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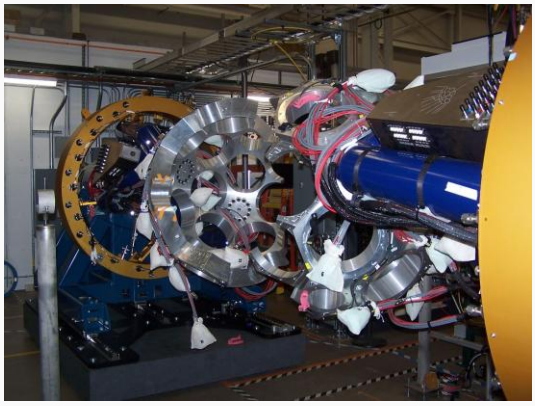
Laboratory Update for Alumni

Fall 2025

Featured Articles

FRIB summer projects support GRETA and improve accelerator performance

Operations have resumed following numerous projects and improvements that were successfully completed this summer.



FRIB retrofits vault for GRETA integration

FRIB's focus this summer was the reconfiguration of the ReA6 experimental vault to accommodate the Gamma-Ray Energy Tracking Array (GRETA).

The scope of work included structural modifications to the shielding wall to create access openings, installation of new cable trays and electrical systems, and placement of GRETA electronics racks.

FRIB teams have continued to make strong progress preparing the ReA6 experimental vault for the installation of GRETA. Crews finished major setup work

of GRETA's support systems, including electrical, cooling, vacuum, and fiber optics. A few final tasks remain, and once those are complete, the transition to the next phase—installing the GRETA detectors—will move forward. The GRETA frame, including both hemispheres, was successfully installed at the end of October through a joint effort between FRIB staff and colleagues from Lawrence Berkeley National Laboratory. These coordinated efforts mark another important step toward bringing GRETA online. Watch a timelapse video of the installation and alignment process.

Lawrence Berkeley National Laboratory (Berkeley Lab) published an article ("GRETA to Open A New Eye On the Nucleus") about GRETA.

FRIB performed preventive maintenance on linac cryomodules

This summer, FRIB carried out the first in-situ plasma processing of superconducting radiofrequency (SRF) cavities in one of the quarter-wave resonator (QWR) cryomodules in linac tunnel. Plasma processing removes organic contaminates from the RF surfaces of SRF cavities, helping to recover cavity performance that degraded over extended operation. This degradation is often caused by field emission electrons and limits usable accelerating gradients.

Additionally, all half-wave resonator (HWR) cryomodules in linac segments 2 and 3 were warmed to room temperature and the pneumatic tuner gas lines inside the cryomodules were cleaned as a part of preventive maintenance.

Honors and Awards

Jie Wei awarded American Physical Society's 2026 Robert R. Wilson Prize

Jie Wei, director of FRIB's Accelerator Systems Division and professor of physics at FRIB and in MSU's Department of Physics and Astronomy, has been awarded the American Physical Society's (APS) 2026 Robert R. Wilson Prize for Achievement in the Physics of Particle Accelerators.

Wei earned the honor for his leadership in developing, constructing, and commissioning the FRIB accelerator, the most powerful continuous-wave superconducting linear accelerator for heavy ions, and for his work in high-intensity hadron accelerator physics and technology.

Read more

Paul Guèye named 2025 American Physical Society Fellow

Paul Guèye, professor of physics at FRIB and in MSU's Department of Physics and Astronomy, has been named as a 2025 Fellow of the American Physical Society (APS). Fellows are selected for their outstanding contributions to physics. Each year, the number of APS fellows elected is no more than one half of one percent of the membership.

Read more

FRIB students earn research opportunities

Students at FRIB are gaining recognition for their academic excellence and research potential through competitive fellowships and internships. These opportunities provide valuable experience and highlight the strength of FRIB's research and training environment.

- FRIB graduate assistant Brandon Lem earns DOE NNSA fellowship
- FRIB graduate assistants Richard Gumbel and Andy Smith awarded 2025–2026 Chateaubriand Fellowships
- FRIB undergraduate student Graham Malone earns DOE-SC SULI internship

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News

FRIB-led team earns U.S. Department of Energy machine-learning renewal grant

FRIB, in collaboration with Los Alamos National Laboratory (LANL), was awarded a renewal grant from the U.S. Department of Energy Office of Science (DOE-SC) Office of Nuclear Physics. The two-year renewal grant, titled "Online Autonomous Tuning of the FRIB Accelerator Using Machine Learning," secures funding for the application of machine learning (ML), a subset of artificial intelligence (AI), in pursuit of accelerator operational efficiency. The collaboration is led by Peter Ostroumov, associate director of the FRIB Accelerator Systems Division.

Read more

FRIB's Advanced Rare Isotope Separator pushes the limits of rare isotope discovery

Researchers at FRIB are gaining new insight into the limits of nuclear existence thanks to the precision and sensitivity of the Advanced Rare Isotope Separator (ARIS). Designed to isolate and identify individual rare nuclei from an enormous number of beam particles, up to one in a quintillion—that is like finding one needle in a thousand billion haystacks. With this sensitivity, ARIS allows scientists to study some of the most extreme and short-lived forms of matter in the universe. The team published its results ("Discovery of new isotopes in the fragmentation of 82Se and insights into their production") in *Physical Review C*.

Read more

Scientists detect first-ever beta-delayed neutron emission from rare fluorine isotope

A research team at FRIB is the first ever to observe a beta-delayed neutron emission from fluorine-25, a rare, unstable nuclide. Using the FRIB Decay Station Initiator (FDSi), the team found contradictions in prior experimental findings. The results led to a new line of inquiry into how particles in exotic, unstable isotopes remain bound under extreme conditions. Led by Robert Grzywacz, professor of physics at the University of Tennessee, Knoxville (UTK), the team included Jack

Peltier, undergraduate student at UTK, Zhengyu Xu, postdoctoral researcher at UTK, Sean Liddick, professor of chemistry at FRIB and interim chairperson of MSU's Department of Chemistry, and Rebeka Lubna, scientist at FRIB. The team published its results ("The evidence of N = 16 shell closure and β-delayed neutron emission from 25F") in *Physics Letters B*.

Low-energy nuclear physics community and FRIB user group meet at Texas A&M University to discuss future priorities

The 2025 Low Energy Community Meeting (LECM) took place 13-15 August at Texas A&M University (TAMU). LECM brings together members of the worldwide low-energy nuclear physics community to interact and discuss future plans, initiatives, and instruments. Over the course of the three days, 210 participants attended the meeting from 46 institutions and four countries.

Read more

Researchers develop new machine-learning method

A research team, led by two graduate students at FRIB, recently published a paper ("Parametric matrix models") in *Nature Communications* showcasing a new way to approach algorithm development for machine learning and artificial intelligence (AI) applications.

Read more

FRIB hosts international conference on heavy-ion accelerator technology

FRIB hosted the 16th International Conference on Heavy Ion Accelerator Technology (HIAT2025) from 22–27 June. The attendees at the event represented 44 organizations from 21 countries.

This is the first time FRIB has hosted the conference. HIAT is an international conference dedicated to the design, construction, development, and operation of stable and radioactive heavy-ion accelerators and their components. The conference emphasizes operational experience at existing facilities, recent achievements in accelerator physics and technology, progress in new projects and infrastructure upgrades, and emerging trends in accelerator design and applications.

Read more

For more, visit the FRIB website.

Alumni Spotlight

Would you like to be featured in our Alumni Spotlight section?

We invite former FRIB and NSCL colleagues to share their paths, experiences, and perspectives since their time at the laboratory.

Please contact FRIB Communications if you are interested.

Browse our Alumni Spotlight Archive

In the News

Below are some recent FRIB-focused articles from selected outlets.

- **GRETA arrives at FRIB**
  Interesting Engineering: World's most powerful gamma-ray detector set to unlock nuclear secrets
- **Collaboration prepares space electronics engineers**
  MSU Today: Return of space electronics boot camp highlights collaboration
- **Lawrence Livermore National Laboratory staff scientist and former NSCL graduate student wins awards**
  Mirage News: LLNL's Wei Jia Ong Wins 2025 APS Freedman Award

For more, visit the FRIB website.

Upcoming Events

- 24-26 November 2025 – Technical Systems Advisory Committee (TSAC) Review

For more, visit the FRIB website.

Update your information in FRIB Alumni Directory

The FRIB Laboratory has an alumni directory form to communicate with laboratory alumni and to track their career paths. Please take a couple of minutes to fill out or update the form by answering a few simple questions. This will ensure our records are accurate and build a more reliable network we hope you find useful. Visit the online alumni directory form to enter and update information.

We want to hear from you

Send us your story ideas! Let us know what you are up to! We want to feature at least one story each issue about you—our alumni, so please email us story tips about you and/or your fellow alumni to alumni@frib.msu.edu. Tell us about discoveries, business ventures, partnerships, awards, and other professional developments, and we may feature them in a future issue. Also let us know if there are other types of laboratory updates you'd like to see in future alumni issues.

Michigan State University operates FRIB as a user facility for the U.S. Department of Energy Office of Science (DOE-SC), with financial support from and furthering the mission of the DOE-SC Office of Nuclear Physics.

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