

Los Alamos National Laboratory



**George Guthrie—gguthrie@lanl.gov
(Program Manager, Carbon Sequestration)**

**Melissa Miller—mami@lanl.gov
(Program Manger, Energy Programs)**



- ❖ **Managed by the Univ. of Calif.**
- ❖ **Located in northern NM**
 - ❖ **~35 miles west of Santa Fe**
 - ❖ **Flanks of Jemez Mountains**

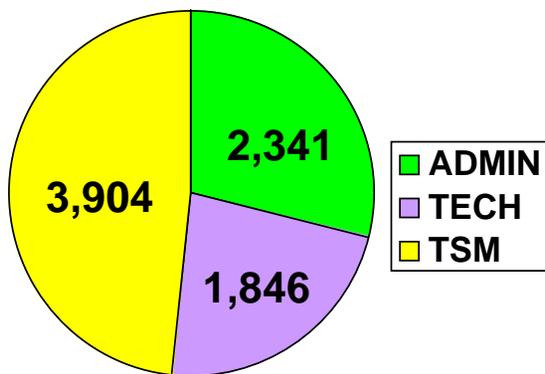
Los Alamos Mission— National Security

- ❖ **Ensure the safety and reliability of the U.S. nuclear deterrent**
- ❖ **Reduce the threat of weapons of mass destruction, proliferation, and terrorism**
- ❖ **Solve national problems in defense, energy, environment, and infrastructure**



Los Alamos has a diverse workforce that includes numerous students and postdocs

Current Workforce Regular UC Total 8,091



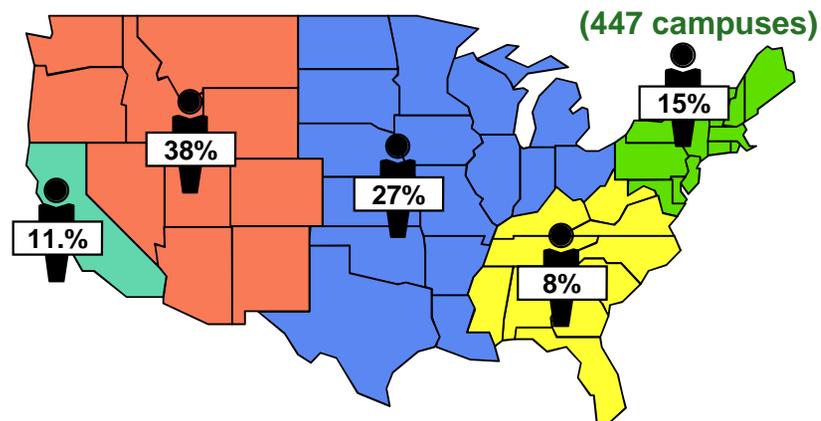
Students

Grad	400
Under Grad	939
Other	71

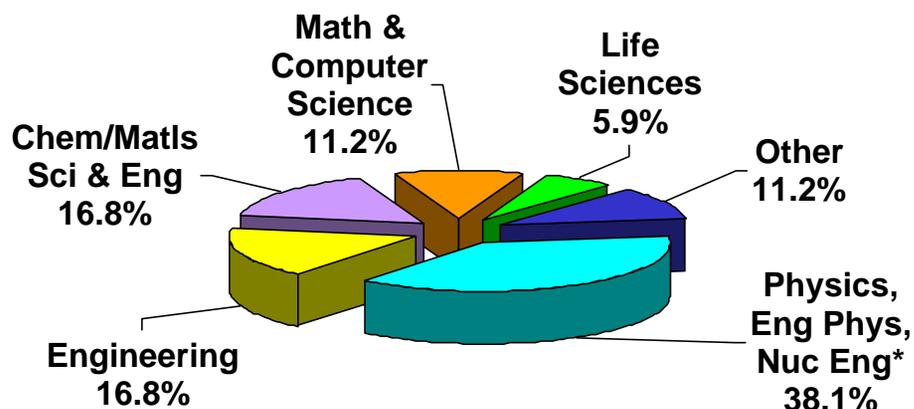
Total 1,410

Post Docs 405

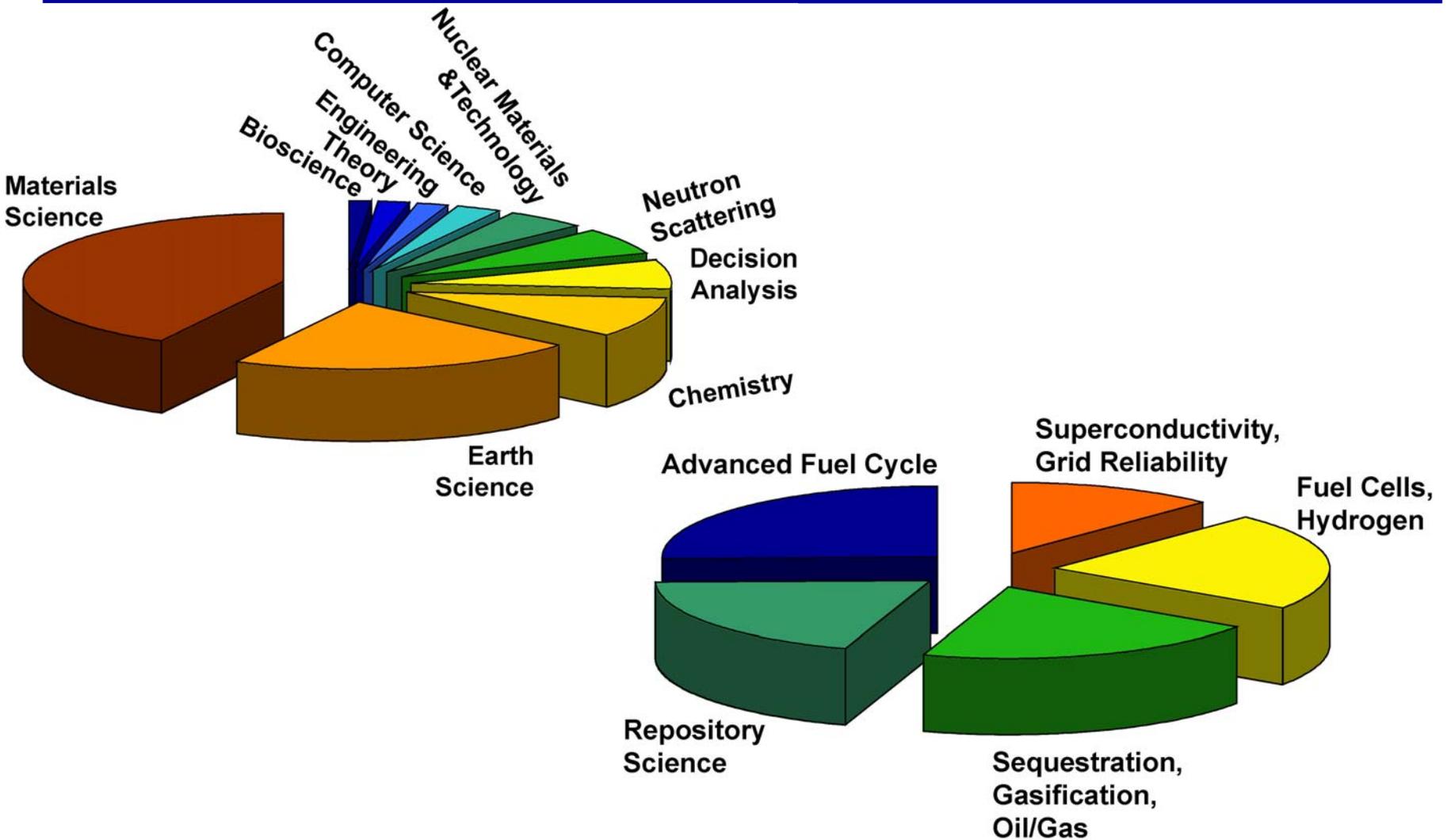
Technical Staff University Locations



Technically Diverse, TSM Workforce



Energy Research by Technical Division and Program Area



Advanced Fuel Cycle Initiative

Dana Christensen (dchristensen@lanl.gov)

- ❖ **Goal is to demonstrate a technology base that enables a globally secure, sustainable nuclear regime that meets growing domestic and world-wide development needs and includes**
 - ❖ **Closing the nuclear fuel cycle (spent fuel reprocessing, material recycle, reuse of Pu)**
 - ❖ **Developing proliferation-resistant nuclear systems, integrated safeguards, and state-of-the-art detection technologies**
 - ❖ **Fostering international cooperation (Russia/France/Japan)**

Los Alamos Neutron Science Center



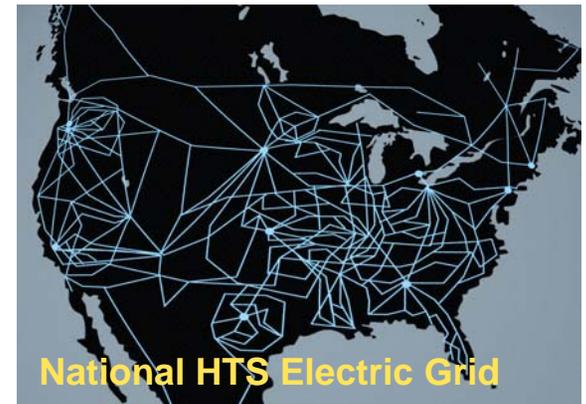
Superconductivity & Grid Reliability

Dean Peterson (dpeterson@lanl.gov); Steve Fernandez (sjf@lanl.gov)

- ❖ Underpinning Core Research with Universities
- ❖ Accelerated Coated Conductor Development with Industry
- ❖ Superconducting Component Prototypes
 - ❖ (Coils, Cables, Electronics)
- ❖ New Materials/Concepts in Novel Power Devices



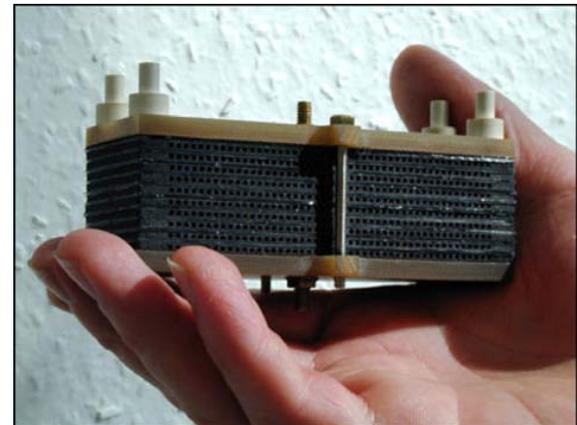
Superconducting Tapes



Hydrogen & Fuel Cells

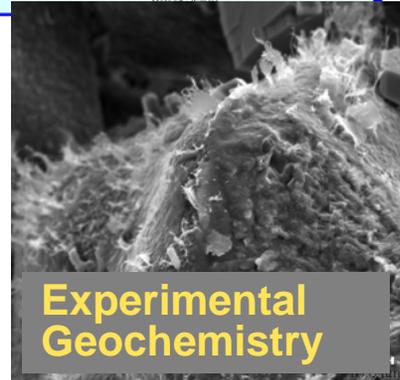
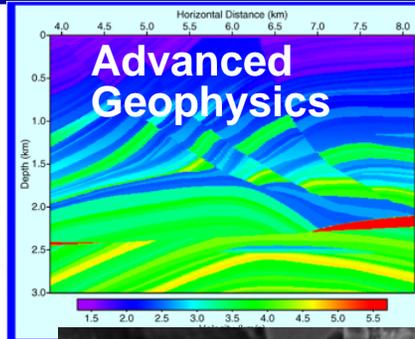
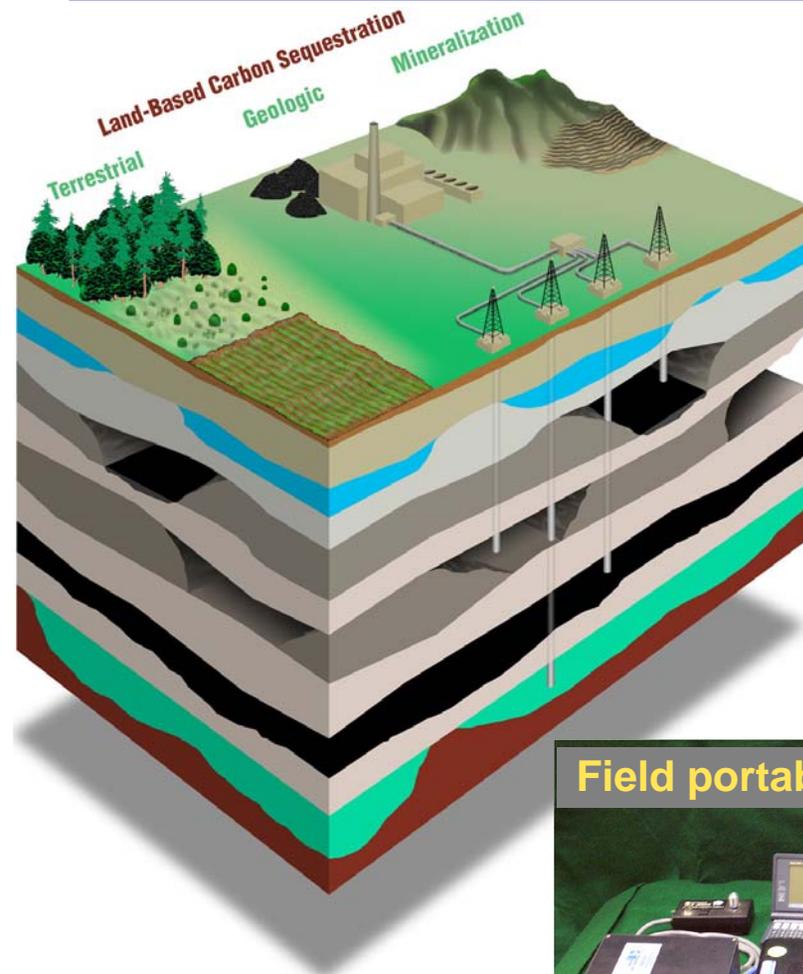
Bill Tumas (tumas@lanl.gov); Ken Stroh (stroh@lanl.gov)

- ❖ Los Alamos has a long history in hydrogen and fuel cell R&D
- ❖ Extensive industry and university collaborations
- ❖ Focus on materials science and chemistry:
 - ❖ Fuel Cells (Pt PEM)
 - ❖ Chemical Hydrogen Storage
 - ❖ Hydrogen Production (new materials & concepts)
 - ❖ Environmental Aspects of Hydrogen Economy



Fossil Energy Programs

George Guthrie (gguthrie@lanl.gov); Melissa Miller (mami@lanl.gov)



Coal

- ❖ Separation Science & Engineering
- ❖ Engineered Geologic Systems (modeling, experiments, field)

Oil & Gas

- ❖ Microdrilling & diagnostics
- ❖ Seismic imaging; acoustic stimulation

Field portable C-LIBS



High T Membranes



Repository Science

Greg Valentine (gav@lanl.gov)

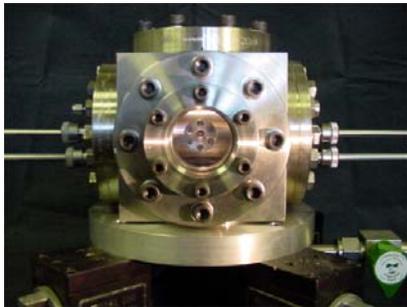
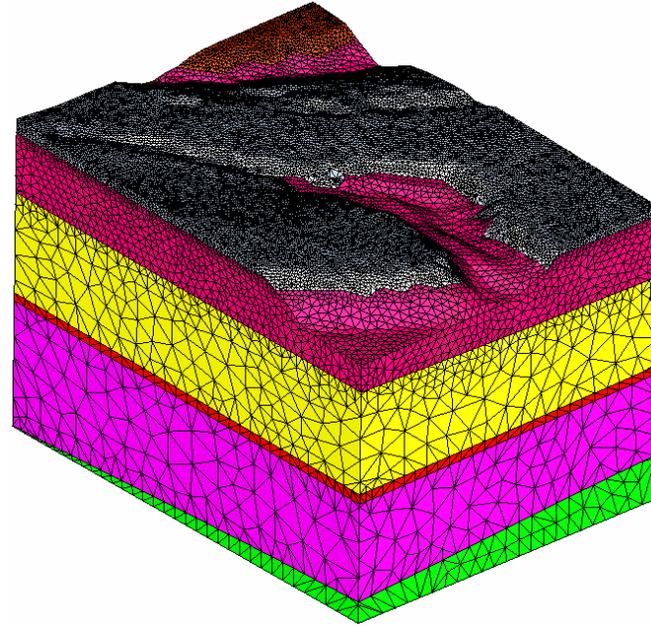


- ❖ Computational hydrogeochemistry
- ❖ Colloid science
- ❖ Radiogeochemistry
- ❖ Volcanology

Water Programs

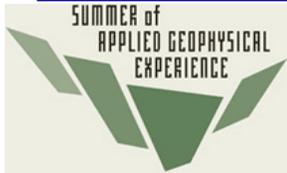
Cathy Wilson (cjl@lanl.gov); Dan Macuga (dmacuga@lanl.gov)

- ❖ Semi-arid hydrology and ecosystems
 - ❖ partner in SAHRA
- ❖ Computational hydrology
- ❖ Surface and subsurface hydrology
- ❖ Basin-scale hydrology
- ❖ Field experimentation and measurement
- ❖ Energy-water-climate interactions
- ❖ Novel separations



Student Summer Programs

Scott Baldrige (sbaldrige@lanl.gov); Melissa Miller (mami@lanl.gov)



SAGE—Summer of Applied Geophysical Experience

- ❖ Geophysical field camp
- ❖ Ongoing for 22 years

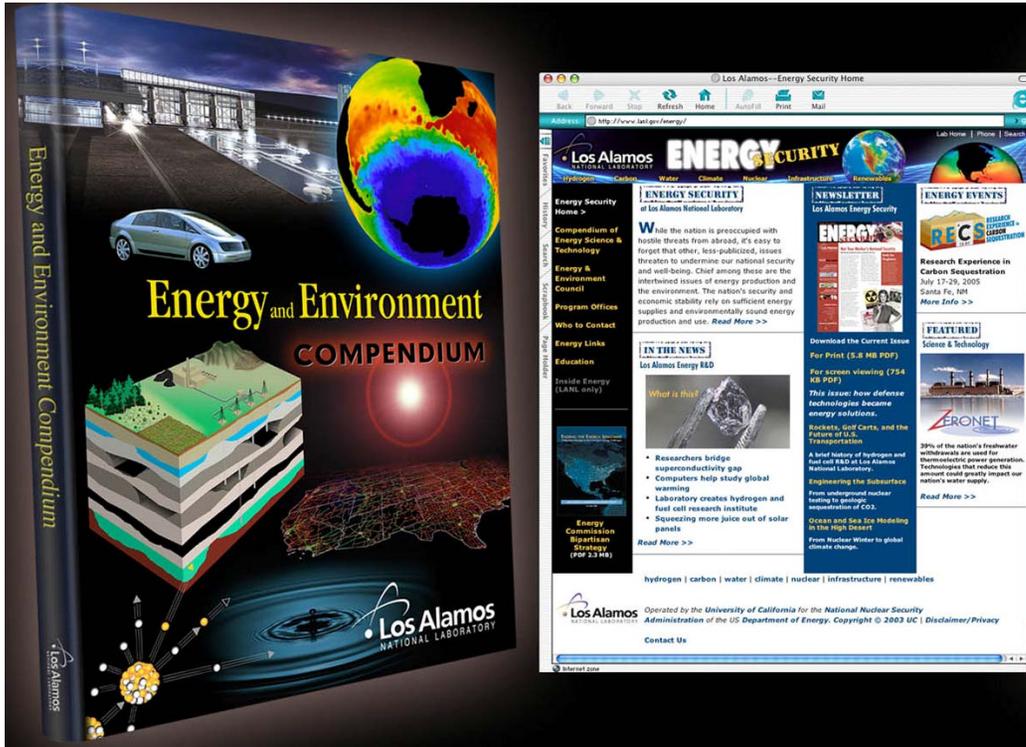


RECS—Research Experience in Carbon Sequestration

- ❖ Integrated approach to carbon sequestration
- ❖ Field monitoring projects



To learn more about potential collaborations in energy research at Los Alamos...



- ❖ Energy and Environment Compendium
- ❖ www.lanl.gov/energy
- ❖ Office of Energy and Environmental Initiatives (505-667-3621)