Overview

Dr. Carol Burns
Executive Officer
Science, Technology, and Engineering

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Los Alamos
NATIONAL LABORATORY
EST. 1943

NNSA
National Nuclear Security Administration

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

Simultaneous excellence:
Balance between operations and mission

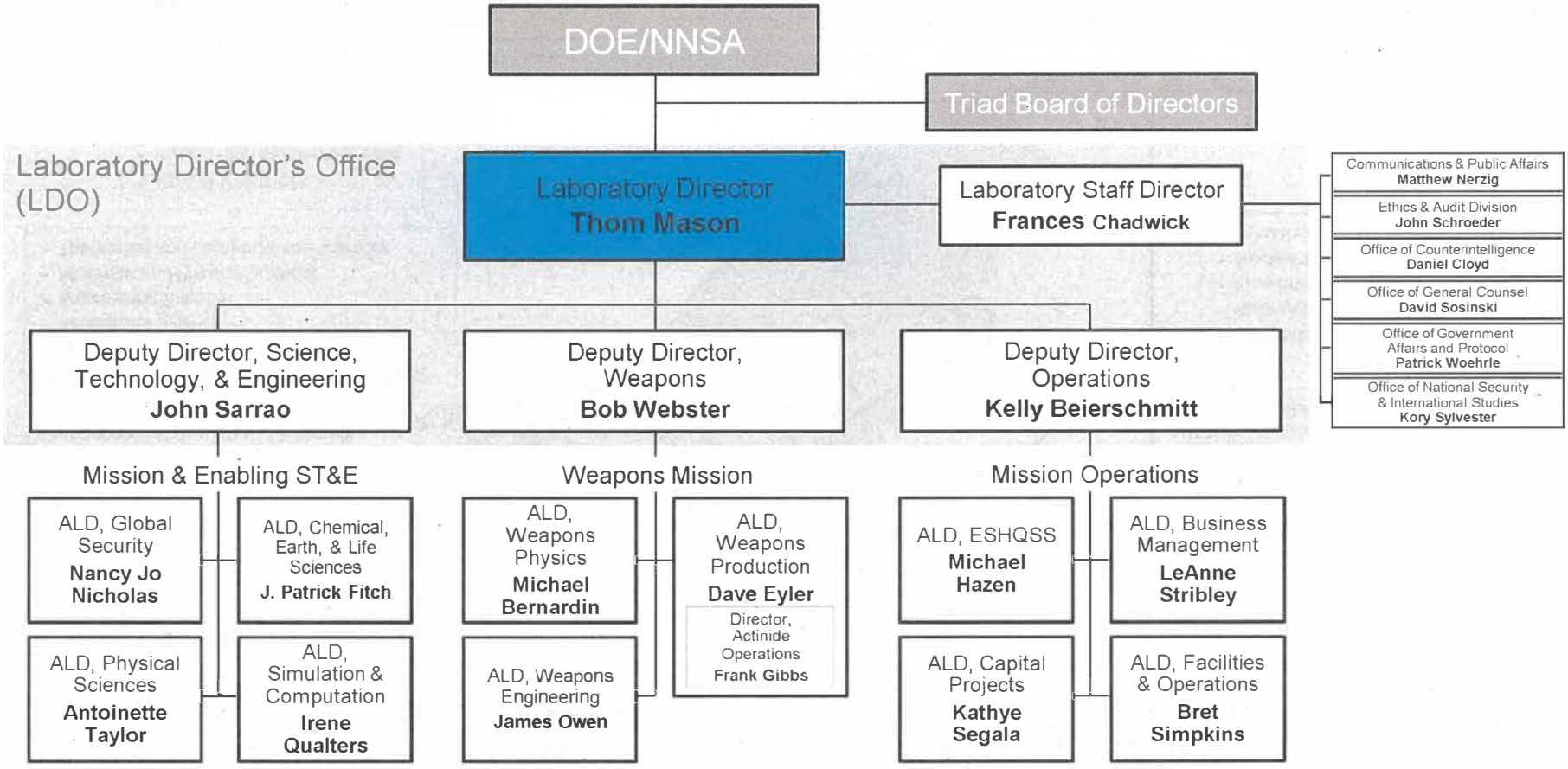
Design, produce, and certify current and future nuclear weapons and reduce global nuclear threats

Deliver scientific discovery and technical breakthroughs that support DOE/NNSA missions

Execute sustained operations that are reliable and responsive to mission needs

Sustain and enhance LANL's partnership with the community across Northern New Mexico

The Laboratory's new organizational structure

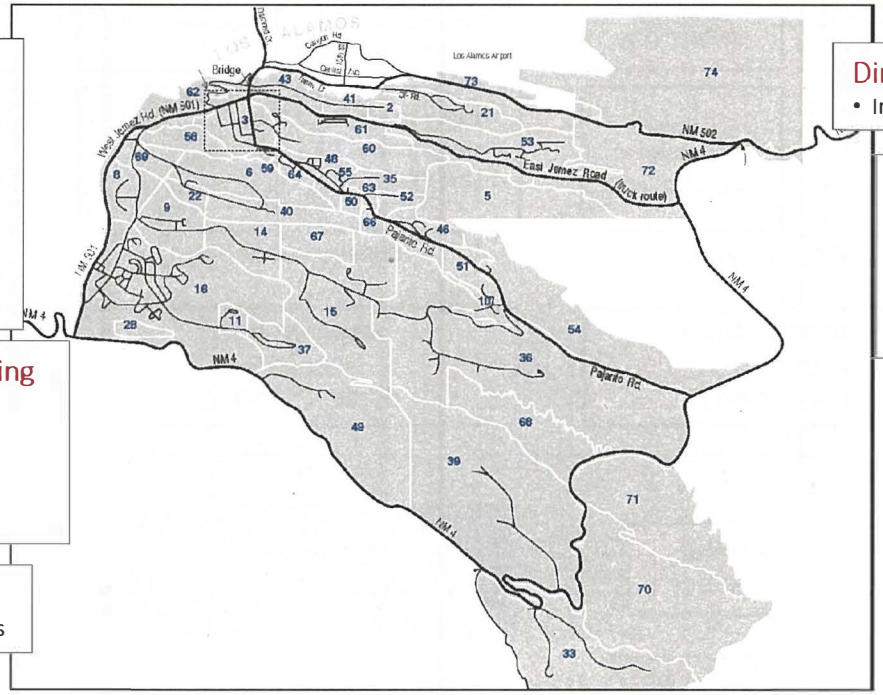


The Laboratory is a complex, dynamic system of people, facilities, materials, and services

Weapons Programs
- Weapons Physics Design and Computation
- Weapons Engineering
- High Explosives
- Plutonium
- Tritium/GTS
- Uranium, Beryllium, Salts, Metals
- Detonators
- Component Fabrication and Assembly

Science, Technology & Engineering
- Chemistry, Earth and Life Sciences
- Accelerator Science
- Engineering Sciences
- Materials and Physical Sciences
- Theoretical and Computational Sciences

Capital Projects
- Project Management Services



Director's Office
- Institutional Management

Global Security
- Nuclear Nonproliferation
- Nuclear Counter-Proliferation
- Emerging Threats
- Intelligence Community
- National Defense and Homeland Security

Institutional Operations
- Business Services
- Environmental, Safety, and Health
- Nuclear & High Hazard Operations
- Security and Mission Assurance

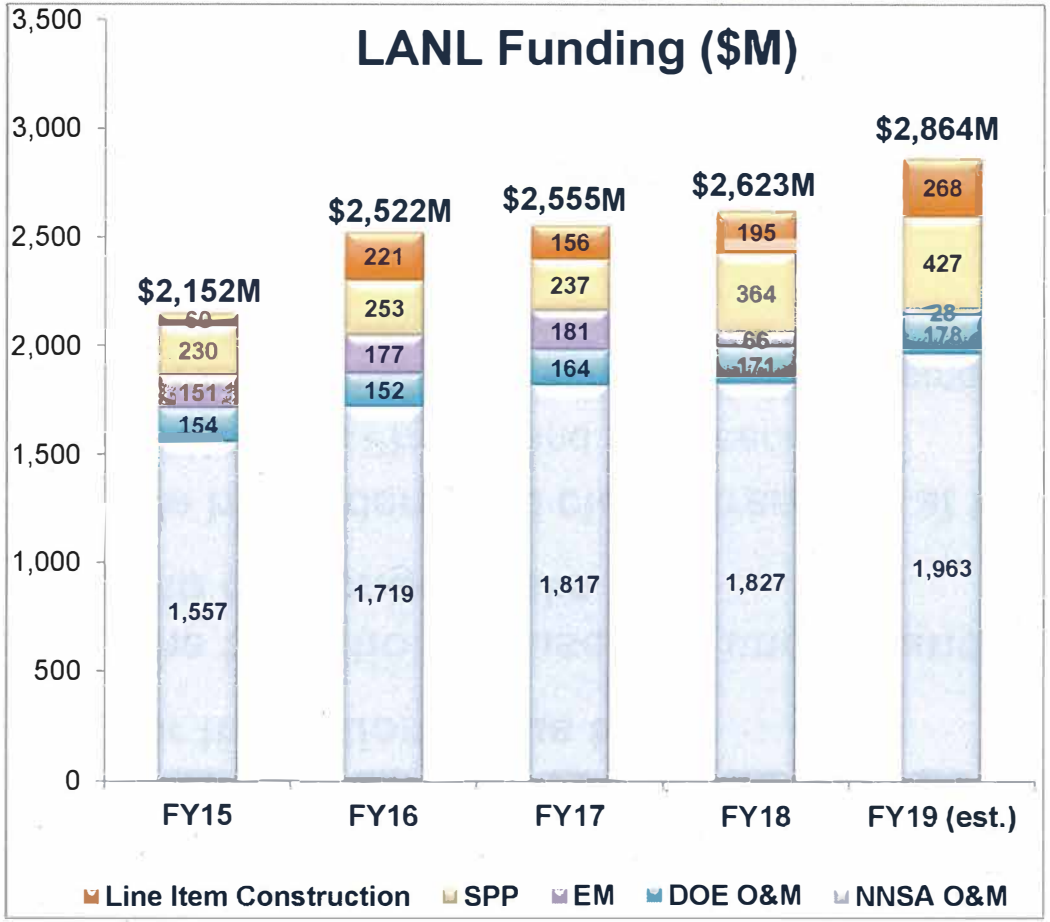
40 square miles 47 technical areas 1,280 buildings/ 9M sq ft 11 nuclear facilities 268 miles of roads

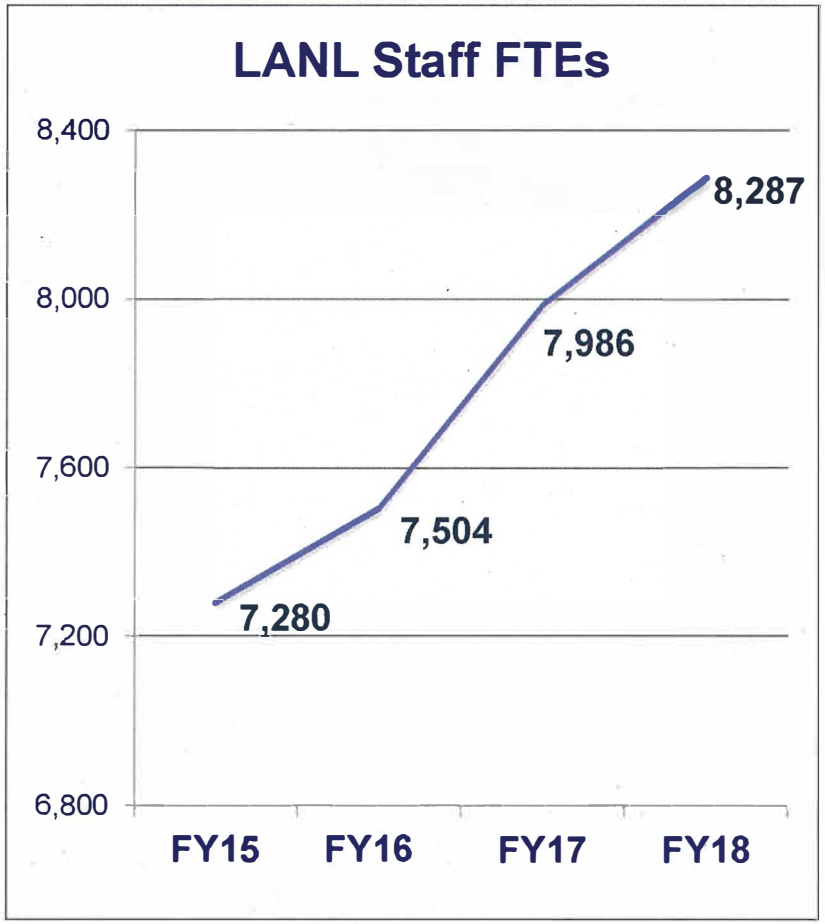
~8,300 career employees/~12,000 workers on site 2,380 R&D scientists 1,100 veterans 400 postdocs 1,880 students

$2.8B budget 4,700 projects 600 B&R codes

11 Directorates 60 Divisions

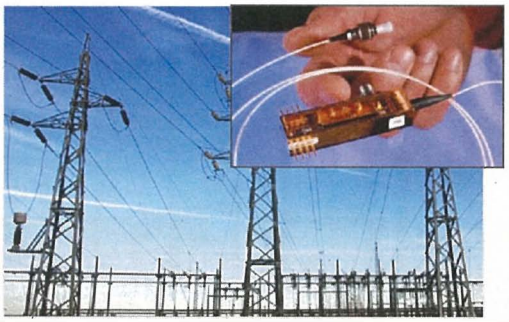
The Lab has a steady budget and a growing staff

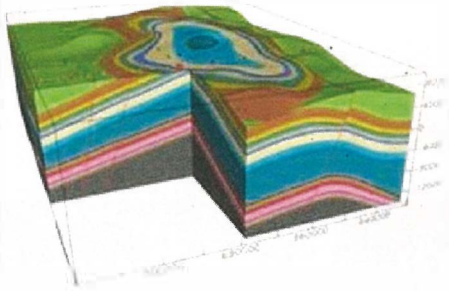
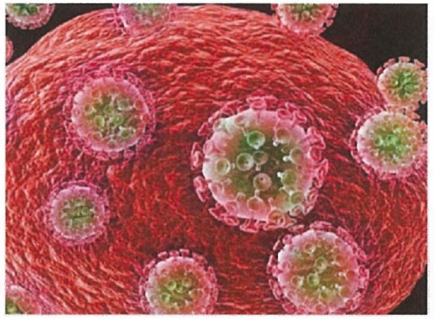




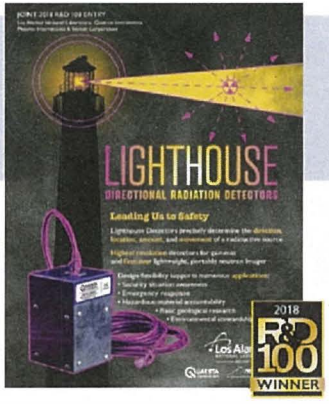
Our commitment to NNSA: Ensuring continuity where critical

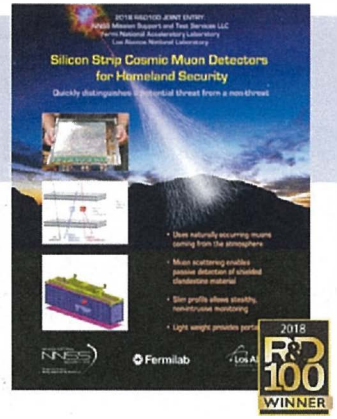
- **We are committed to the Laboratory's success; this work is too important for the nation for us to fail**
- **The transition focused on understanding what's going well and challenges/risks**
- **We have identified clear strengths at the Laboratory:**
  - Weapons Physics and Engineering
  - World-class Science, Technology & Engineering that underpins the Laboratory's national security mission

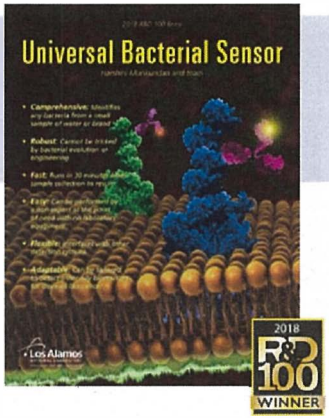


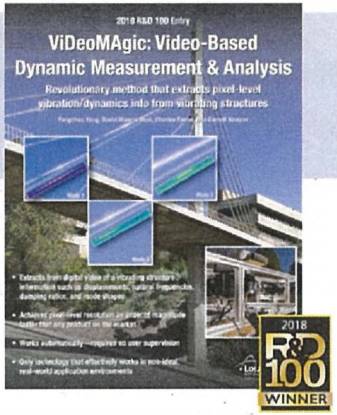



Eight R&D 100 awards in 2018 reflect innovation and collaboration in support of our national security mission









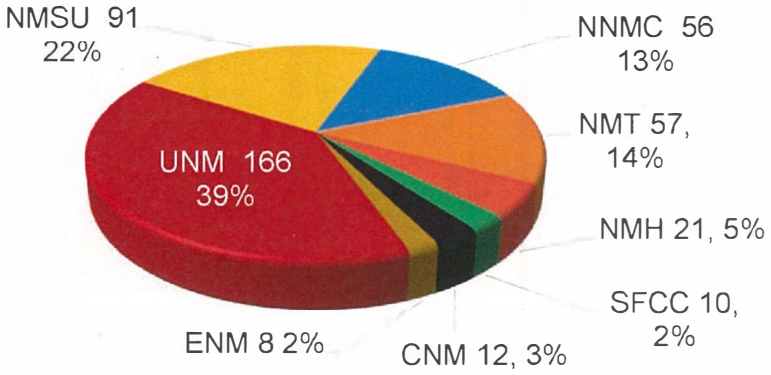
Our student and postdoc pipeline is crucial for recruiting the workforce of the future

- 1,880 students and 400 postdocs were part of our workforce in FY18
- Conversion of postdocs to technical staff is our most highly utilized early career pipeline

Percentage of total LANL population who were former students or postdocs

36%	61%	33%
All LANL employees (Reg, TRMA)	All R&D scientists & engineers	Managers

NM Students at LANL:
College Distribution



Summer Physics Camp

Supercomputing Challenge

41% of Los Alamos employees are native New Mexicans

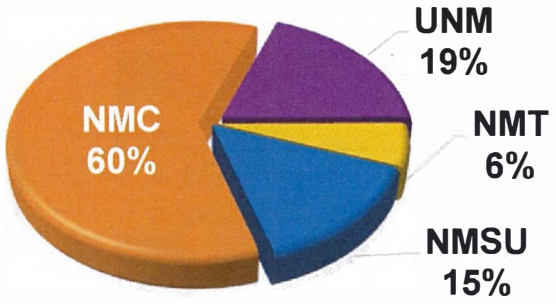
26.3% of regular/term employees have at least 1 degree from NM college/univ.

R&D collaborations are essential for national security and attracting a world-class workforce

- **Institutional Agreements (NMC, NM Tech)**

Former Lab Director Terry C. Wallace, Jr. and NM Tech President Stephen G. Wells

FY18 University Subcontracts (NM): $27,586K



- **Joint Appointment Agreements through the New Mexico Consortium**

Bette Korber

Jay Misra

Hameed Badawy

Edwin Fohtung

- **Regional Educational Academic Collaborations (REACT)**

Our S&T continues to have a broader economic impact

- Commercialization successes

Descartes Labs

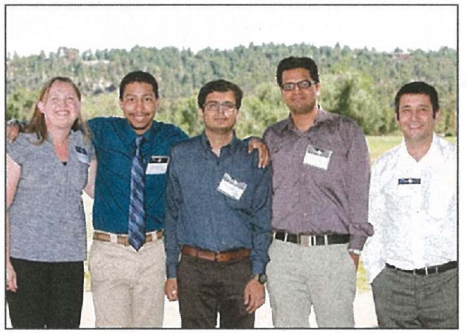
VIOME

UbiQD
UBIQUITOUS QUANTUM DOTS

- Economic investments and results

NM Small Business Assistance Program (NMSBA) 2000–17	Venture Acceleration Fund (VAF) 2006–17
2,797 small businesses assisted	66 awards
$57.9M assistance provided	$3.9M invested
7,853 jobs created/retained	818 jobs created/retained
$378.1M revenue generated	$180.6M revenue generated

- Traditional and novel mechanisms



Entrepreneurial Postdoc Fellowship Program

DisrupTECH: Investor and Industry training for scientists

Los Alamos National Laboratory is one team, dedicated solely to the success of our National Security Mission

- Commitment to mission delivery and ST&E excellence
- Operational excellence as important as mission and ST&E
- Non-profit, public service motivation & community commitment
- Partnership with NNSA and National Security Enterprise
- Integrity, competence, authority, & accountability as core values
- One Lab Agenda to chart our Laboratory's path forward

Backup Slides

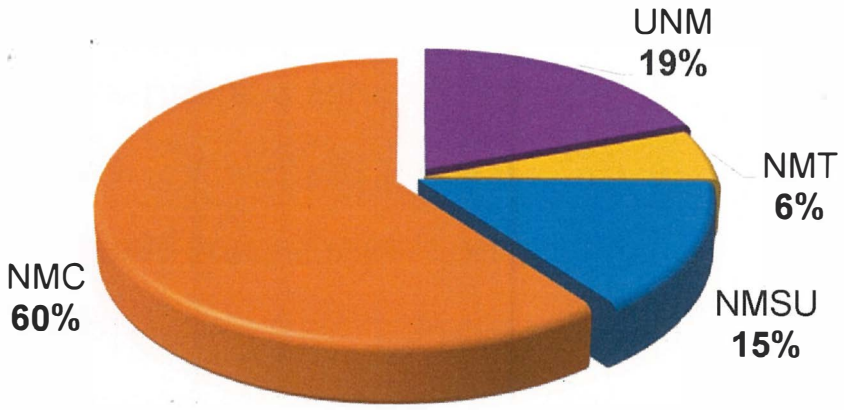
LANL socio-economic goals and achievements (FY18)

Category	FY18 Goal	FY18 Percent Achieved
Small Business (SB)	52%	58.6%
Small Disadvantaged Business (SDB)	20%	21.3%
Women-Owned Small Business (WOSB)	14%	12.5%
HUBZone Small Business (HUBZone)	3.0%	7.4%
Veteran-Owned Small Business (VOSB)	5.0%	7.3%
Service-Disabled Veteran-Owned Small Business (SDVOSB)	3.0%	3.4%
New Mexico	–	55.6%
Northern New Mexico	–	40.8%

University Subcontracts – New Mexico

FY18 Funding Distribution – New Mexico

Total University Subcontract Funding: $27,586K



- **Total NM Funding: $8,256K**
- **70** subcontracts
- **67%** increase over FY17
- **$117K** average/subcontract

NMT: New Mexico Institute of Mining & Technology
NMSU: New Mexico State University
NMC: New Mexico Consortium
UNM: University of New Mexico

52% of **NMC** funding is associated with the **"Ultrascale Systems Research Center"** (USRC), a collaboration between NMC and LANL to engage universities and industry nationally in support of high performance computing research

Examples of novel mechanisms

Institutional Agreements	More than an MOU, an IA may cover intellectual property, user facility visits, special appointments (see Joint Appointments), and almost any other type of collaboration.
Joint Appointments	An evolving arena for faculty to engage at the Lab and staff to engage on campus, Joint Appointments may cover teaching, research, and mentorship. When funded research projects are involved, invoicing pathways may involve Institutional Agreements, University Contracts, or Special Payment Memos. A pilot program for Joint Appointments has been underway through NMC for two years.
Joint Institutes	A model for this type of interaction is the Engineering Institute between LANL and the UCSD. This JI offers graduate-level curriculum taught by faculty and staff, summer schools, and year-round research opportunities through the Student Program.
New Mexico Consortium	Non-profit academic institution, facilitating collaboration with LANL staff through in-house research in Los Alamos, computing resources, proposal submissions to foundations and agencies that are otherwise difficult or impossible for lab-university collaborations, a Joint Appointment Program, an Outside Activity Program, and the Entrada Biolab.
Special Lab Contribution in Joint Research Programs	For qualifying institutions, programs that allow collaborative access to lab facilities include the UC Lab Fee Research Program, DOE EPSCoR, and NSF EPSCoR.