos National Laboratory, with shared stockpile stewardship and other national security initiatives, and with the University of California. Closer to home, the Laboratory is partnering with California’s energy providers to improve the efficiency, security and safety of the state’s utility systems.

## Exceptional Science & Technology

The Laboratory’s mission requires outstanding capabilities in multiple scientific and engineering disciplines, including:

- **Nuclear Science and Technology:** Understanding all aspects of nuclear weapons performance, the nuclear fuel cycle and nuclear forensics.
- **High-Energy-Density Physics:** Working towards fusion ignition and burn and developing the National Ignition Facility (NIF) into a premier user facility for national security and discovery science.
- **High-Performance Computing:** Leading the development, integration and use of new computer architectures, predictive simulation capabilities, knowledge extraction tools, and analytical techniques.
- **Materials Science:** Understanding materials from the nano- to the macro-scale as well as engineering new materials, and fabrication processes.
- **Advanced Lasers and Diagnostics:** Developing advanced lasers, sensors, and diagnostics for national security missions, health care applications and scientific discovery.
- **Engineering Development and Systems Technologies:** Integrating individual technologies and capabilities into end-to-end systems solutions to national and global problems.

## Key Facilities

The Laboratory supports a number of unique facilities that are central to its ability to carry out its national security mission:

- **National Ignition Facility (NIF):** Largest, most-energetic laser facility in the world.
- **Livermore Computing (LC):** Home to some of the world’s fastest computers, including Sierra (125 peak petaflops) and Sequoia (20 petaflops).
- **High-Explosives Applications Facility (HEAF):** State-of-the-art research facility for formulating, characterizing, processing, and testing energetic materials.
- **Site 300:** Remote site for high explosives and environmental testing.
- **National Atmospheric Release Advisory Center (NARAC):** National resource for predicting the spread of airborne releases of hazardous materials.



- **Advanced Manufacturing Laboratory (AML):** Houses some of the most capable equipment in the field of advanced manufacturing. Additional resources include material evaluation and characterization equipment, HPC modeling and simulation systems, and manufacturing capabilities from several LLNL programs.
- **Forensic Science Center (FSC):** Nationally recognized forensic analysis capabilities in support of nuclear, chemical, explosives and biological counterterrorism.
- **Center for Accelerator Mass Spectrometry (CAMS):** World's most versatile and productive accelerator mass spectrometry facility.
- **Livermore Valley Open Campus (LVOC):** An unclassified research and development space connecting industry and academia with Laboratory expertise to advance high- performance computing, energy and environmental security, cyber security, economic security, and non-proliferation.

## Operational Excellence

Effective management, business practices and operations provide the essential foundation for LLNL's mission activities. Safety, security, and environmental sustainability are explicitly designed into all activities. Working within a framework of performance-based management, the Laboratory strives to continually improve the quality of its business and operational performance.

## Outstanding Workforce

An outstanding workforce and Livermore's signature multidisciplinary teamwork approach is the Laboratory's principal strength. Livermore's workforce includes nearly 3,700 scientists, engineers, and postdoctoral fellows, as well as visiting scientists and students. LLNL is strengthened by, and values and encourages diversity and inclusiveness. Below is a breakdown of our scientific workforce by highest degree discipline and highest degree level.

■ Engineering	32%	■ Ph. D.	1,653
■ Physics	15%	■ Masters	794
■ Math/Comp Sci	16%	■ Bachelors	1,141
■ Physical Sci	12%	■ Associates	388
■ Other	25%		

## Lab At A Glance

**Location:** Livermore, California  
**Type:** National security laboratory  
**Contract Operator:** Lawrence Livermore National Security, LLC  
**Principal Sponsor:** National Nuclear Security Administration, DOE  
**Director:** William H. Goldstein  
**Website:** <http://www.llnl.gov/>

### Physical Assets:

- 7,700 acres (owned)
- 526 building/trailers
- 6.5 million gross square feet in active buildings
- Replacement plant value: \$7.4 billion

### Human Capital:

- 6,856 LLNS employees, including:
  - 20 joint faculty
  - 210 postdoctoral researchers
  - 293 undergraduate interns
  - 23 graduate students

### FY 2018 Funding: \$2.1 billion

- Weapons activities: 66%
- Nonproliferation and Counterterrorism: 6%
- Safeguards and Security: 4%
- NNSA Construction: .5%
- Department of Energy: 10%
- Department of Defense: 10%
- Homeland Security: 1%
- Non-federal: 2.5%