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Author(s):	Sauer, Nancy Nellie
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Los Alamos
NATIONAL LABORATORY

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LANL: Missions and Student Opportunities

Los Alamos NATIONAL LABORATORY EST. 1943

Delivering science and technology
to protect our nation
and promote world stability

Nan Sauer

January 2023

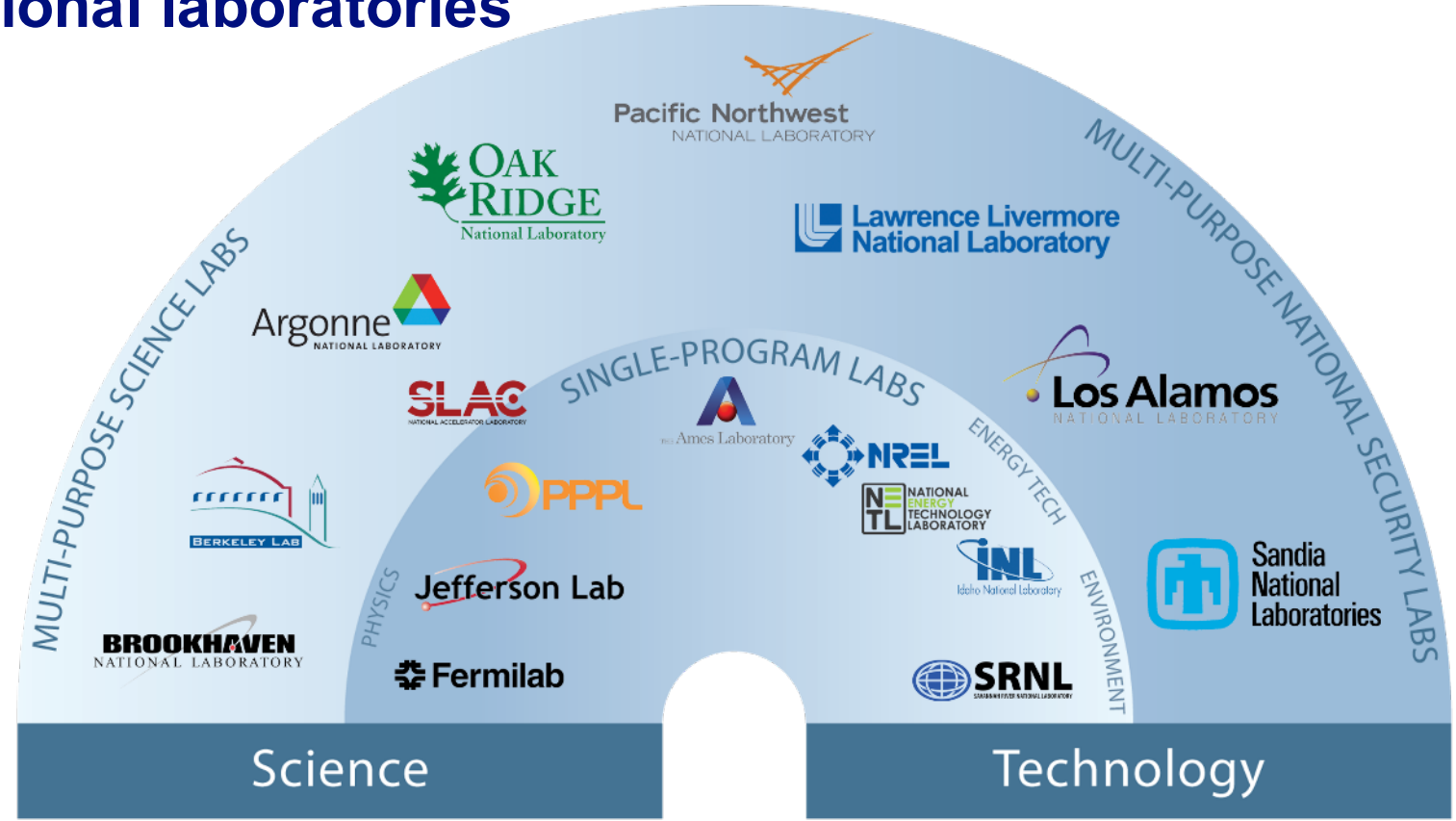
Managed by Triad National Security, LLC for the U.S. Department of Energy's NNSA

At Los Alamos, we deliver science and technology to protect our nation and promote world stability

- Our mission began by applying science and technology to address an international crisis
- Today, we are responsible for a wide range of programs focused on national security that rely on our strong science and engineering capabilities
- We offer unparalleled career opportunities in science, engineering, manufacturing, business, and more

The University of California has managed LANL since our inception

Los Alamos is one of 17 Department of Energy national laboratories



LANL is a complex, dynamic system of people, facilities, materials, and services

40 square miles 47 technical areas 1,280 buildings/9M sq ft 11 nuclear facilities 268 miles of roads

LANL by the numbers

As of July 2022

40
size of the site, in square miles

3,500
telework or hybrid regular employees

$2B
planned procurements in FY22

15,000
total workforce

49%
staff who identify as minority

$4.3B
Budget for 2023

Up to **2,000**
planned hires for FY23

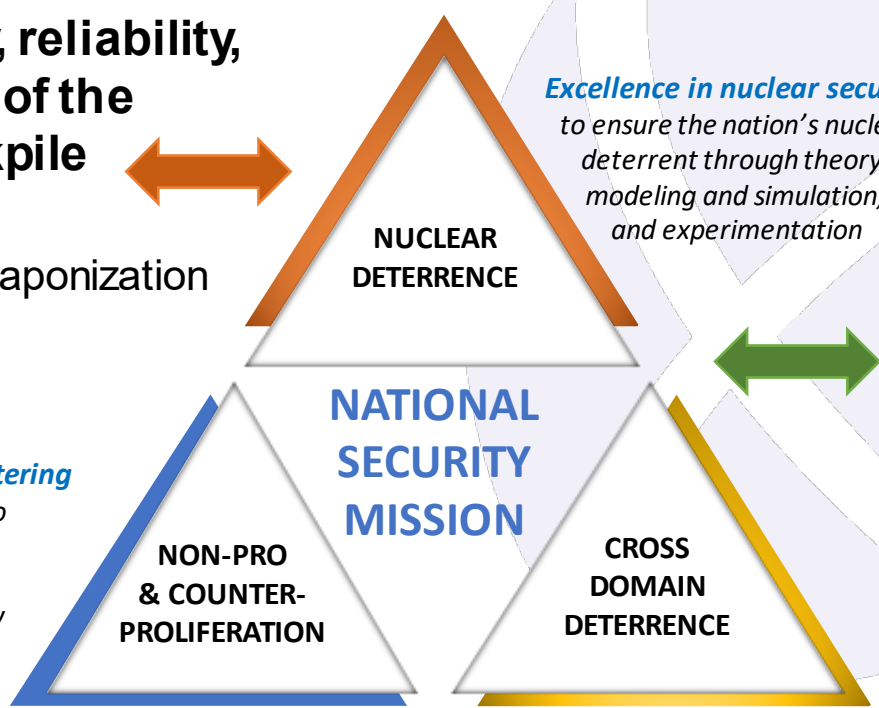
33/67
staff who ID as female/male

$103K
average starting salary

Our national security mission is broad and important
— and motivates and is enabled by ST&E discoveries

Ensure the safety, reliability, and performance of the U.S nuclear stockpile

- Physics & Design
- Engineering & Weaponization
- Production



Excellence in nuclear security *to ensure the nation's nuclear deterrent through theory, modeling and simulation, and experimentation*

Preventing and countering *efforts of proliferants to acquire, develop or disseminate materials and expertise necessary for nuclear weapons*

Energy security

- Sustainable Nuclear Energy
- Resilient Materials
- Complexity in Energy Systems

Supporting *the DoD, IC, and other national security partners to execute multidomain operations across land, air, sea, space, and cyber*

Technical Leadership

Deliver scientific discoveries and technical breakthroughs to advance relevant research frontiers and anticipate emerging national security risks

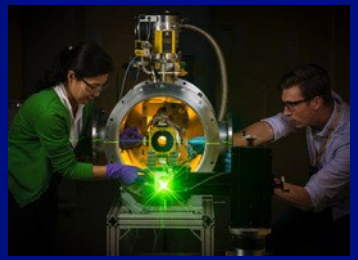
Long-term ST&E stewardship is based on Capability Pillars

Our capability pillars define six key areas of science, technology, and engineering in which we must lead

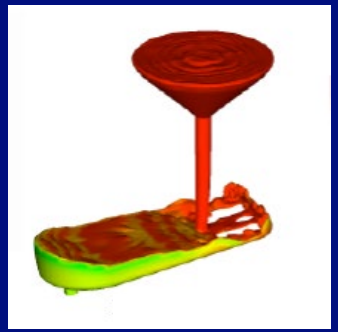
ENGINEERING	MATERIALS FOR THE FUTURE	Defects and Interfaces Extreme Environments Emergent Phenomena
	NUCLEAR AND PARTICLE FUTURES	Accelerator Science, Eng. & Technology Applied Nuclear Science & Engineering High Energy Density Plasmas & Fluids Nuclear, Particle, Astrophysics & Cosmology
	INTEGRATING INFORMATION, SCIENCE, AND TECHNOLOGY FOR PREDICTION	Computing Platforms Computational Methods Data Science
	SCIENCE OF SIGNATURES	Nuclear Detonation Nuclear Processing and movement, Natural and Anthropogenic Phenomena including climate
	COMPLEX NATURAL AND ENGINEERED SYSTEMS	Human–Natural System Interactions: Nuclear Engineered Systems Human–Natural System Interactions: Non-Nuclear
	WEAPONS SYSTEMS	Design Manufacturing Analysis

Opportunities in materials science & engineering

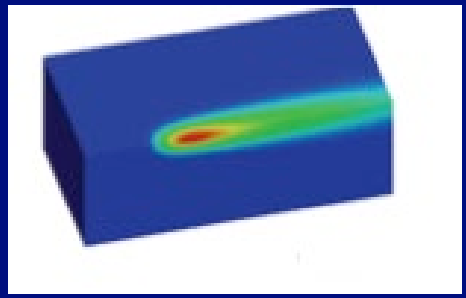
- Quantum materials
- Nanomaterials
- Biotechnology
- Materials modeling
- Chemical Synthesis
- Explosives



Materials synthesis and diagnostics



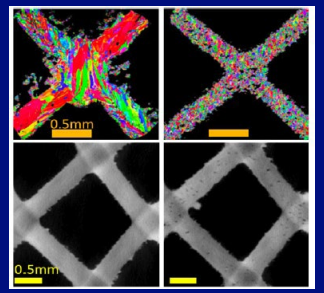
Casting simulations



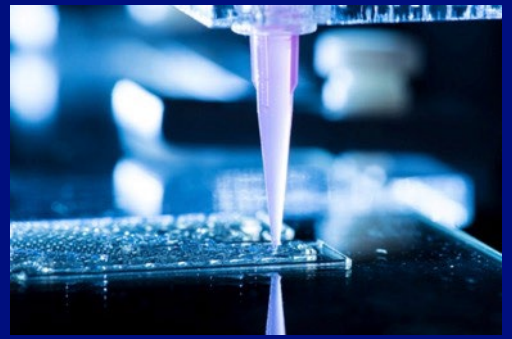
Additive manufacturing

Dynamic experimentation

Polymers and coatings



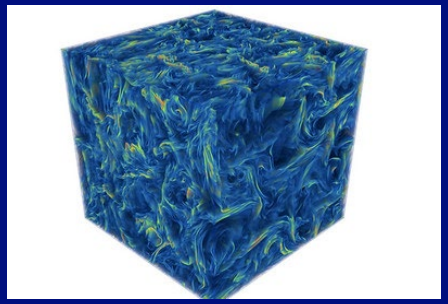
Microscopy



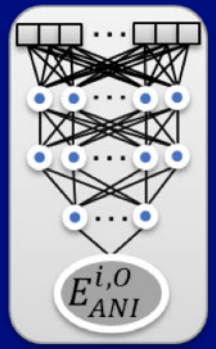
Opportunities in computational science & engineering

Quantum Computing

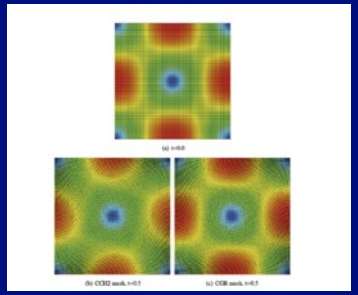
Modeling and Simulation



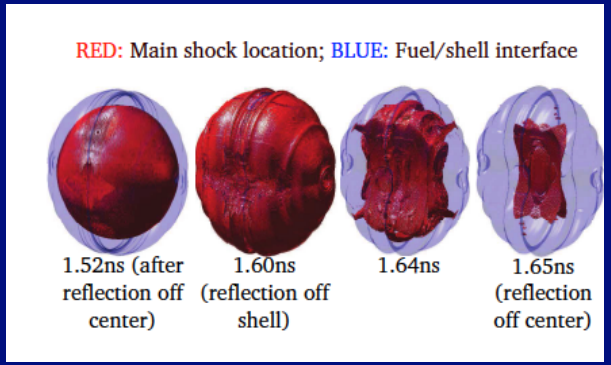
Machine Learning
for inter-atomic potential
calculations



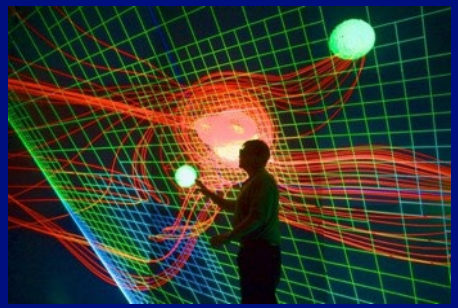
Numerical methods for
multi-material
compressible flow



Inertial Confinement Fusion



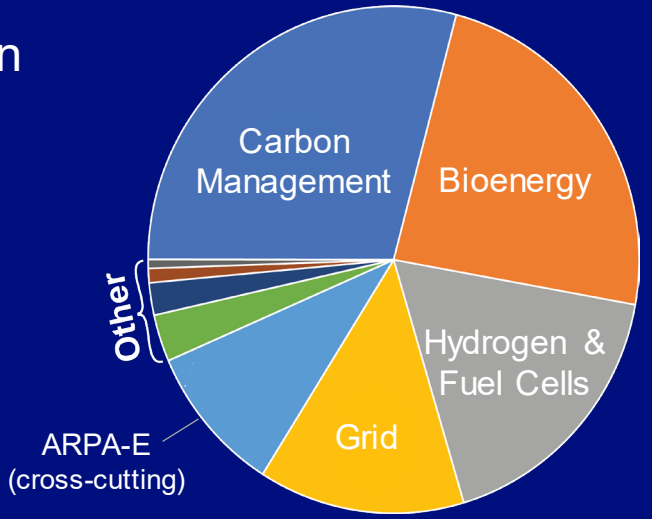
High performance
computing & visualization

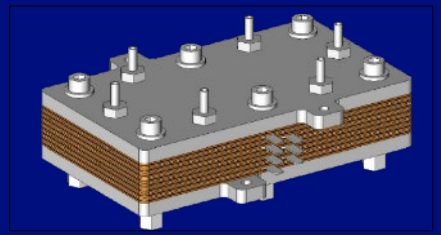


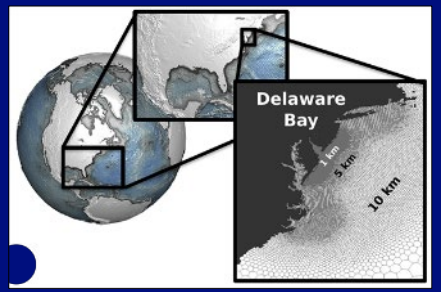
Los Alamos is the birthplace of computational physics

Opportunities in energy and climate science

- Interface of energy, climate, environment, human health, and national security
  - Energy security
  - Climate resilience
- From basic to applied science and engineering
- From planet to region to networks to new sustainable materials & devices



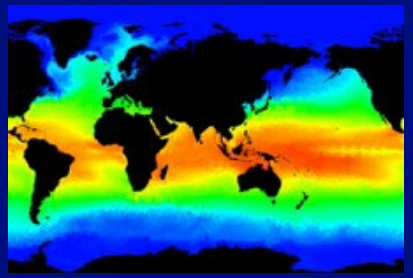




Opportunities in national and global security

- Space Science
- Bioscience
- Nuclear nonproliferation
- Weapons diagnostics
- Climate modeling

Space science and engineering

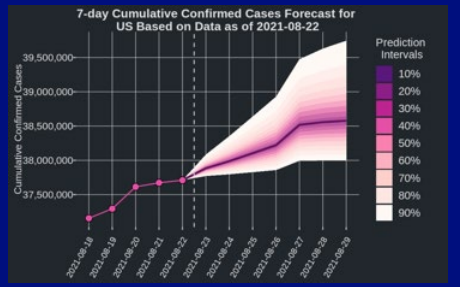


Ocean Modeling

Disease modeling/forecasting

Weapons diagnostics

Mars Rover-Curiosity & Perseverence



Fire growth and spread

Diverse teams at Los Alamos work collaboratively to solve national security challenges

- **4000 Scientists and Engineers**
  - 2200 PhD-level
  - > 162 R&D100 awards (since 1978),
    34 EO Lawrence awards,
    9 Presidential Early Career awards
- **~500 Postdoctoral researchers**
- **~2200 student interns (2022)**

Materials & Physical Data Group

Physics Verification & Analysis Group

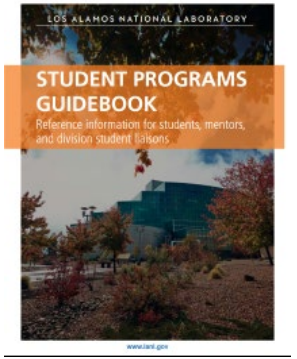
Students & postdocs are crucial for our future workforce

Postdoc and student programs and our summer schools are critical to our staff pipeline and efforts

- 71% of interns worked on-site or hybrid for summer 2022
- We have year-round internship opportunities, many remote
- 650 student interns reporting time in October 2022
- 75% of our Ph.D. hires at LANL came as Postdocs

62% of all current R&D staff at LANL were either a Student or a Postdoc at the Laboratory

Student Programs support our mission & staffing



Our Student program is the largest of the Department of Energy and has a unique set of opportunities for undergraduate and graduate students

Undergraduate Student (UGS) Eligibility requirements:

- Accepted into an undergraduate program
- Enrolled in and receive credit for a minimum of 12 credit hours/semester
- Must initially have and maintain a cumulative GPA of 3.0/4.0

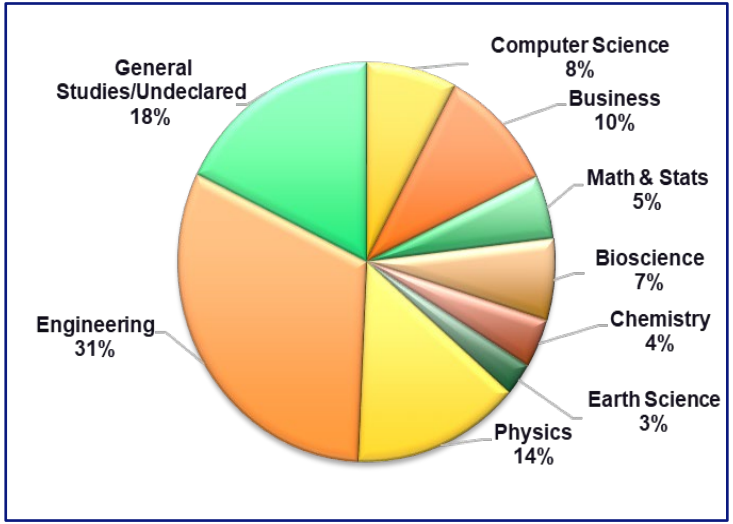
GRA Eligibility requirements:

- Accepted in a graduate program
- Enrolled in and receive credit for a minimum of six credit hours/semester
- Must initially have and maintain a cumulative GPA of 3.2/4.0

Recruiting practices

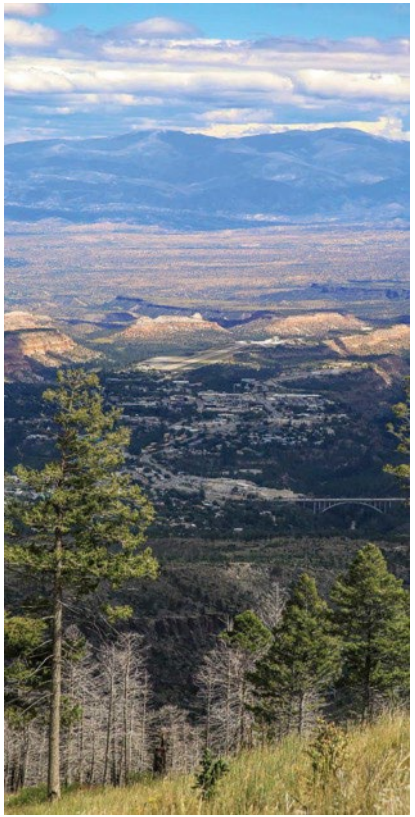
- LANL has students from all over the US
- There are institutional Job ads refreshed every 6 months

https://www.lanl.gov/careers/career-options/student-internships/index.php



The Northern New Mexico Region

LANL employees live across Northern New Mexico



LANL is in a culturally and environmentally rich location









Explore the opportunities for you at Los Alamos!

lanl.jobs
or
jobs.lanl.gov