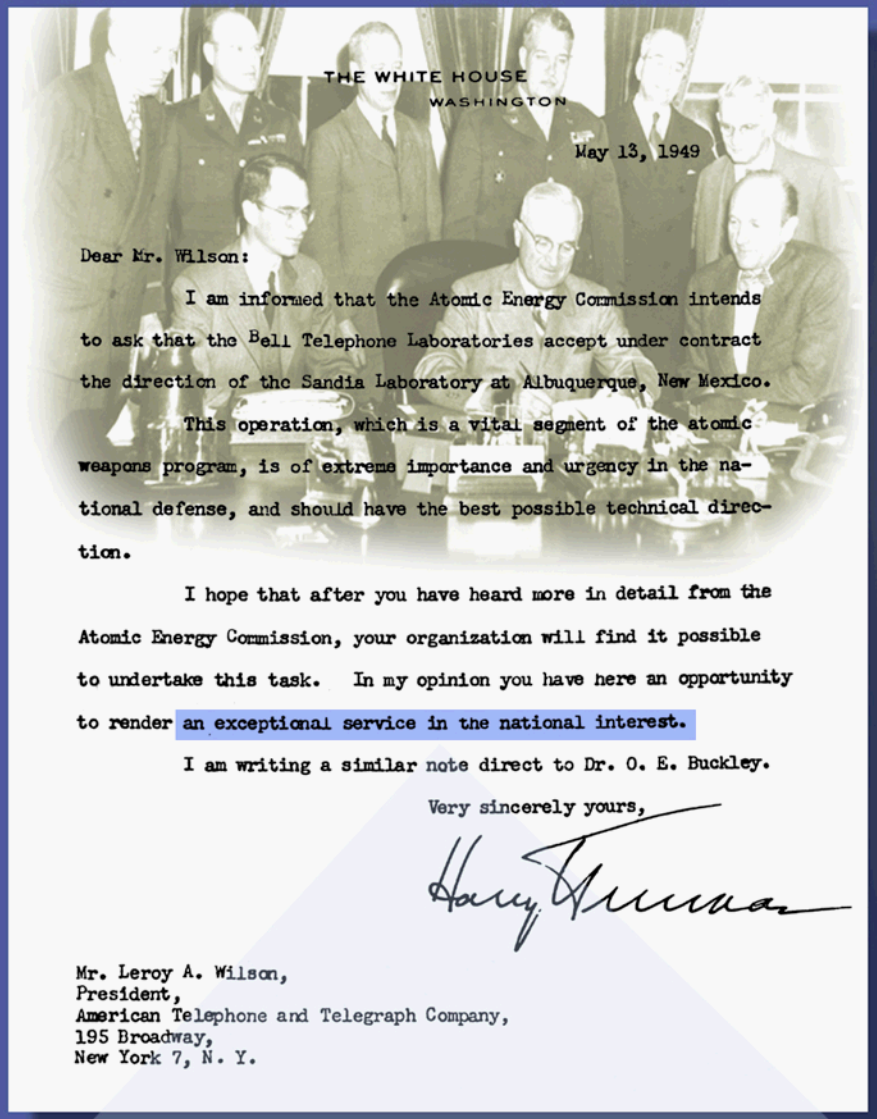
WELCOME

Philip Heermann, Ph.D.

Group Lead

Intelligent Systems, Robotics & Cybernetics

Sandia National Laboratories



THE WHITE HOUSE
WASHINGTON

May 13, 1949

Dear Mr. Wilson:

I am informed that the Atomic Energy Commission intends to ask that the Bell Telephone Laboratories accept under contract the direction of the Sandia Laboratory at Albuquerque, New Mexico.

This operation, which is a vital segment of the atomic weapons program, is of extreme importance and urgency in the national defense, and should have the best possible technical direction.

I hope that after you have heard more in detail from the Atomic Energy Commission, your organization will find it possible to undertake this task. In my opinion you have here an opportunity to render an exceptional service in the national interest.

I am writing a similar note direct to Dr. O. E. Buckley.

Very sincerely yours,

Harry Truman

Mr. Leroy A. Wilson,
President,
American Telephone and Telegraph Company,
195 Broadway,
New York 7, N. Y.

exceptional service in the national interest.

Sandia

Our Business: National Security

- **Core Purpose: to help our nation secure a peaceful and free world through technology.**

- **Highest Goal: to become the laboratory that the United States turns to first for technology solutions to the most challenging problems that threaten peace and freedom for our nation and the globe.**

Mission-Driven Laboratory

We serve many agencies of the US Government with:

- **Design and development: nonnuclear portions of US nuclear weapons**
- **Production: advanced components**
- **Safety, security, use control**
- **Treaty verification, nonproliferation, counterproliferation**
- **Advanced military technologies**
- **Energy and environment**
- **Homeland security, countering weapons of mass destruction**

Distributed Facilities to Meet National Needs

Albuquerque,
New Mexico

Kauai Test Facility,
Hawaii

Tonopah Test Range,
Nevada

Yucca Mountain,
Nevada

WIPP, New Mexico

Pantex, Texas

Livermore, California

National Nuclear Security Administration

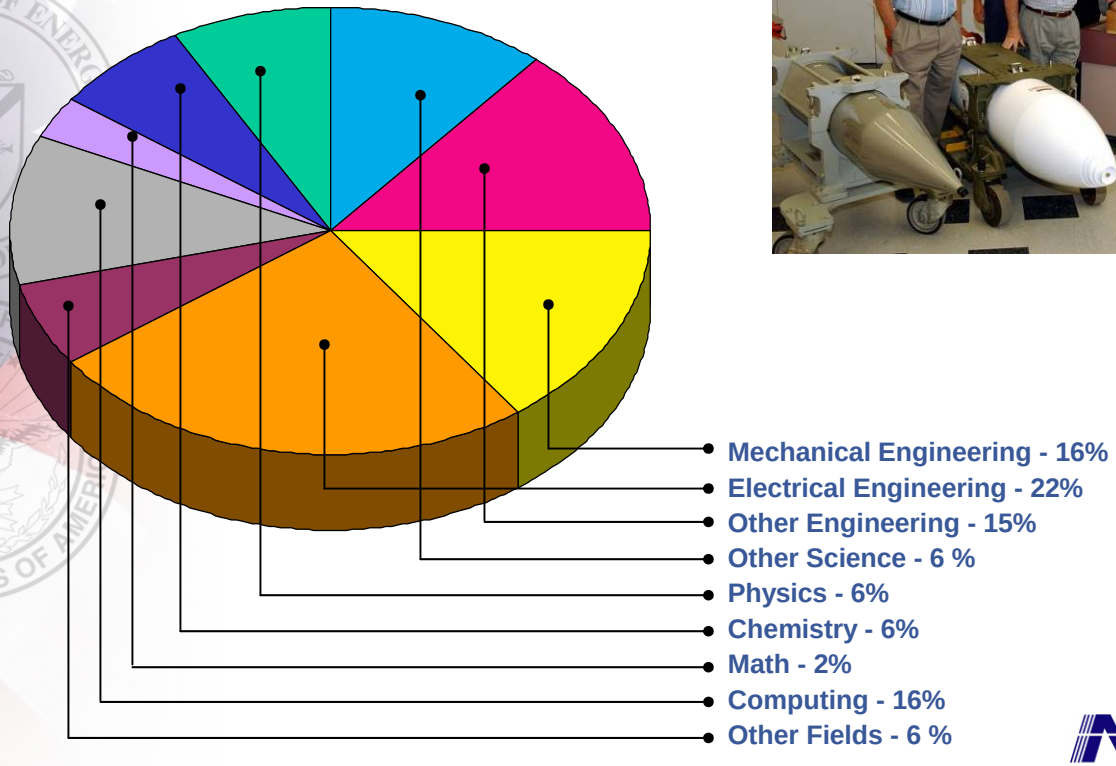
Sandia National Laboratories

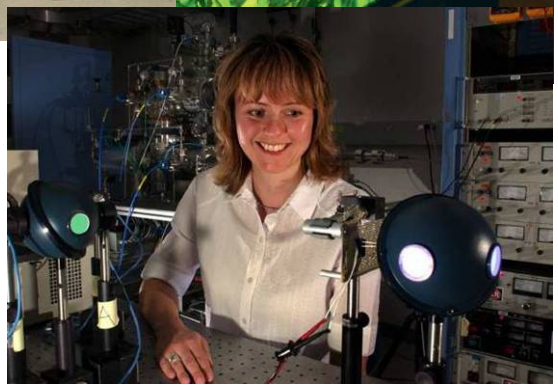
Unparalleled Large-Scale Facilities and Test Capabilities

- User facilities
- Designated national capabilities
- Z-Machine and radiation effects
- Real-life physical test ranges

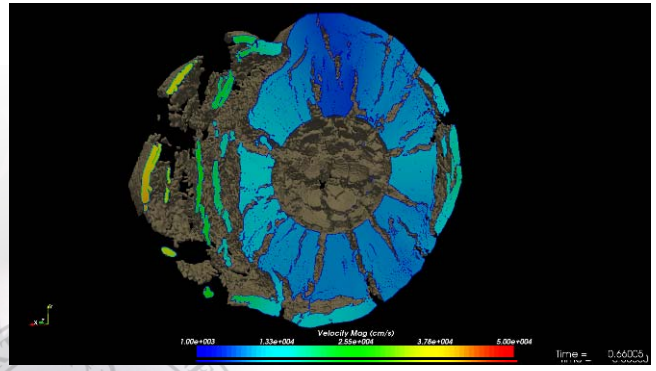
Highly Skilled Workforce

- More than 8,600 full-time employees
- More than 1,500 PhDs and 2,700 MS/MAs
- 2,200 on-site contractors
- $2.33 billion FY06 total budget

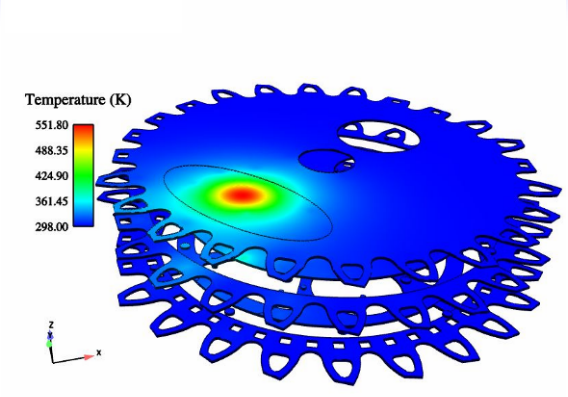




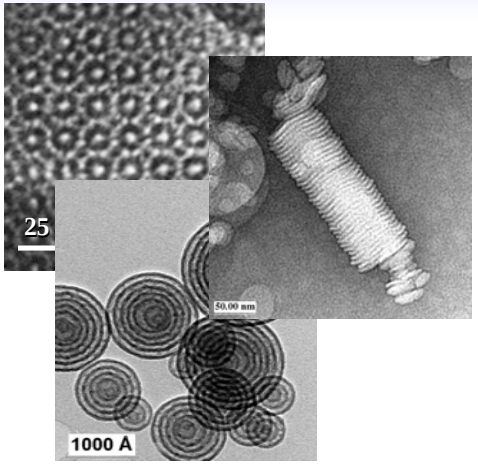
Our Mission Focus Relies on Strong Science and Engineering



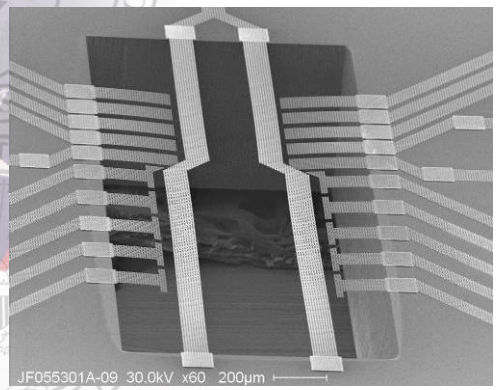
Computational and Information sciences



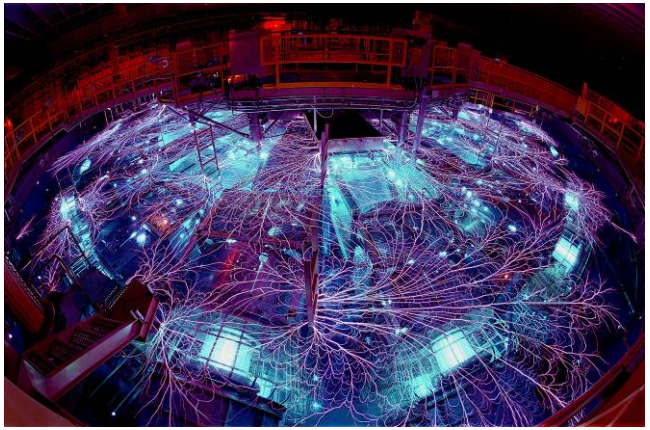
Engineering Sciences



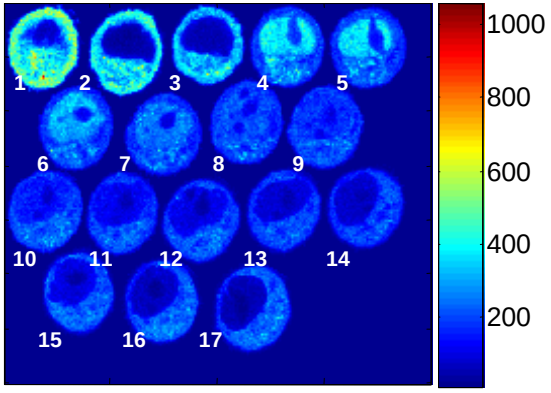
Materials Science and Technology



Microelectronics and Photonics



Pulsed Power



Bioscience

National Nuclear Security Administration

Sandia National Laboratories

Man is the best computer we can put aboard a spacecraft

... And the only one that can be mass produced with unskilled labor.

Wernher von Braun

Sandia National Laboratories

Intelligent Systems, Robotics & Cybernetics

Property Protection Area

Limited Areas

Technical Staff: ~ 60

Number of robots: ~60

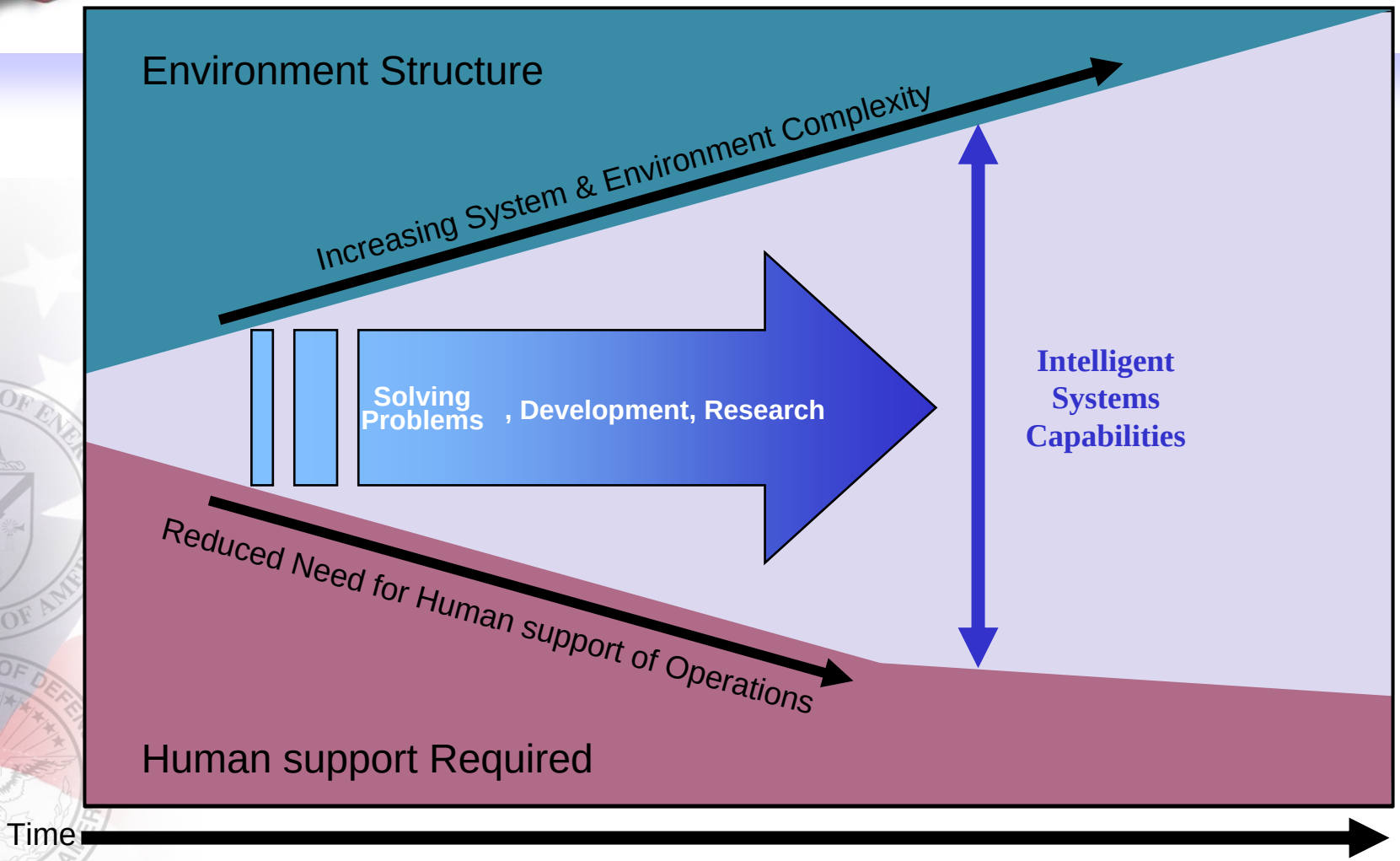
Heavy labs: 12

Light labs: 32

A "Research–Development–Application" Organization

Sandia National Laboratories

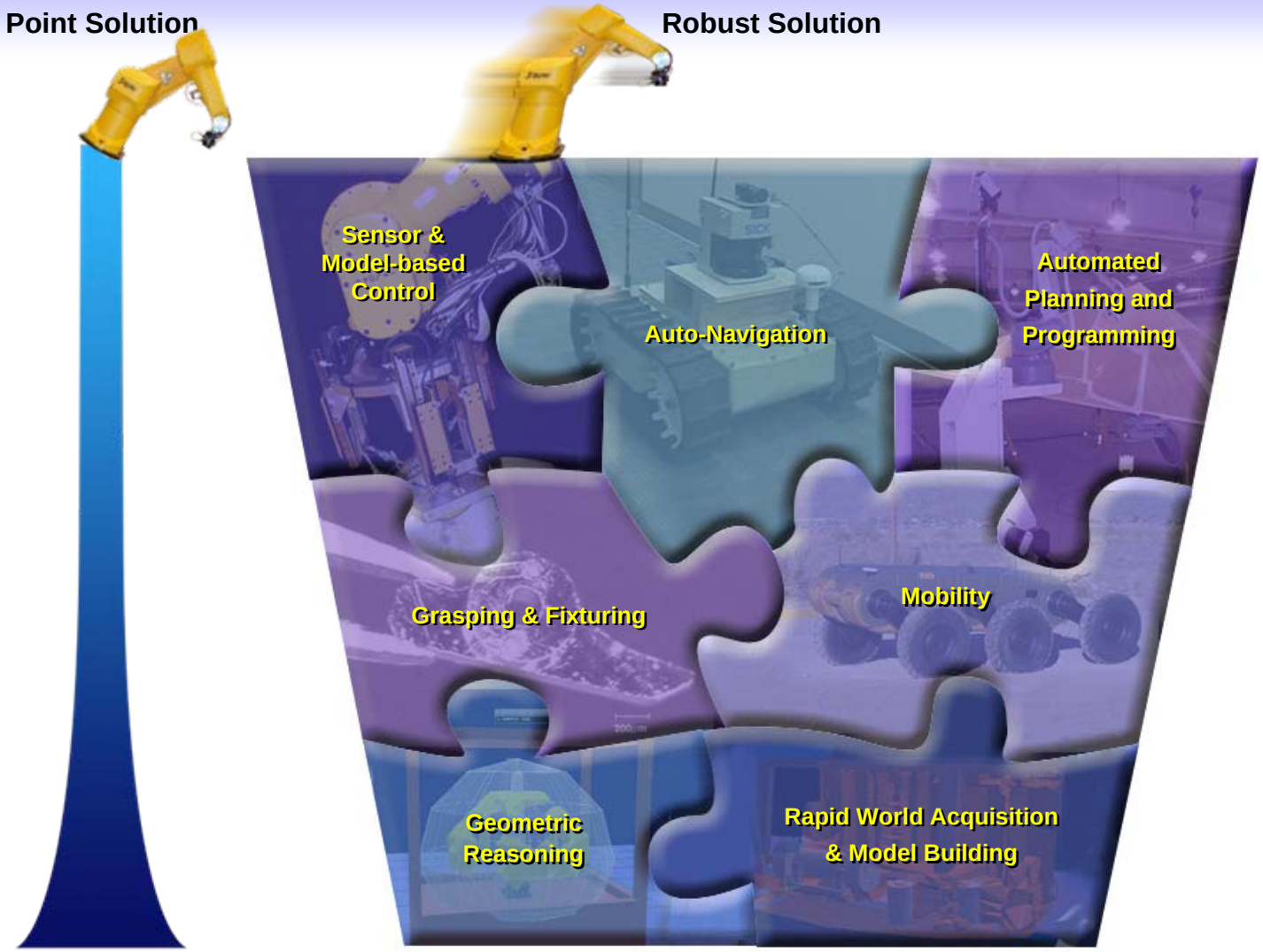
Intelligent Systems and Robotics What Are We?



Developing systems that can accomplish increasingly complex tasks with increasing certainty in less and less constrained environments.

Sandia National Laboratories

Enabling Capabilities
Foundation for Robust Solutions



Sandia National Laboratories

Intelligent Systems in National Security Applications

Larger

Size

Smaller

Applied to products that are

- **Small lot but high value**
- **High consequence if a failure**
- **High variability**

A "Research → Development → Application" Organization

Sandia National Laboratories