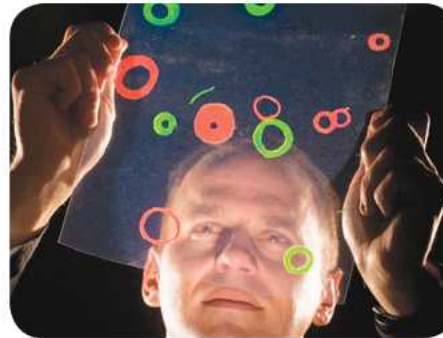


Exceptional service in the national interest



Sandia National Laboratories

J. Stephen Rottler, PhD
Chief Technology Officer / Vice President of Science & Technology



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.

Sandia's Governance Structure



Sandia Corporation

- AT&T: 1949–1993
- Martin Marietta: 1993–1995
- Lockheed Martin: 1995–present
- Existing contract expires 9/30/12

Government-Owned, Contractor-Operated



Federally Funded
Research & Development Center

Sandia's Sites

**Albuquerque,
New Mexico**



**Livermore,
California**



Tonopah, Nevada



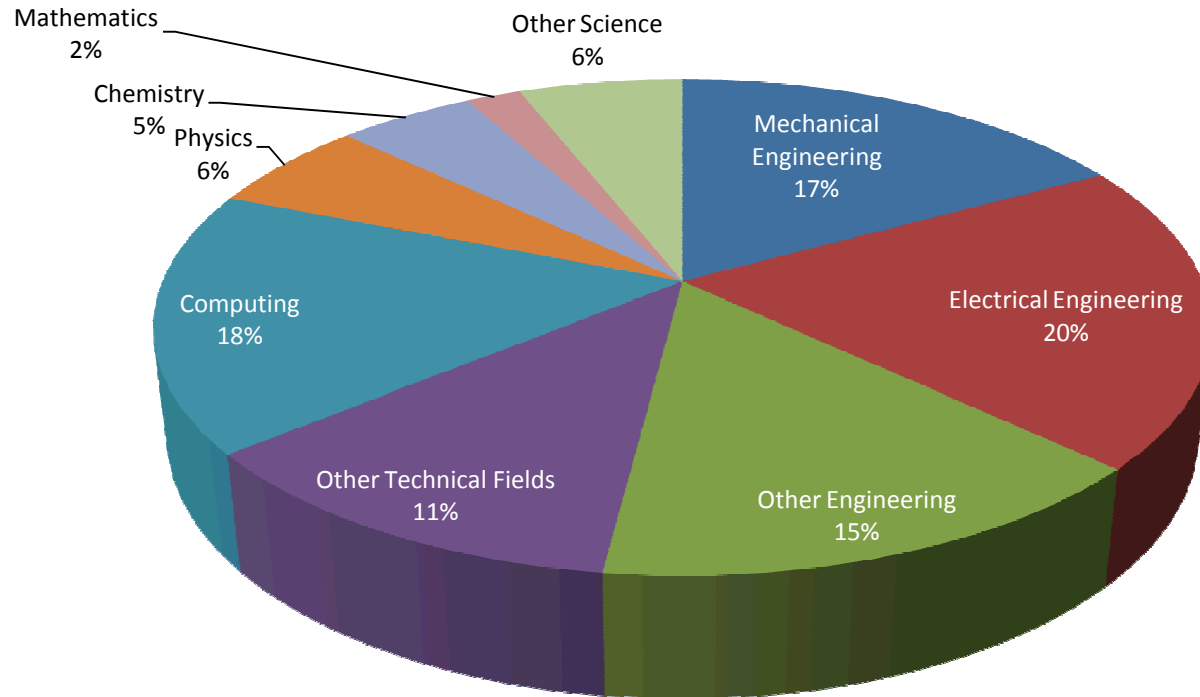
**Waste Isolation Pilot Plant,
Carlsbad, New Mexico**



Pantex, Texas



Sandia's Workforce



- Regular employees: 9,129
- Research and Development: 5,426

Sandia's Mission Work Reflects the Nation's Security Challenges

1950s

NW production engineering & manufacturing engineering

1960s

Development engineering

Vietnam conflict

1970s

Multiprogram laboratory

Energy crisis

1980s

Missile defense work

Cold War

1990s

Post-Cold War transition

Stockpile stewardship

2000s

Expanded national security role post 9/11

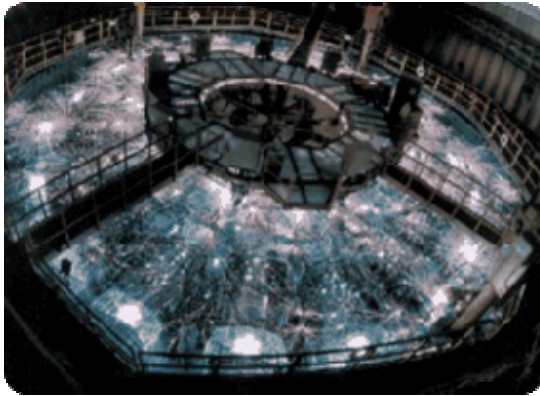
2010s

LEPs
New START
Evolving national security challenges



Nuclear Weapons

Pulsed power and radiation
effects sciences



Design agency for nonnuclear components

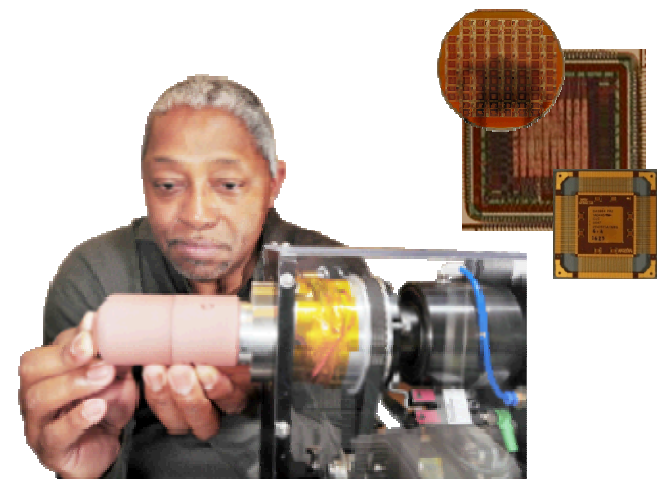
- Neutron generators
- Arming, fuzing and firing systems
- Safety systems
- Gas transfer systems



Warhead systems engineering
and integration



Production agency



Defense Systems and Assessments

Synthetic aperture radar



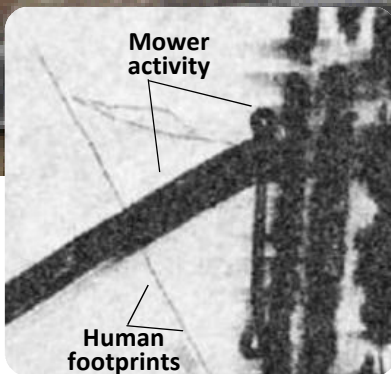
Support for NASA



Support for ballistic missile defense

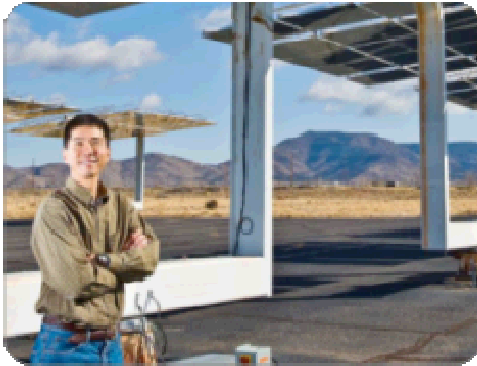


Ground sensors for future combat systems

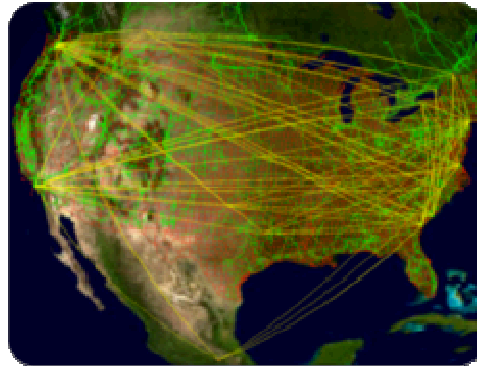


Energy, Climate, and Infrastructure Security

Energy



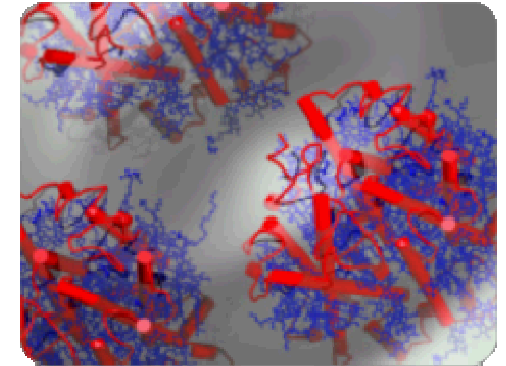
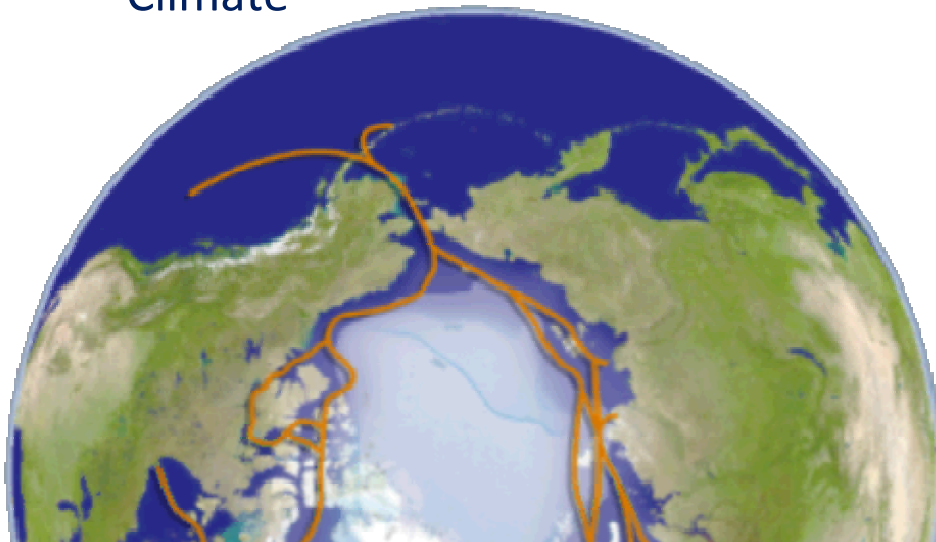
Infrastructure



Crosscuts
and enablers



Climate



Critical asset protection



Homeland defense and force protection



Homeland security programs



Global security



Research Objective

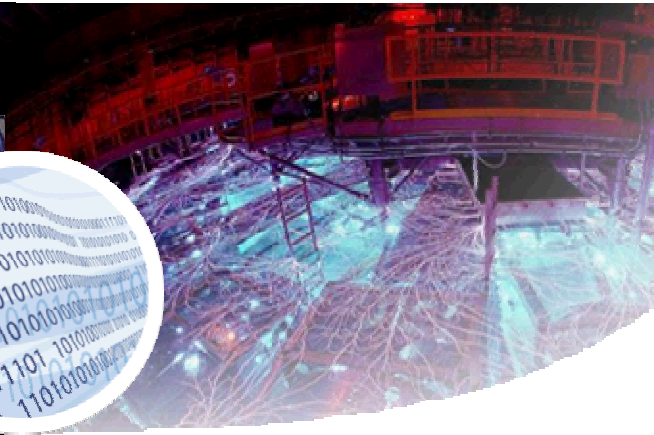
Research conducted at SNL shall enable mission delivery now and in the future and advance the frontiers of science and engineering.

Strong Research Foundations Enable Mission Performance

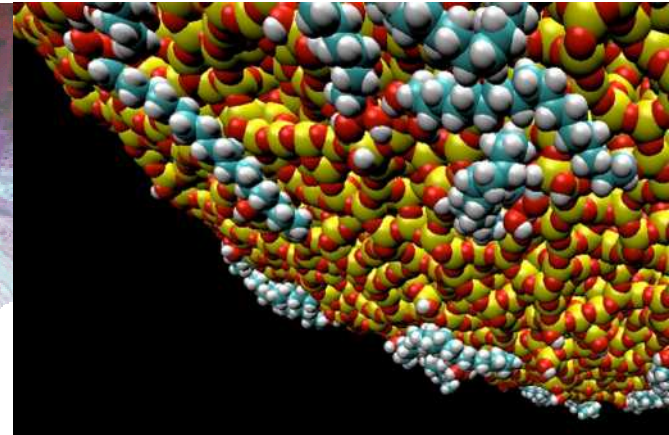
Computing and Information Sciences



Radiation Effects and High Energy Density Science

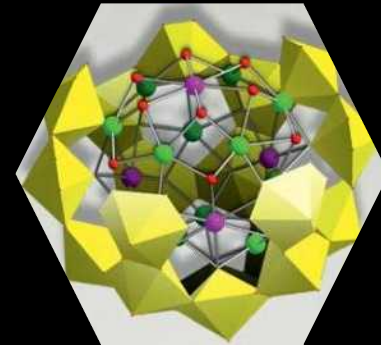
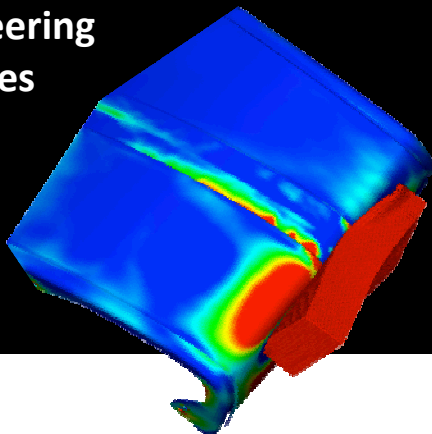


Materials Science

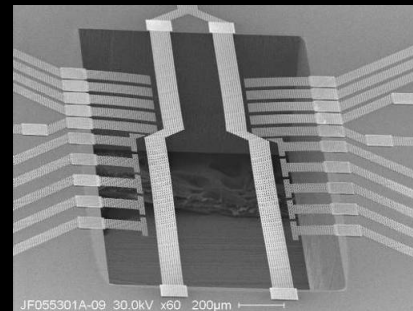


Nanodevices and Microsystems

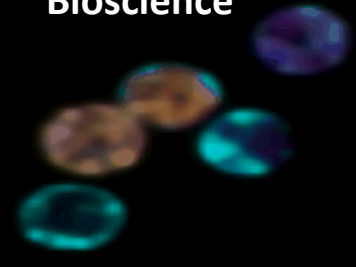
Engineering Sciences



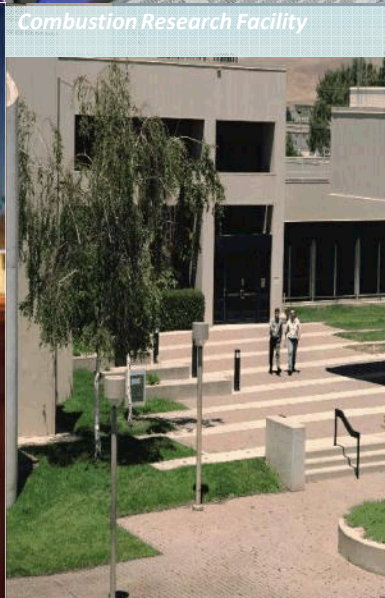
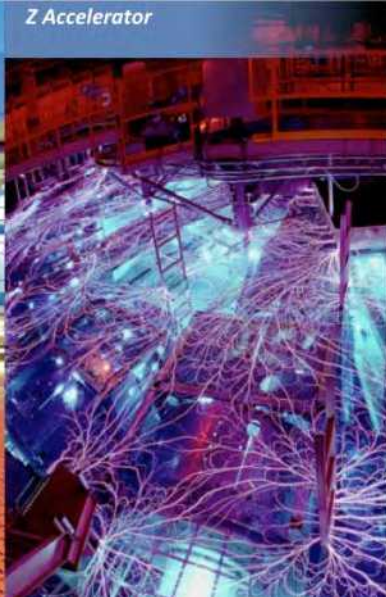
Geoscience



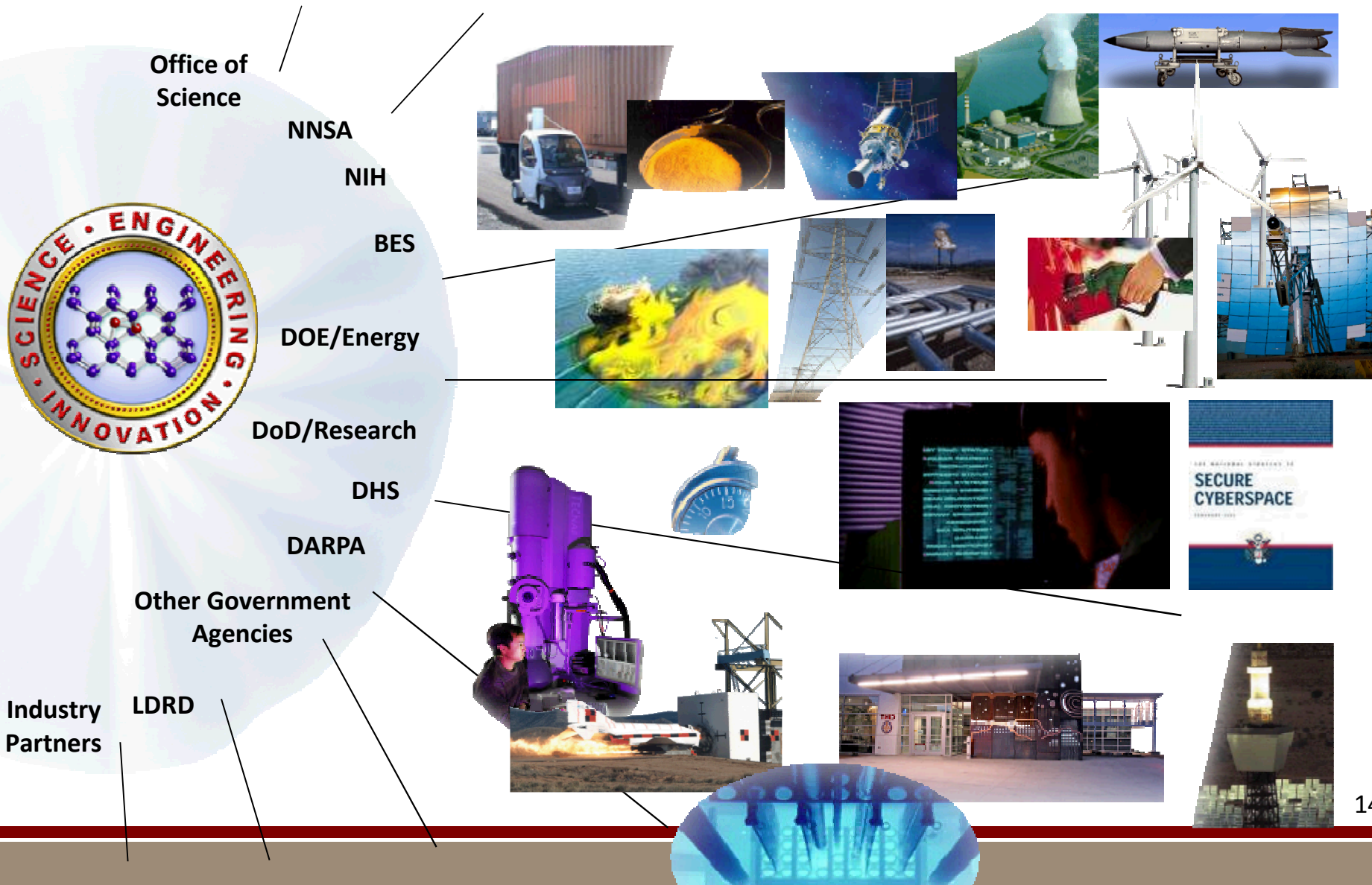
Bioscience



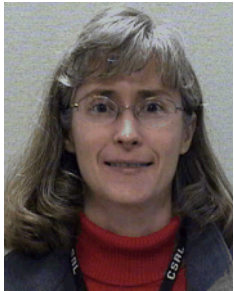
Large-Scale Facilities – Key Elements of Innovation



Investments in Research are Made Across the Spectrum



Researcher Highlights

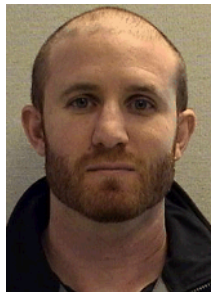


Extending semiconductor laser diodes to new wavelengths

Mary Crawford, PhD
Brown University



Ganesh Subramania, PhD
Iowa State University



Matt Eichenfield, PhD
California Institute of Technology

Nanoscale ultrasound – imaging the structure inside a single cell

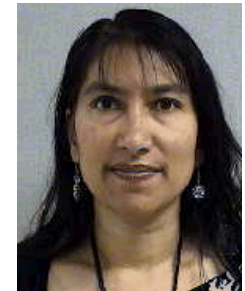
Develop a quantum computing architecture with noise immunity



Andrew Landahl, PhD
Cal Tech

Broadband funneling of light using ultrasubwavelength channels

Multiscale models of nuclear waste reprocessing



Rekha Rao, PhD
University of Washington

Two PECASE Recipients

(Presidential Early Career Award for Scientists and Engineers)

DOE's Office of Electricity Delivery and Energy Reliability "for advances in power electronics for the electric grid...and for mentorship in the Native American community."



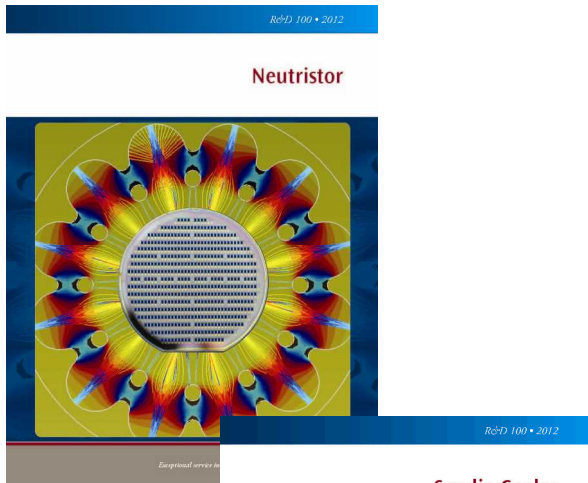
Stan Atcitty



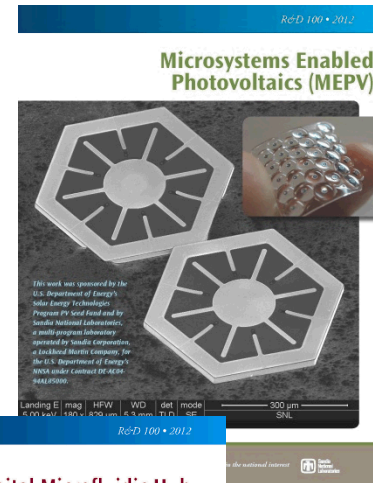
Dan Sinars

DOE's Office of Science "for developing innovative techniques to study the properties of instabilities in magnetized-high-energy-density plasma...and for demonstrating substantial leadership qualities in high-energy-density-laboratory-plasma physics."

Four FY12 R&D 100 Awards



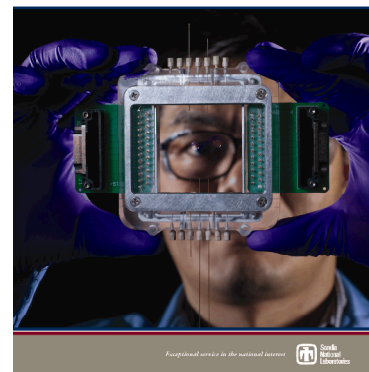
Neutristor



Microsystems Enabled Photovoltaics (MEPV)

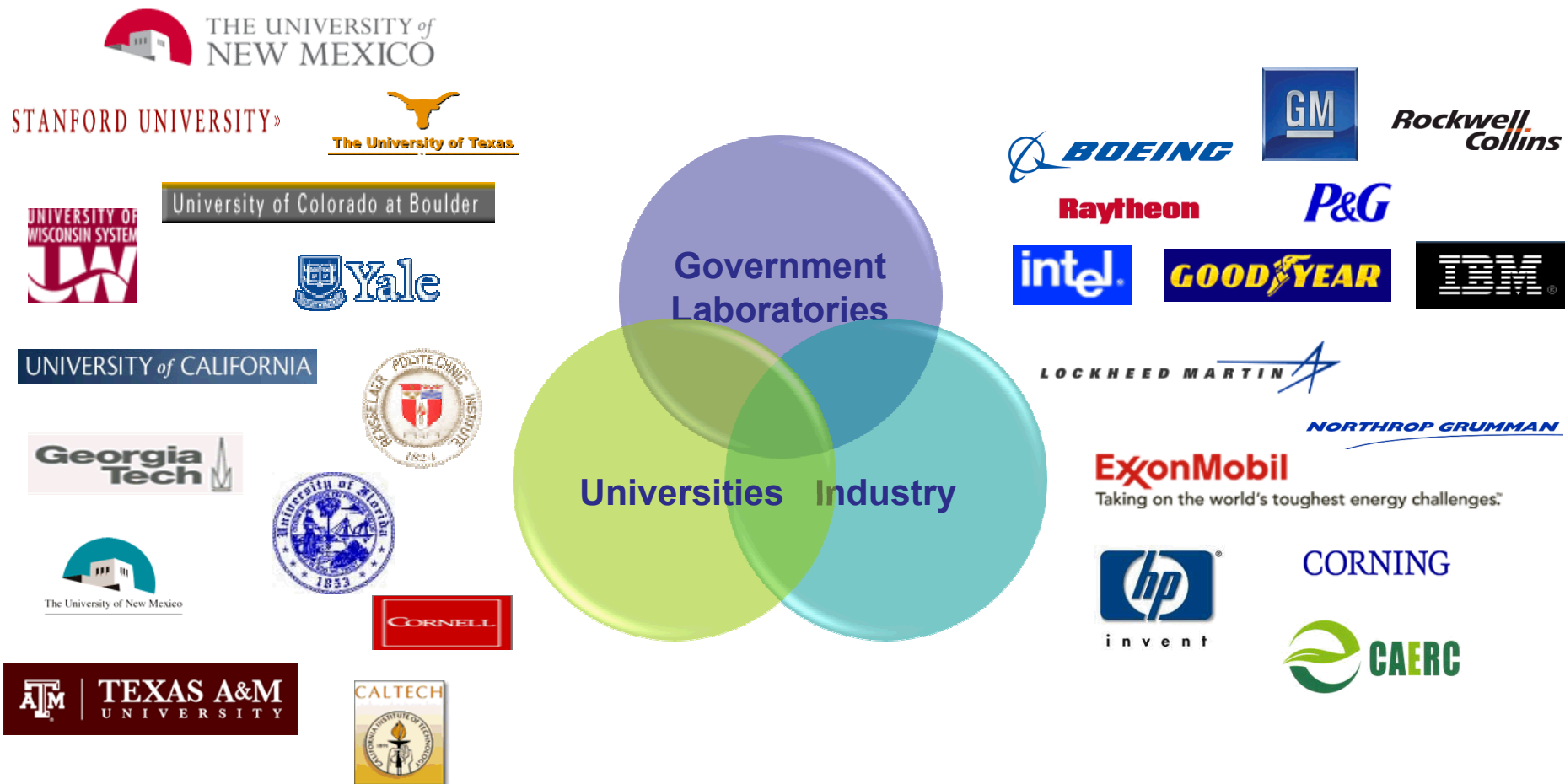


Sandia Cooler



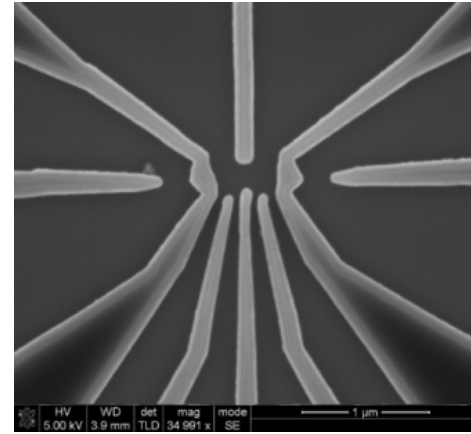
Sandia Digital Microfluidic Hub

Strategic Partnerships Accelerate Innovation





Anticipating future technology needs



Aggressively exploiting advances in science and technology



Benefitting the United States and its citizens