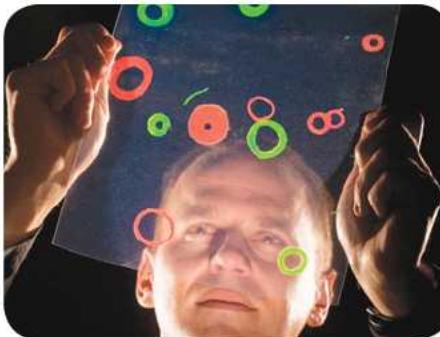


*Exceptional service in the national interest*



# The Importance of the National Laboratories

J. Stephen Rottler, PhD

Chief Technology Officer, V.P. Science & Technology

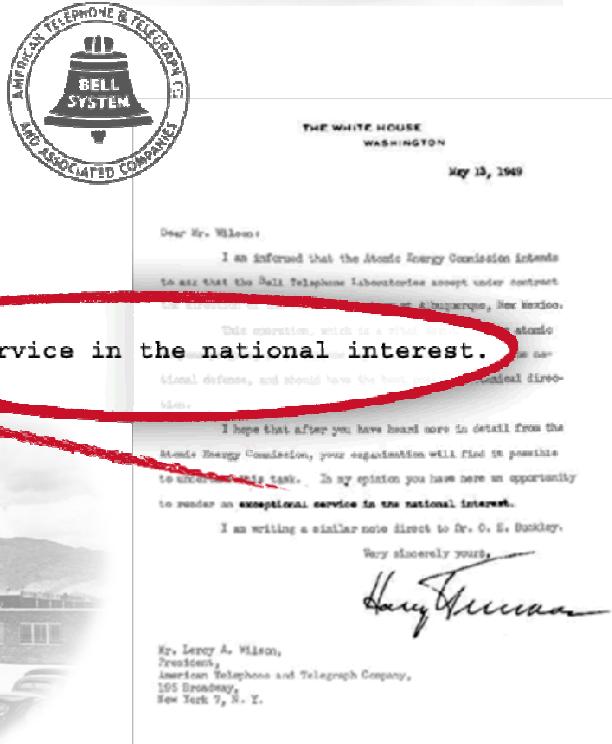


Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

# Sandia's Beginnings

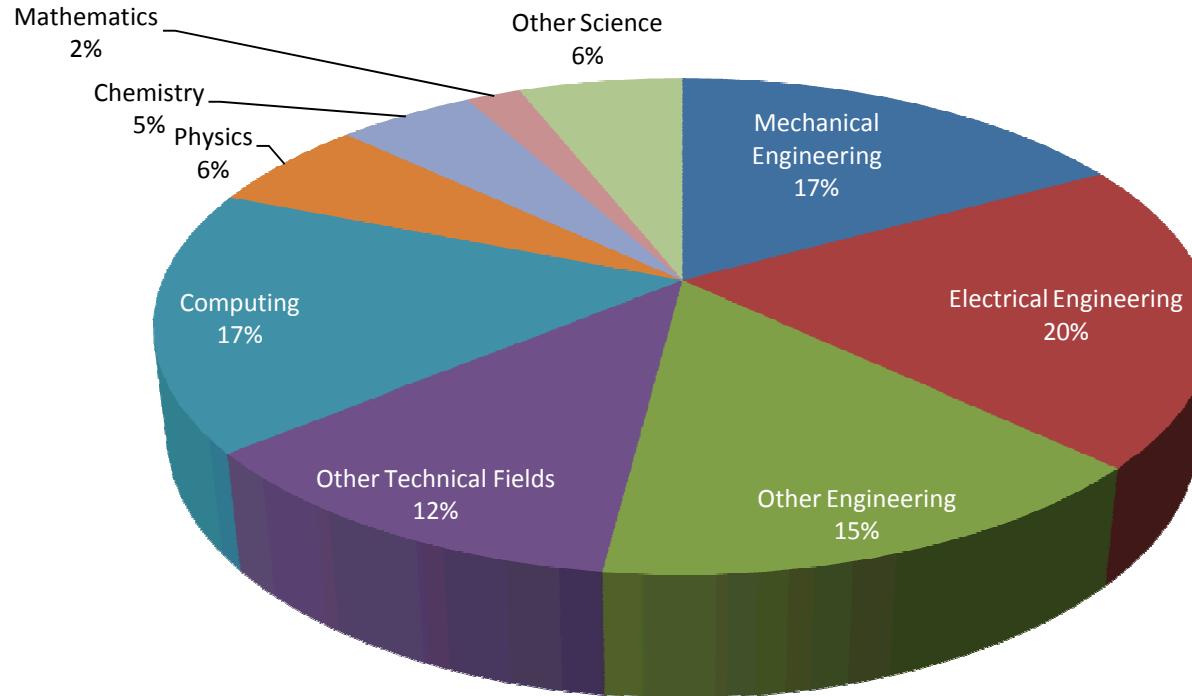


Jerrold Zacharias, c1945,  
led the transfer of the Z Division  
to SNL from LANL



# Sandia's Workforce

(as of November 25, 2011)



- On-site workforce: 10,973
- Regular employees: 9,201
- Technical Staff: 4,527

# Mission: National Security



## Nuclear Weapons



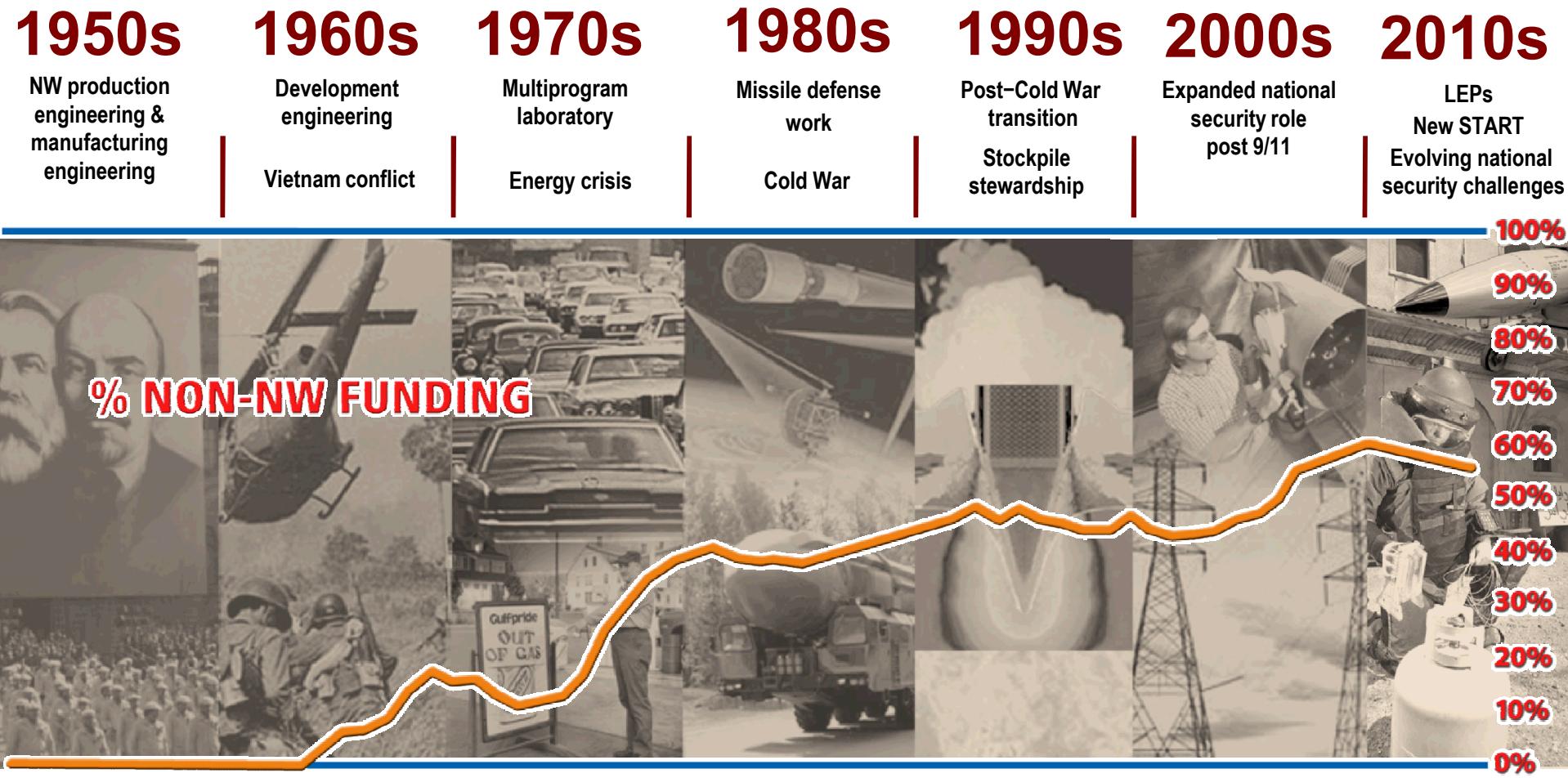
## International Homeland and Nuclear Security



## Defense Systems and Assessments



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

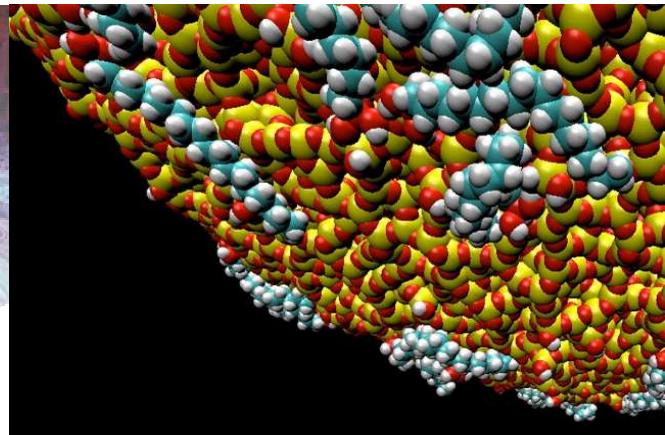


# Strong Research Foundations Enable Mission Performance

Computing Science

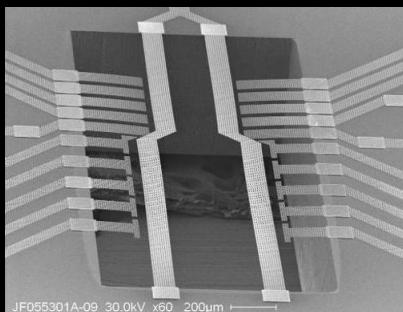


High Energy Density Physics

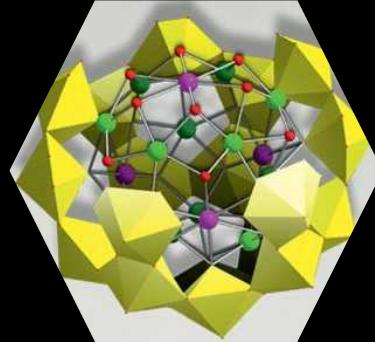
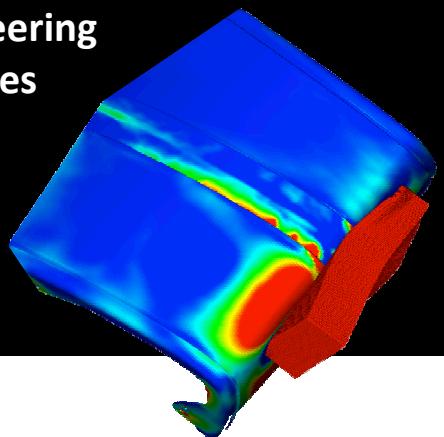


Materials

Microelectronics

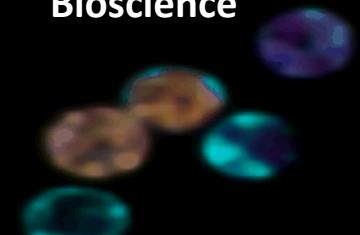


Engineering Sciences



Geoscience

Bioscience



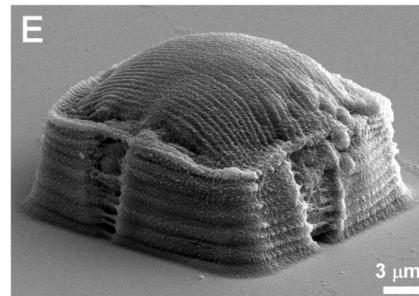
# The Importance of the National Laboratories to the United States



Anticipate future technology needs

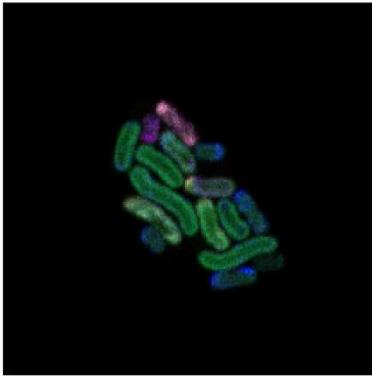


To benefit the United States and its citizens

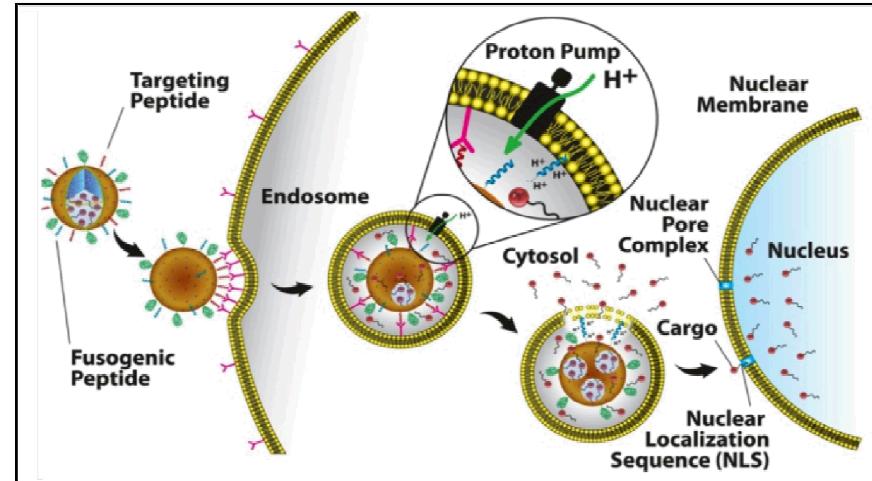


Aggressive exploitation of advances in science

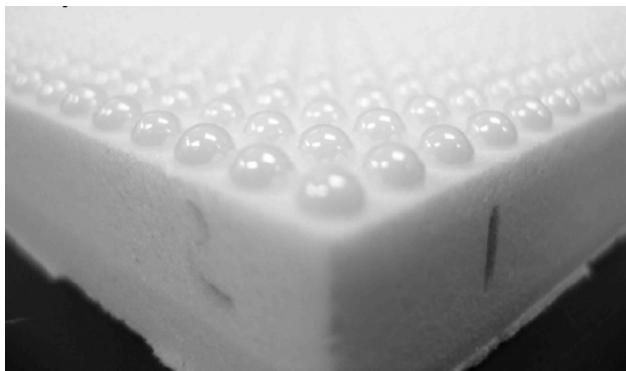
# Anticipating the Future



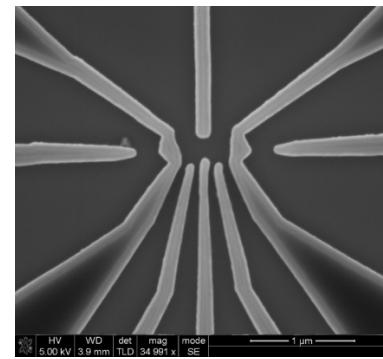
Metabolic engineering of cyanobacterium for biofuel precursor production



Melding nano-technology and medicine



Electromagnetic cloaking using metamaterials



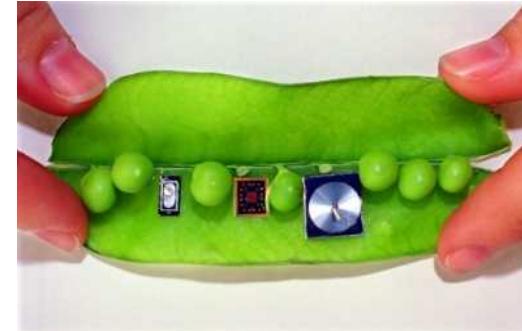
Multi-qubit systems for quantum information processing

# Products Resulting from High Risk/ High Payoff R&D



Global Burst Detection

Mega-rad-hard, scalable  
integrated circuits



Miniaturized chemical-agent detectors



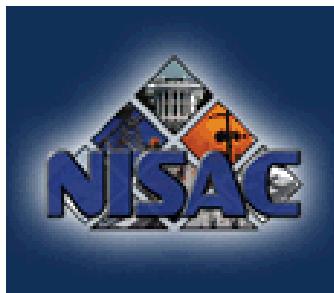
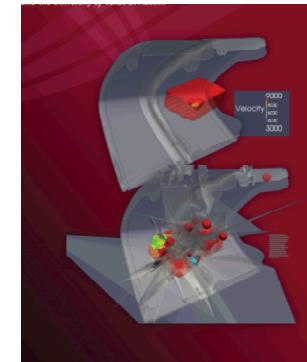
MiniSAR (Synthetic Aperture Radar)

# Responding to National Needs



Sandia leads DOE response to  
Deepwater Horizon Spill

Impact scenario  
model of foam  
striking the  
leading left wing  
of the Columbia  
Space shuttle



National Infrastructure  
Simulation and Analysis Center



Material characterization in  
support of the FBI Anthrax Case

# Diplomacy



Helping Kazakhstan move nuclear materials to a secure location



Installation of physical protection systems upgrades at Mexico National Institute of Nuclear Research



Engaging global scientific communities to promote responsible use and handling of biological materials, technologies, and expertise, as well as advance beneficial life sciences pursuits

# Strategic Partnerships Accelerate Innovation

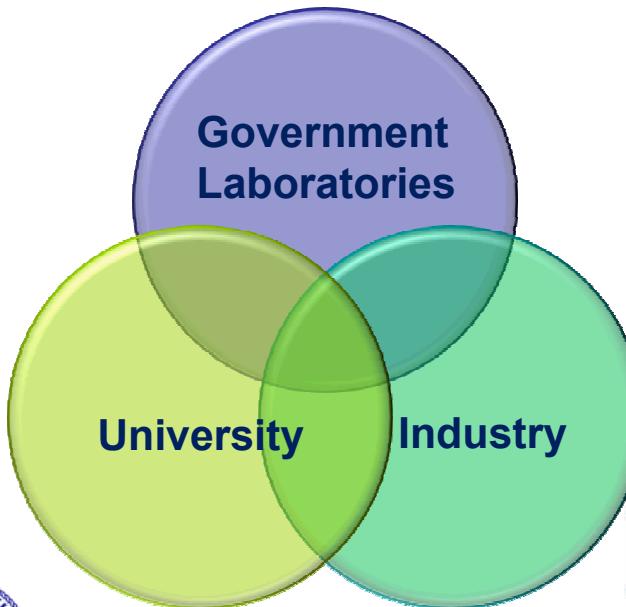
THE GEORGE WASHINGTON UNIVERSITY  
WASHINGTON DC



UNIVERSITY of CALIFORNIA



The University of New Mexico



LOCKHEED MARTIN 

CORNING

P&G

intel.

GOOD<sup>Y</sup>EAR

IBM



ExxonMobil

Taking on the world's toughest energy challenges.

