The National High Magnetic Field Laboratory (NHMFL) is a world-leading high magnetic field research facility located in Tallahassee, Florida. The lab is a collaborative effort between Florida State University, Los Alamos National Laboratory, and Sandia National Laboratories. It is funded by the National Science Foundation (NSF) and supported by the State of Florida.

### Advancing Basic Science
Researchers in the fields of physics, chemistry, materials science, engineering, biology, and geology have found opportunities to employ high magnetic fields in basic research. The bulk of the lab's research focuses on discovering new properties that will profoundly impact phenomena that will profoundly impact our understanding of fundamental physics and materials science.

### Addressing Human Problems
The Magnet Lab boasts some of the most sophisticated MRI and mass spectrometry equipment on the planet. The 23 tesla Ultra-Wide-Bore magnet (pictured) is used for animal imaging that delves into human problems like cancer, migraine, and stroke. These studies enable the early intervention and treatment of diseases like HIV, flu, and tuberculosis as well as stem cells seeking to repair brain or spinal cord injuries. The lab also uses its 7 tesla and 14 tesla magnets for human imaging, with unique capabilities to study multiple brain regions.

### Technology Leader
The lab's major magnet systems are designed and constructed in-house by its Magnet Science and Technology (MST) group; they also produce magnet projects for laboratories around the world, and boast long-standing productive industrial collaborations. The lab's Applied Superconductivity Center is also a technological leader, partnering with private industry to test the limits of experimental superconductors. The Magnet Lab's 40+ industrial collaborators include magnet science and technology, superconductor development, optical microscopy, and petroleum companies.

### New Materials for Energy
Investigation into rare earth minerals holds almost unlimited potential in the development of high-tech motors, generators, and compressors, additionally, such research could be a game-changer for US manufacturers. Exploration of next-generation fuels like algae will reduce carbon dioxide emissions and increase the flexibility of energy use.

### Societal Impact
- **An Overview**
  - **A Unique Resource**
    - The only facility of its kind in the United States, the Magnet Lab is the largest and highest-powered magnet laboratory in the world.
    - This facility is located in a specially-designed 570,000-square-foot complex at Florida State University in Tallahassee, the lab also includes sites at Los Alamos National Laboratory in New Mexico and the University of Florida in Gainesville. These three institutions cut across scientific disciplines to advance basic science, engineering and technology.
  - **Centralized Expertise**
    - Established in 1990 by the National Science Foundation and supported by the State of Florida and Department of Energy, the Magnet Lab is a national resource open to students, scientists and the curious public and a hallmark of Federal-State government and interagency partnerships. By bringing together the world’s greatest magnet-related tools, resources and expertise, the Magnet Lab nurtures the next generation of scientists.
  - **Wide-ranging Impact**
    - 2,100 peer-reviewed publications have resulted from Magnet Lab research in the past half-decade. The lab’s educational outreach is committed to developing the next generation of scientists, annually hosting over 150 K-12 teachers and 12,500 students. Thirty students every five years.
  - **Educational Programming at all Levels**
    - The lab’s Center for Integrating Research & Learning, the lab supports educational programming at all academic levels: K-12, technical, undergraduate, graduate, and postdoctoral. 10,000 students are reached annually through classroom outreach.

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**NHMFL Core Values**

- Safety
- Integrity
- Collaboration
- Innovation
- Excellence

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**U.S. States Represented by Magnet Lab Users 2007-2011**

- California
- Florida
- Georgia
- Illinois
- Indiana
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Missouri
- New Jersey
- New York
- North Carolina
- Ohio
- Pennsylvania
- Texas
- Virginia
- Washington
- Wisconsin