



**National High Magnetic Field Laboratory
Lab Director**

Florida State University seeks a widely recognized leader with demonstrated abilities to drive both scientific and management excellence, to serve as the director of the National High Magnetic Field Laboratory (NHMFL). The successful candidate must possess the skills necessary to manage a large and complex institution while also demonstrating a profound understanding of how to integrate fundamental and applied research. This integration is crucial for delivering groundbreaking scientific discoveries and advancing technology development in the field of high magnetic field science.

As a world-class research institution, the NHMFL receives core funding from the National Science Foundation (NSF) and benefits from extensive collaborative initiatives supported by other agencies. The Laboratory's staff members lead and support user facilities and diverse in-house research teams for the advancement of science in the areas of condensed matter physics and materials science; magnet engineering, testing, and instrumentation; chemistry, biochemistry, biology, biophysics, and geochemistry. Much of this funding requires individual PI or small group leadership. Integration and stimulation of such efforts are a vital part of the NHMFL portfolio, especially for technology development.

Major Duties/Responsibilities

The NHMFL operates seven user facilities across three campuses: Florida State University (headquarters), the University of Florida, and Los Alamos National Laboratory. This institutional diversity requires an approachable and empowering leader capable and conversant in multiple technical fields, with excellent strategic vision, insight, trust-building skills, and the ability to advocate. The complex nature of operations requires effective management across broad ranges of talent, experience, and capabilities in an environment with technical and commercial opportunities, political and infrastructure challenges, operational hazards, and unknowns. The director must be aware of and engaged with national priorities and national and international stakeholders to help ensure the continued preeminence of high-magnetic-field research in the US and globally, and to carry out the research, development, demonstration, and deployment of future magnet facilities to solve the next grand challenges as articulated by panels of the National Science Foundation and the National Academies, among other key advisory entities.

The NHMFL's continued impact on fundamental and applied science will be enhanced through important academic, institutional, and commercial partnerships. The director must be a collaborative problem solver, able to work with academic departments and administrative offices at the Florida State University, the University of Florida, Florida A&M University, Los Alamos National Laboratory and the Department of Energy; seek out and nurture relationships with partners from other laboratories, universities, and industry; and support the activities of the Office of Economic Vitality, the State of Florida, and the City of Tallahassee.

Key Responsibilities:

- Sustain world-leading technology and capabilities at NHMFL user facilities and NHMFL's world leadership in high magnetic field sciences.
- Serve as the external face of NHMFL, engaging with crucial program sponsors, a wide range of scientific stakeholders, local, state, and federal government officials, and the general public, fostering meaningful connections and partnerships.
- Lead NHMFL through significant business opportunities, as well as challenges, that can include:
 - Ensuring a diversified and sustainable funding portfolio anchored by the core NSF grant;
 - Identifying and funding programs to sustain NHMFL preeminence, including investing in new science facilities and infrastructure upgrades;
 - Fostering translation and commercialization opportunities;
 - Continuing to ensure that the laboratory is operating in a safe, secure, and cost-effective manner;
 - Balancing investment decisions to mitigate risk and assure a vibrant future for the Laboratory;
- Maintain awareness and active engagement with national priorities and national/international stakeholders, facilitating the sustained preeminence of high-magnetic-field research. Undertake research, development, demonstration, and deployment of future magnet facilities to tackle the next grand challenges identified by scholarly panels.
- Enhance and sustain a compelling shared vision and strategy for a complex research organization, and gain commitment, trust, and ownership for success across the diversity of internal and external stakeholders.
- Set expectations for institutional priorities, performance, and outcomes that will sustain excellence; align these expectations with leadership and management priorities and goals; and where appropriate, delegate responsibility and authority to implement strategic plans and uphold regulatory obligations.
- Exemplify approachable and empowering leadership; instill a supportive culture of transparency, collaboration, commitment, diversity and inclusion, respect and action toward organizational priorities related to people, culture, safety, and health.
- Set a compelling vision for talent growth and development, emphasizing mentoring as a fundamental organizational value. Generate enthusiasm and inspiration to attract, nurture, and retain an exceptional and diverse team of scientific, engineering, managerial, and professional personnel.
- Foster self-awareness of strengths and weaknesses and exhibit the capacity to openly and candidly address challenging matters.

Qualifications

The next Director must possess an international reputation in high magnetic field science or technology, coupled with exceptional interpersonal and leadership skills suited for a complex, high-performance research institution. The qualifications sought in the next Director include:

- Strong leadership presence, including exceptional communication skills, the ability to motivate and inspire others to action, and a desire to engage and connect with staff and teams at all levels within a large and complex organization.
- Active listening skills with a genuine intention to understand and address the needs of both internal and external stakeholders, while balancing the priorities of a diverse workforce with deliverables of a complex scientific organization.
- Outstanding record of scientific and technical accomplishments, including an earned Ph.D. in a relevant scientific or technical field.
- Proven expertise in research and management development within relevant areas of science and technology, capable of scaling to meet the size, scope, and complexity of the NHMFL.
- Demonstrated commitment to the development of staff and leadership.
- Proven ability to create and implement a shared vision and strategy, align resources, empower staff to achieve goals through integration and teamwork, and to build and direct diverse, multidisciplinary organizations.
- Significant working knowledge of federal agency missions with a particular emphasis on the NSF, as well as familiarity with key organizations, structures, and programs worldwide that are relevant to high magnetic-field science and technology. A demonstrated record of obtaining and sustaining funding from a variety of federal, and state agencies is essential. Playing a key role in obtaining such funding in the context of a center or higher-level organization would be advantageous.
- Proven ability to foster successful relationships with university administrations, key program sponsors, and other stakeholders. Effective communication skills to articulate the breadth and depth of the research and development portfolio with key constituents, including elected officials, political appointees, government and other funding sponsors, scientific peers, and organizational partners.

The Laboratory

Seeking the most powerful magnetic fields on Earth, scientists and engineers from around the world conduct their experiments at the National MagLab. In 2022, the MagLab hosted 1,958 users representing 327 universities, government labs, and private companies worldwide. The lab comprises 7 distinct [user facilities](#) that offer researchers a wide range of research capabilities:

- DC Field—Steady, continuous magnetic fields up to 45 T
- Pulsed Field—Short, ultra-powerful magnetic fields up to 100 T
- High B/T—Magnetic fields up to 15 T combined with ultra-cold temperatures of 0.4 mK

- Electron Magnetic Resonance (EMR)—Magnetic resonance techniques associated with the electron
- Nuclear Magnetic Resonance (NMR)—Solid & solution state NMR & animal imaging
- Advanced Magnetic Resonance Imaging & Spectroscopy (AMRIS)—High-resolution solution and solid-state, NMR, animal imaging & human imaging
- Ion Cyclotron Resonance (ICR)—Ultra-high resolution and high mass accuracy Fourier transform ion cyclotron resonance (FT-ICR) mass spectrometry

The MagLab regularly sets and surpasses its own world records for high magnetic fields. Among the current records are:

Highest field for a continuous field magnet (test magnet)	45.5 tesla
Highest field for a continuous field magnet (user magnet)	45 tesla
Highest field for a superconducting magnet	32 tesla
Highest field for a resistive magnet	41.4 teslas
Highest field for a controlled waveform (100-ms) magnet	100.75 tesla
Highest field for a long-pulse (100-ms) magnet	60 tesla
Highest field for a split magnet	25 tesla
Highest central field for a superconducting coil in a background magnet	42.5 tesla
Highest field superconducting magnet for FT-ICR mass spectrometry	21 tesla
Highest field neutron scattering magnet (Helmoltz Centre Berlin)	26 tesla
Highest field magnet for nuclear magnetic resonance (Series Connected Hybrid magnet)	36 tesla
Smallest resolved mass difference between two molecules (achieved a 9.4 tesla FT-ICR instrument)	0.000452 Dalton
Highest observed nuclear resonance Larmor frequency 1.9 GHz Proton NMR at	44.7 tesla
Highest frequency spectrometer for pulsed EPR	336 GHz / 12 tesla
Highest field for an MRI study of a living animal	21.1 tesla (900 MHz)
Lowest temperature for studies of electron systems in an applied field	0.004 Kelvin
Highest trapped magnetic field	17.6 teslas

The MagLab is home to the Magnet Science & Technology (MS&T) group and the Applied Superconductivity Center (ASC). Together, these groups work to develop powerful magnet technology and the strongest superconducting magnets in the world. The next generation of magnet projects leverage the analysis, design, materials, component development and testing, coil fabrication, and testing only available at the MagLab.

In addition to the extensive research that takes place in the seven user facilities and within the magnet development programs, several [in-house research groups](#) flourish at the Magnet Lab. These groups use MagLab facilities to pursue high-field research at the forefront of science and engineering and advance the lab's user program by developing new techniques and equipment. In-house research at the lab helps set research trends and provides leadership for experimental and theoretical research in magnetic materials and phenomena.

The Setting

The main facility of the MagLab sits in the innovation park at Florida State University. One of the nation's public, elite research universities, [Florida State University](#) preserves, expands, and disseminates knowledge in the sciences, technology, arts, humanities, and professions, while embracing a philosophy of learning strongly rooted in the traditions of the liberal arts and critical thinking.

FSU's welcoming campus is located on the oldest continuous site of higher education in Florida, in a community that fosters free inquiry and embraces diversity, along with championship athletics, and a prime location in the heart of the state capital.

FAST FACTS

- Carnegie Commission classification: "Doctoral Universities: Highest Research Activity"
- 44,597 students from every Florida county and 130 countries
- Accepted freshman profile for fall 2022:
- 4.1-4.5 average GPA; 26-31 average ACT composite score; 1220-1360 SAT score
- 94% retention rate for freshmen; 74% graduation rate within four years
- 17:1 student/faculty ratio
- 394 buildings on 1,715.5 acres; main campus in Tallahassee is 485.7 acres
- 2,615 traditional faculty; has included 6 Nobel Laureates
- 14,705 total employees
- Operating budget of \$1.95 billion
- FSU's research expenditures totaled more than \$355 million for FY 2022.

Combining traditional strengths in the arts and humanities with internationally recognized leadership in the sciences, FSU provides unmatched opportunities for students and faculty through challenging academics, cultural discovery, and community interaction. FSU's 18 colleges and its Graduate School offer more than 276 undergraduate, graduate, doctoral, professional, and specialist degree programs, including medicine and law. The University awards more than 3,000 graduate and professional degrees each year. With an impressive breadth of leading graduate, professional and undergraduate programs, FSU is a demanding, intellectually stimulating, yet warm and caring environment for students and faculty. Recognized nationally for its strong commitment to diversity, FSU is a national leader in the number of doctorates awarded to African American students and in the graduation rate of African American undergraduates. The College of Medicine and College of Law are ranked among the nation's Top 10 for Hispanic students. The FAMU-FSU College of Engineering (COE), within easy walking distance from the NHMFL, is the Nation's only joint engineering college that is home to students and faculty from Florida Agricultural and Mechanical University (FAMU), an HBCU, and FSU. A significant number of the teaching faculty associated with the NHMFL have their faculty home in the COE as do the undergraduate and graduate students working at the NHMFL that they mentor. The University also has more than 60 years of experience in international education and is a leader in the field of study-abroad programs, ranking 11th in the nation in providing students with extraordinary study-abroad experiences through its permanent study centers in London, Florence, Valencia, Republic of Panama, and summer-specific programs in various locations around the world.

FSU's arts programs — performing and fine/visual arts, design, and education — rank among the finest in the world, offering an arts education comparable to leading conservatories. The creative writing program is home to the most consistently honored and published student body in the country. FSU also operates the Ringling Center for the Cultural Arts in Sarasota, which includes the John and Mable Ringling Museum of Art, the largest museum/university complex in the nation, and home to the FSU Center for the

Performing Arts, which houses the Asolo Repertory Theatre. FSU hosts the annual series Opening Nights, drawing a lauded selection of artists to Florida State's campus year after year.

Other programs consistently included in the top public university rankings include physics, chemistry, political science, psychology, criminology, public administration, library science, information technology, health and human sciences, business, education, social work, and law. At the Ph.D. level, interdisciplinary programs draw on notable research faculty strengths that transcend the traditional disciplines, including neuroscience, molecular biophysics, computational science, materials science, and research at the National High Magnetic Field Laboratory — home to the world's most powerful magnets. More than 2,000 scientists from around the globe utilize the magnet lab each year to conduct their research.

FSU faculty includes members of the National Academy of Sciences, the National Academy of Engineering, the National Academy of Medicine, the National Academy of Inventors, and the American Academy of Arts & Sciences; Pulitzer Prize winners; Oscar winners; and Guggenheim, Fulbright, and National Endowment for the Humanities fellows. Six Nobel laureates have been associated with FSU.

The Search

Florida State University has retained Park Square Executive Search to assist in the search for the director of the MagLab. Nominations, inquiries, and applications may be sent in confidence to:

Jonathan Fortescue, Managing Partner or
Sarah Smith, Associate
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ssmith@parksquare.com

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http://www.hr.fsu.edu/PDF/Publications/diversity/EEO_Statement.pdf