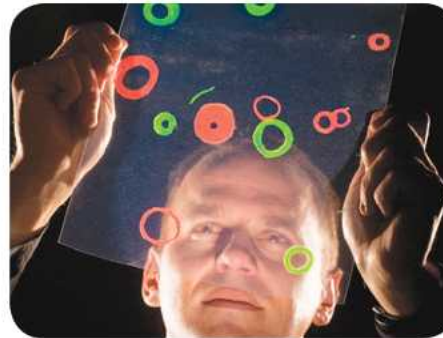


Exceptional service in the national interest



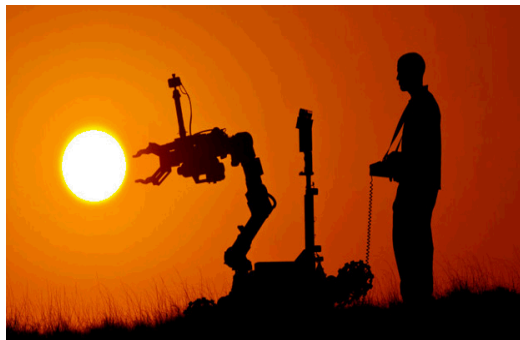
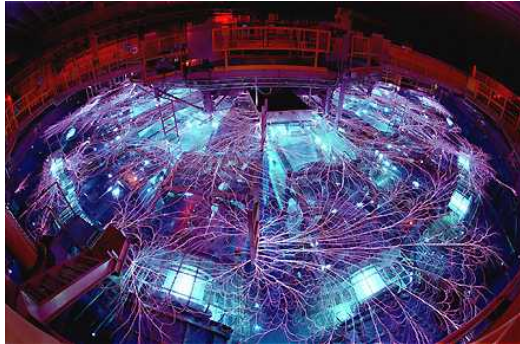
Sandia National Laboratories

General Information Session
Rensselaer Polytechnic Institute
September 27, 2012

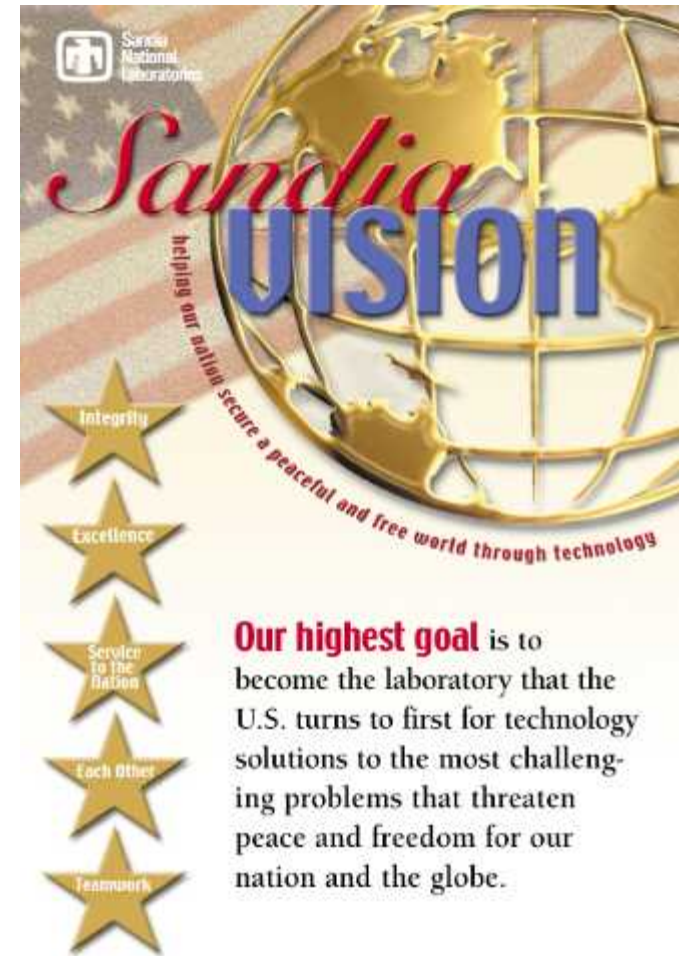


Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND2011-0439P

The laboratory the U.S. turns to first



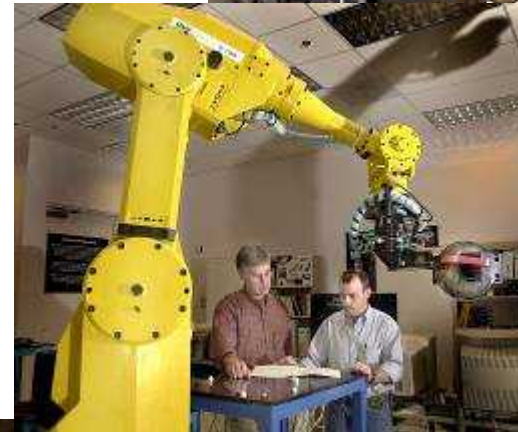
- National Security Laboratory
- Broad mission in developing science and technology applications to meet our rapidly changing, complex national security challenges
- Safety, security and reliability of our nation's nuclear weapon stockpile



More than 60 years of Exceptional Service in the National Interest



**Cleanroom
invented 1963**



**Robotic
Stealth
Coating**



**Unabomber and
shoe bomber
investigations**

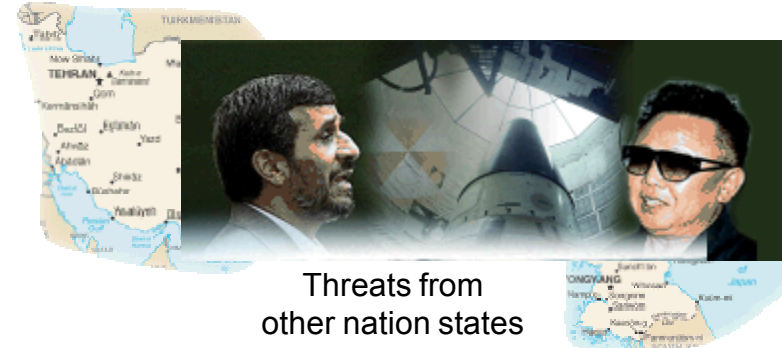


**Intelligent
machines**

Addressing Our Evolving National Security Environment is of the Greatest Importance



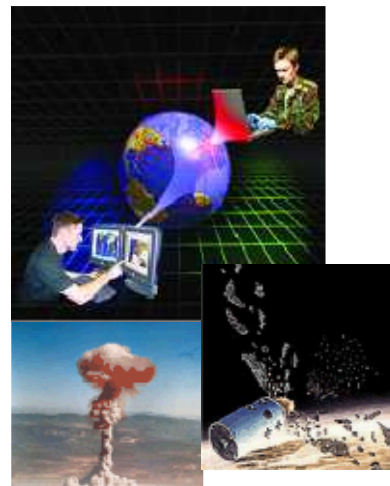
Traditional strategic nuclear threats



Threats from other nation states



Threats from non nation states



Threats of tech surprise



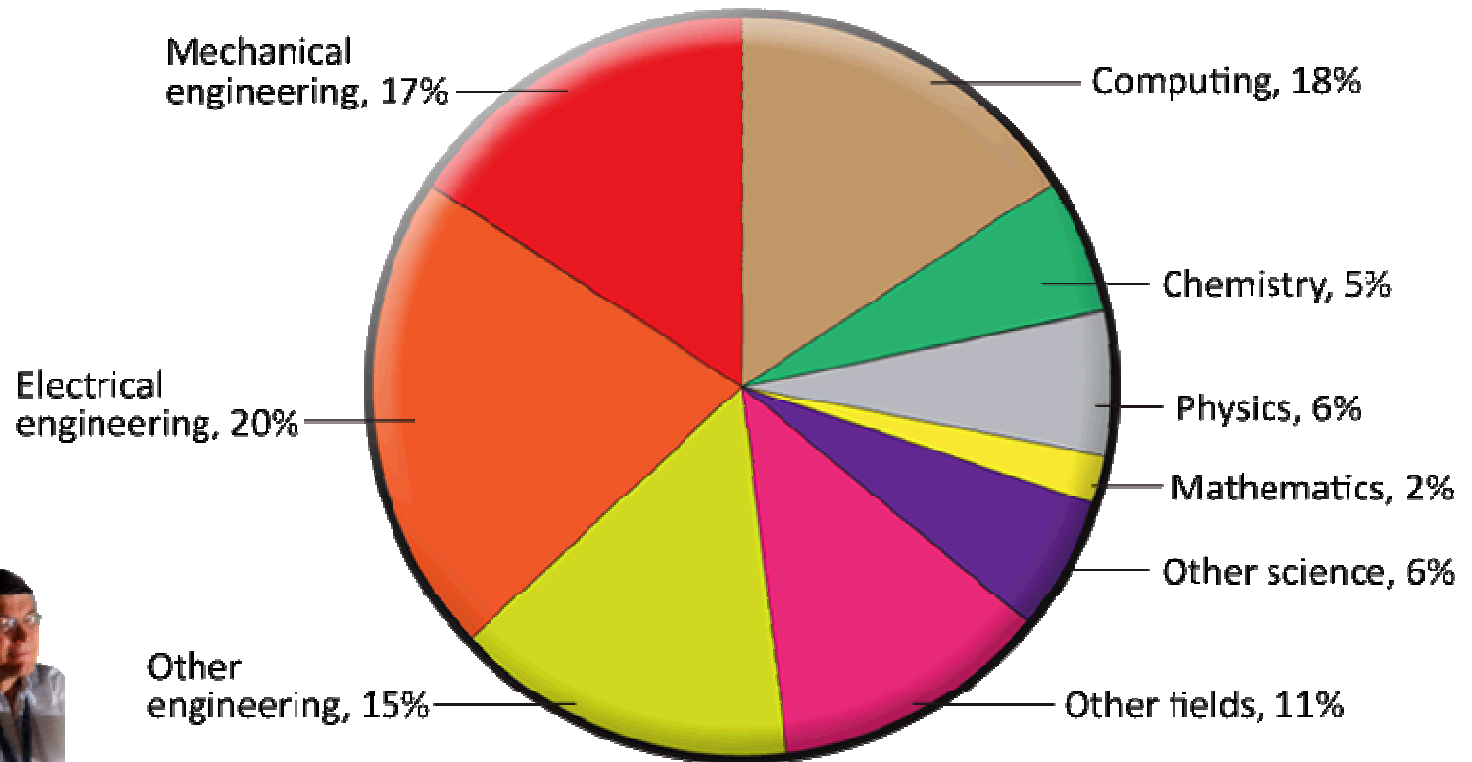
Other threats: natural disasters, climate change, energy supply

Who works at Sandia?

- Onsite workforce: 11,500
- Regular employees: 8,950
- Gross payroll: ~\$515M
- Budget: \$2.4B

Data for FY12 through the end of March

Technical staff (4,650) by discipline



Career possibilities

- » [Aerospace Engineering](#)
- » [Bioscience](#)
- » [Business Support & Operations](#)
- » [Chemistry & Chemical Engineering](#)
- » [Computer Science](#)
- » [Cyber Security](#)
- » [Electrical Engineering](#)
- » [Geoscience](#)
- » [Materials Science](#)
- » [Mechanical Engineering](#)
- » [Nuclear Engineering](#)
- » [Physics](#)
- » [Systems Engineering](#)

Computer Science and Engineering

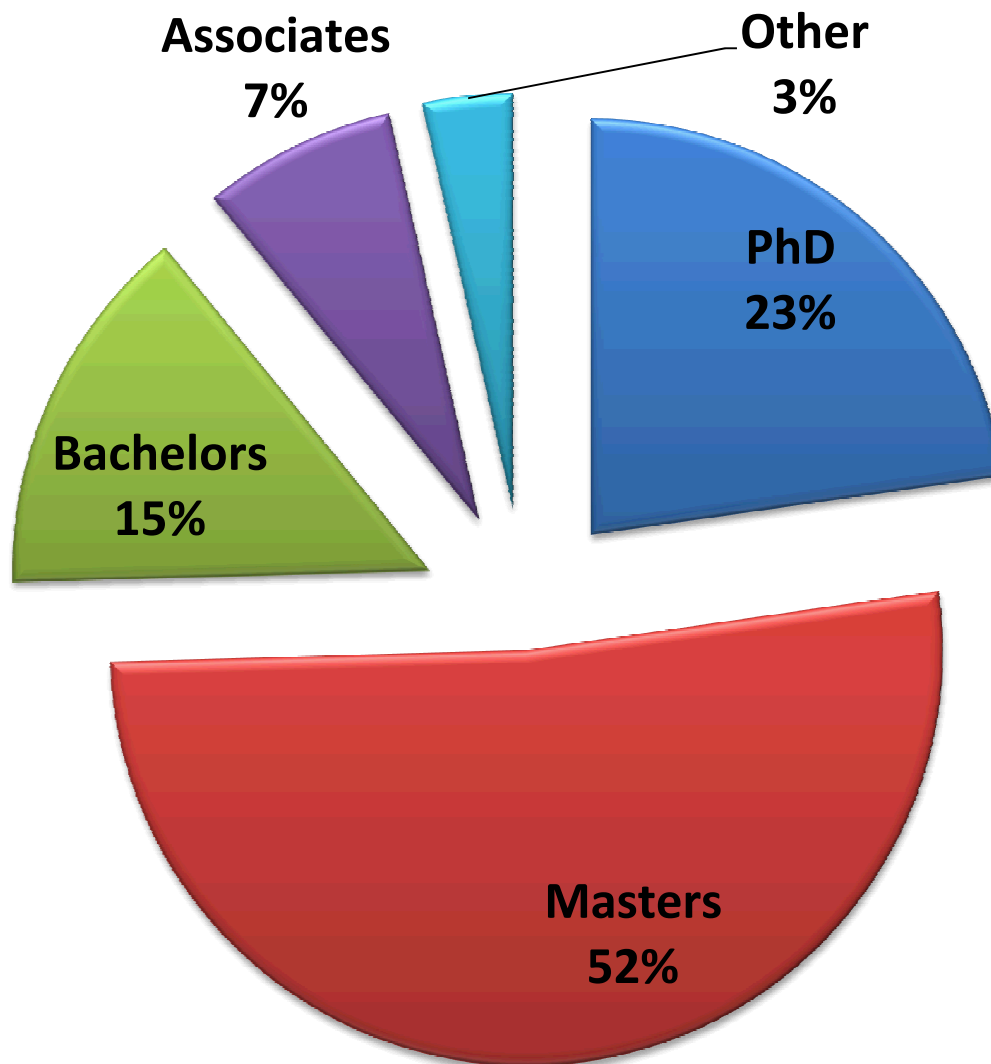
- Systems engineering
- Distributed system design
- Data exploitation/mining/fusion algorithms
- Digital signal processing
- Image processing
- User interfaces
- Scientific data visualization
- Numerical analysis
- Service-oriented architectures
- Relational/object/geographic database technologies

Software Engineering

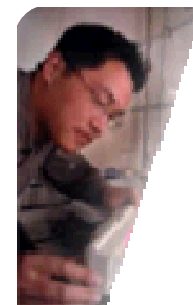
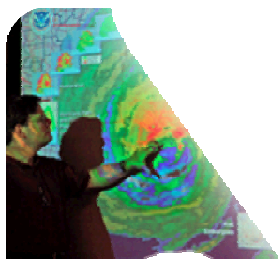
- Large Projects
 - Multi-year development cycles
 - Millions of lines of code
 - Large teams/Independent Projects
 - S.E. design methodologies
 - Processes and process designs
 - Distributed Computing
 - Project/Program Mgmt
- Small Projects
 - Research and engineering
 - Rapid development cycles



Who is Sandia looking for?



**Projected Hires
by Degree Level**



Why Work at Sandia?

■ The Work Experience

- Challenging assignments
- State-of-the-art research facilities
- Internationally recognized scientists and engineers
- Rotational opportunities
- Diverse fields
- Educational Advancement Opportunities

■ 401(k)

- Sandia automatically contributes 6%
- Then matches 2/3 of your first 6% contribution

■ Work/Life Balance

- 9/80 work week
- Flex time
- Vacation buy
- Vacation – 3 weeks; 11 paid holidays
- Telecommuting
- Holiday Shutdown

■ Site Amenities

- Medical clinic
- Company sports teams
- Recreational Equip rentals
- Indoor/outdoor pools
- Rock climbing gym

Special Programs



- Master's Fellowship Program (MFP)
- Critical Skills Master's Program (CSMP)
- Student Internship Program (SIP)
- Tuition Assistance Program (TAP)
- University Part-Time (UPT)
- Special Masters Program (SMP)
- Doctoral Study Program (DSP)
- Wounded Warrior Career Development Program

Emerging National Security Thrusts



Nuclear



Energy



Cyber



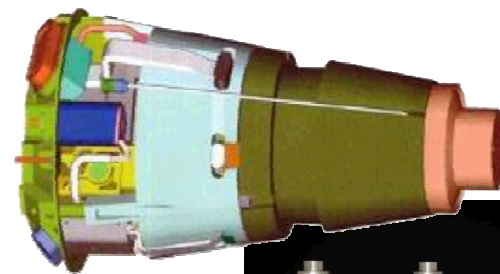
Science &
Technology



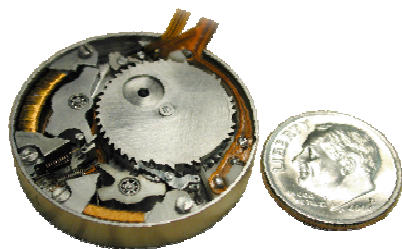
Nuclear Weapons



**Integrated,
engineered warhead
systems**



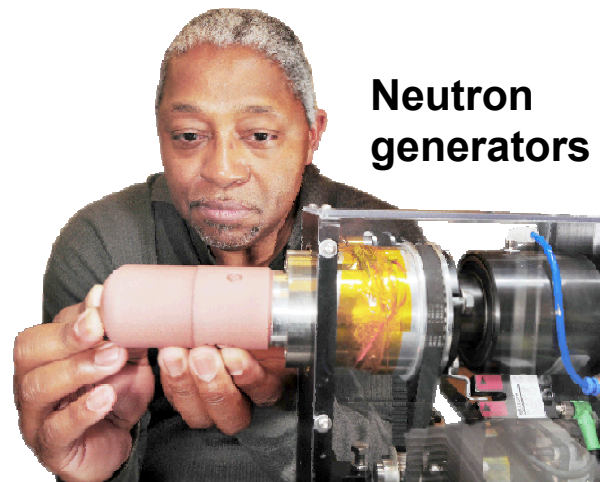
**Arming, fuzing,
and firing
systems**



Safety systems



**Gas transfer
systems**



**Neutron
generators**

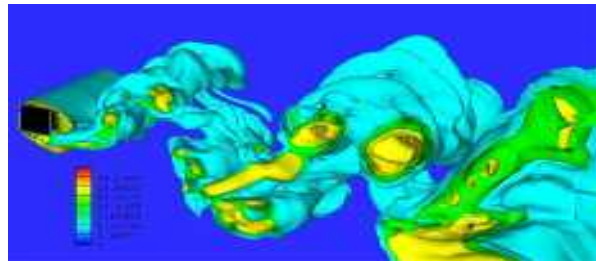
*High reliability, high consequence of failure, challenging environments,
and technology solutions*

Facilities and Capabilities



Microelectronics and microsystems

*Design, fabricate, package, and test
trusted semiconductor components*



Computational simulation

*High-performance hardware and
software tools to enable solutions
requiring massively parallel computers*



Environmental testing

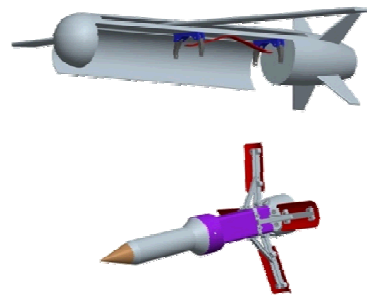
*Simulate environmental conditions and
collect relevant data for systems,
subassemblies, and components*

Program Areas

- Information Operations
- Integrated Military Systems
- Proliferation Assessment
- Remote Sensing & Verification
- Space Mission
- Surveillance & Reconnaissance

Areas of Expertise

- Nuclear Detonation Detection System
- Nonproliferation
- Cyber Security
- Synthetic Aperture Radar
- Space Situational Awareness
- Data Processing and Exploitation



Global Nuclear Detonation Detection System

- Created for US Air Force ground stations by Sandia
- Helps Air Force personnel in their 24/7/365 mission to monitor the globe for nuclear detonations
 - Processes data from dozens of satellites
 - Provides operators with information to decide quickly whether it is a violation of international law or designate the event as something less nefarious
- US policy makers need accurate real-time information about the time, location, yield, and any other evidence available



Energy, Climate, and Infrastructure Security

Program Areas

- Infrastructure Security
- Energy Security
- Climate Security
- Enabling Capabilities

Areas of Expertise

- Modeling & Analysis, Cyber, Electricity Distribution, and Energy Assurance
- Renewables, Energy Efficiency, Energy for Transportation, and Nuclear Energy Systems
- Sensing & Monitoring, Carbon Capture, Sequestration, Modeling and Analysis, and Water
- Discovery Science & Engineering, Systems Analysis, and Regulatory & Policy



Program Areas

- Critical Asset Protection
- Global Security
- Homeland Defense and Force Protection
- Homeland Security

Areas of Expertise

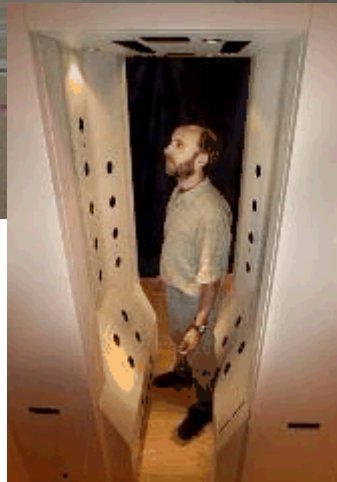
- Countering Bioterrorism
- Nuclear, Radiological, and Chemical Risk Reduction
- Nonproliferation and Arms Control
- Physical Security
- Emergency Response
- Systems Analysis and Engineering
- Border Security
- Aviation and Airworthiness Security



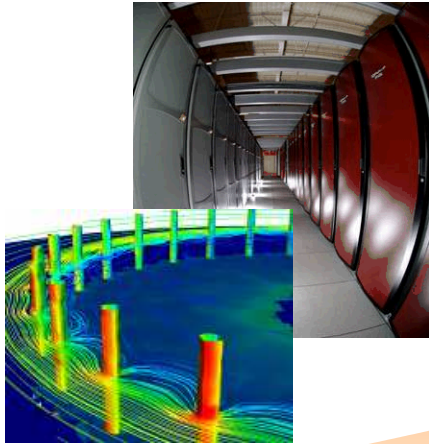
Transportation Safety and Security



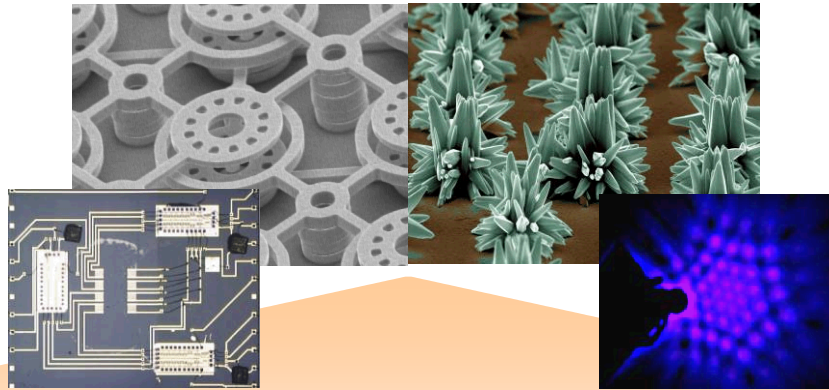
- TWA Flight 800
- Forest Service aircraft
- Airport portals
- Sniffer/PROTECT



Research Disciplines Drive Capabilities



**High Performance
Computing**



**Nanotechnologies &
Microsystems**



**Extreme
Environments**

**Computer
Science**

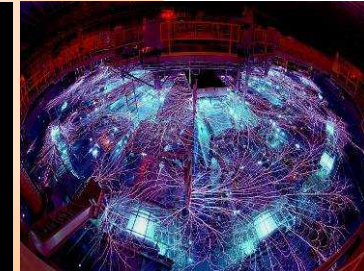
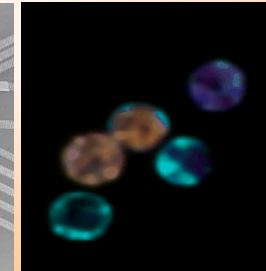
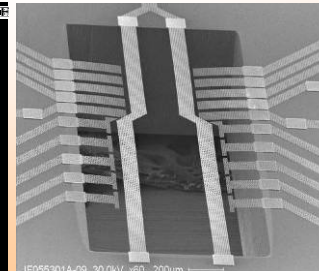
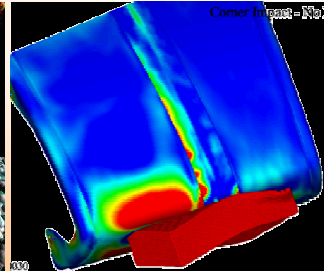
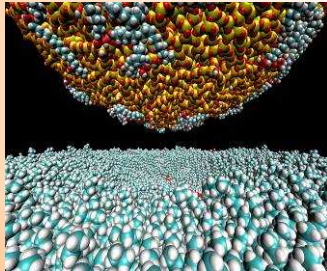
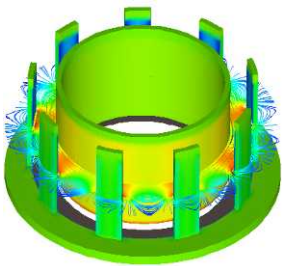
Materials

**Engineering
Sciences**

**Micro
Electronics**

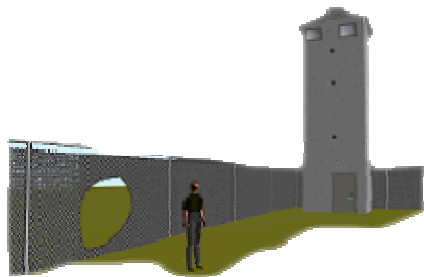
Bioscience

Pulsed Power



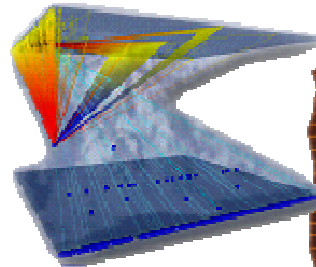
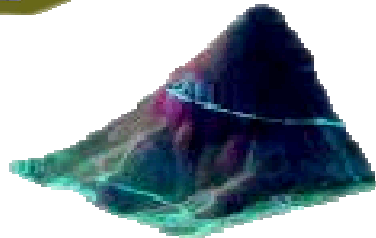
Research Disciplines

Exploring Solutions Across the Threat Spectrum

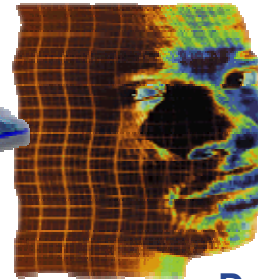


**Synthetic Aperture
Radars**

**Vulnerability
Assessment
Mod/Sim Tools**



**Cyber
Security**



**Scanner-
less
Range
Imager**



**Explosive
Destruction System**

Anticipate

Predict & Prevent

Respond

Recover

Access Delay



**Critical
Infrastructure
Protection Systems
Analysis Tools**



**Explosive Detection
Portal**

**Unattended
Ground Sensors**

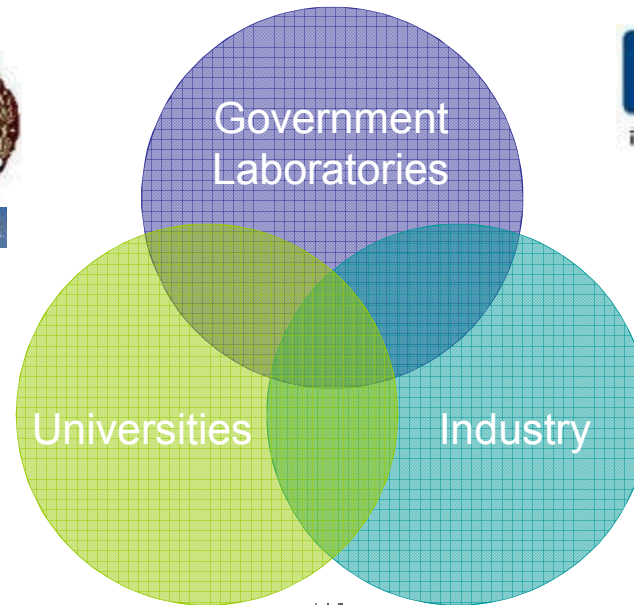


**Tunnel
Characterization**



**Radiation
Remediation Foam**

Partnerships & Collaboration Accelerate Innovation



Sandia National Labs Locations

- Primary Site:
 - Albuquerque, New Mexico
- Second Main Facility:
 - Livermore, California
- Test Facilities:
 - Tonopah Test Range, Nevada
 - Kauai Test Facility, Hawaii
- Other Locations:
 - Carlsbad Programs Group, New Mexico
 - Nevada Projects Team, Nevada
 - Sandia Program Office, Washington, D.C.
 - Weapons Evaluation Test Laboratory, Texas



Life in Albuquerque, NM



Great skiing: less than an hour away from Albuquerque

Four seasons, including winter!

Hiking, climbing, and outdoor activities galore



The most beautiful sunsets you'll ever see

Expect the Unexpected

New Mexico has a lot of the things you know and love...

Life in Albuquerque, NM



**Visit the Grand Canyon,
Utah, Colorado,
gorgeous state parks,
Native American
pueblos**

**Laid-back
Southwest
culture**



Unique Southwest sights!



**Balloon Fiesta
and Rodeos!**

...and a lot of adventures that you won't find anywhere else!

Technological Innovation in New Mexico



Raytheon



Life in Livermore, CA



**Livermore is in California Wine Country –
enjoy 40+ world class wineries nearby**

**Yosemite, Big Sur, and other amazing
exhibits of natural beauty!**



Sandia in the Heart of the Golden State

Life in Livermore, CA



San Francisco is less than an hour away!

Use your 9/80 Fridays to explore everything California has to offer!



North to redwoods and south to LA

Sandia in the Heart of the Golden State

How Do I Apply?

- Visit us at the career fair booth tomorrow
- www.sandia.gov/careers
 - You must apply to a job posting
 - Apply to all postings that interest you

Science and Engineering Expo (SEE)

November 11 – 13 in Albuquerque, NM

- Interview with key hiring managers for job opportunities in NM or CA
- Meet top research scientists and engineers
- Tour “state of the art” facilities
- Explore Albuquerque

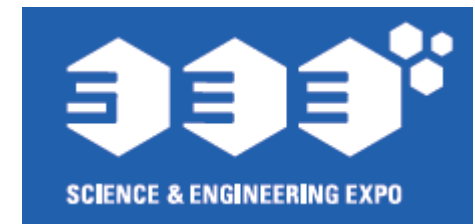


- Requirements:
 - Master's or PhD in STEM fields
 - GPA of 3.5/3.7 for BS/MS or greater
 - U.S. citizenship

Science and Engineering Expo (SEE)



- *An Invitation Only Hiring Event*
- Interested candidates should:
 - Visit www.sandia.gov/careers
 - Click on 'View All Jobs'
 - Enter 'SEE 2012' into the Keywords field search
 - Upload resume & cover letter
 - Await invitation



Specific Postings

- Systems Mission Engineering
 - Full-time: 641611
 - Critical Skills Masters Program (CSMP): 641086
 - Masters Fellowship Program (MFP): 641528
 - Student Internship Program (SIP) Undergrad Summer: 641517
 - Student Internship Program (SIP) Grad Summer: 641524
- Systems Evaluation Engineering
 - Full-time: 641273

www.sandia.gov/careers



The following are all extra slides
– hidden unless needed

The People of Sandia Give Back

- United Way in 2011
 - New Mexico: >\$4.6M
 - California: \$250,000
- Lockheed Martin donations to nonprofit organizations – \$1.4M
- Volunteer hours in 2011– 108,000
- K-12 education partnerships
- Beginning our 12th habitat house in April 2012



President Harry S. Truman Fellowship



- Candidates are expected to have solved a major scientific or engineering problem in their thesis work or provided a new approach or insight to a major problem.
- Opportunity for new Ph.D. scientists and engineers to pursue independent research of their own choosing that supports Sandia's national security mission.
- The appointee is expected to foster creativity and to stimulate exploration of forefront science and technology and high-risk, potentially high value research and development.
- Sandia's research focus areas are: bioscience, computing and information science, engineering science, materials science, nanodevices and microsystems, radiation effects and high energy density physics, and geosciences.
- www.sandia.gov/careers/students_postdocs/fellowships/truman_fellowship.html

Special Program Postings

- CSMP (Critical Skills Master Program)
 - 641317: Computer Systems and Security Engineer
 - 641320: Computer Systems and Security Engineer
 - 641086: Computer Science/Computer Engineering or Electrical
 - 641322: Computer Systems and Security Engineer
 - 641521: Monitoring Systems & Technology
 - 641574: Computer Science/Computer Engineering
- MFP (Masters Fellowship Program)
 - 641475: Fire Protection Engineer
 - 641528: Integrated Decision Support
 - 641627: Computer Science/Computer Engineering
 - 641628: Mechanical Engineer
 - 641629: Electrical Engineer
 - 641630: Surety Engineering