Four National Security Mission Areas

- Nuclear Weapons
- Defense Systems and Assessments
- Energy, Resources and Nonproliferation
- Homeland Security and Defense
Enabled by Strong Science and Engineering

Research Disciplines

Computer Science

Pulsed Power

Materials

Micro Electronics

Bioscience
Nanotechnology and CINT

Complex functional nanomaterials

Nano-bio-micro interface

Microfluidic chip

Nanomaterials—ZnO

Center for Integrated Nanotechnologies (CINT)

http://CINT.sandia.gov
The University Partnerships Strategy

is to establish enduring partnerships
to nurture talent, collaborative research, and national advocacy.

Recruit, retain and develop the best and brightest

Build two-way relationships of mutual benefit and advocacy

Conduct collaborative world-class R&D to support mission needs

In 2006, Sandia invested ~$30.3M in research with 105 universities
Purpose:
MOUs have been negotiated with many key universities to formally document the intent of the parties with regard to certain interactions and collaborations between individual staff and faculty at Sandia and that university. They include patenting, commercialization and royalty sharing of certain subject inventions and works of authorship conceived or created by Sandia and/or university faculty, employees, contractors or students during the course of such collaborative efforts.
UT/Sandia MOU

MOU Purpose:
- “Create strengths together that neither institution has alone.”
- “Target areas that have potential to make substantive national impact.”
- “Nurture the one-on-one relationships that will be the seeds for bigger things.”

Program Areas
- National Initiative on Modeling and Simulation
- National Institute for Nano-Engineering
- Joint Sandia/UT Institute for High Energy Density Science
- The Joint Program in Biosecurity and Emerging Infection Disease
- Decision Modeling
- The Center for Advanced Reconnaissance and Remote Sensing
“Partner with top universities to conduct leading-edge science.”
“Hire most accomplished engineers and scientists.”
“Develop strategic collaborations in focused research areas.”
• Three-year appointment for new PhDs in sciences and engineering
• Candidates must:
  ▪ have solved a major scientific or engineering problem or provided a new approach to a major problem, as evidenced by a recognized impact in their field
  ▪ be within 3 years of receiving their PhD (with strong academic standing)
  ▪ must be seeking their first national laboratory appointment
  ▪ must be a US citizen
• Starting salary competitive with our national labs
• Application period: deadline December 5 of each year
  ▪ http://www.sandia.gov/employment/special-prog/truman/
• Selection by April for Fall start
Faculty Interactions

• Collaborative Research
  - ~ $30M annually, with ~100 universities
  - Mission related

• Sabbaticals and Summer research appointments
  - ~ 20 appointments annually
  - 4 weeks to full year
  - pay based on faculty salary
  - roundtrip travel and per diem provided

• PECASE (President’s Early Career Award for Scientists & Engineers)
  - $250K award ($50k/yr over 5 years)
  - New faculty with prior lab relationship
  - currently 6 awardees
SNL Engages Minority Serving Institution Students

- **Campus Executive Program**
  - UNM, NMSU, UTEP

- **Senior Capstone Projects – Howard University, 4th year**
  - Engage senior engineering student teams in applied projects
  - Hosted projects at UTEP in early-mid 2000s.

- **National Institute for Nano-engineering (NINE)**
  - Collaborative Sandia/University/Industry precompetitive research.
  - Mentors graduate and undergraduate students

- **NNSA Massie Chairs of Excellence Program**
  - Comprises 9 HBCUs (30% of minority engineering graduates)
  - Built around NINE. Identifying areas of collaboration.

- **NNSA MSI Intern Program**
  - Summer internships
  - Sandia hosted 7 students in 08 and 4 in 09

- **National Consortium for Graduate Degrees for Minorities in Engineering and Science (GEM)**
  - Sandia hosted 20 GEM students over last 10 years

- **SNL Master’s Fellowship Program**
  - External hiring of new Bachelor of Science graduates from underrepresented groups