

The **Facility for Rare Isotope Beams (FRIB)** will be a new national user facility for nuclear science, funded by the Department of Energy Office of Science (DOE-SC), **Michigan State University (MSU)**, and the State of Michigan. Under construction on the site of the **National Superconducting Cyclotron Laboratory (NSCL)** on the MSU campus and to be operated by MSU, FRIB will provide intense beams of rare isotopes (that is, short-lived nuclei not normally found on Earth). FRIB and NSCL will continue to enable scientists to make discoveries about the properties of these rare isotopes in order to better understand the physics of nuclei, nuclear astrophysics, fundamental interactions, and applications for society.

Rare-isotope beams are produced and separated in-flight, presently at the NSCL Coupled Cyclotron Facility and in the future at FRIB, and subsequently thermalized and reaccelerated to energies up to 6 MeV/u, by the **ReAccelerator facility ReA3**, a worldwide unique, state-of-the-art accelerator for rare-isotope beams. An upgrade to higher energies (ReA6) is presently under construction. When FRIB comes online, it will supplant the Coupled Cyclotron Facility and provide the highest possible intensity rare isotope beams as input to the ReA facility.

This position affords an exciting opportunity to become part of the world-class FRIB Project, and to get in on the ground floor of an emerging national user facility that will expand nuclear science into a whole new realm of possibility.

Position Overview

The position resides in and supports the Beam Instrumentation and Measurements Department and supports the FRIB operations and advanced detector research and development. The Facility for Rare Isotope Beams (FRIB) invites applications from outstanding candidates for a fixed-term Research Associate (Postdoctoral Researcher) who will work in the Detector Group led by Prof. Marco Cortesi. Renewal of appointment is possible – subsequent appointments are subject to funding and satisfactory performance evaluations. Besides the excellent research environment, the FRIB Laboratory offers a strong program for mentoring postdoctoral researchers in preparation for the next steps in their careers. You can read more in the postdoc mentoring plan. Postdoctoral researchers play a role in running the Laboratory, from leading forefront research to serving on important committees. They help supervise students and, for those interested, there are opportunities to engage with teaching and outreach.

Major Position Responsibilities

- Work within the framework of the FRIB detector lab
- Fabricate, optimize, and maintain detector systems for Operations and Nuclear Physics experiments
- Support the development and R&D of new detector systems
- Perform research and development projects to enhance the performance of the facility

Required Qualifications

- A Ph.D. in physics or chemistry in the area of nuclear, particle, or high energy experimental physics, or Ph.D. in Physics and *Engineering of Radiation Detection*
- Experience with construction, development and operation of particle and radiation detectors such as ion chambers, gas proportional counters, position tracking detectors, scintillators and related optical readout technologies, solid-state silicon and HPGe detectors.
- Basic knowledge on vacuum technology and related instrumentation

- Individuals should be self-motivated and able to work well independently, within a team and in large collaboration.
- Solid verbal and written communication skills.
- Ability to work with export controlled technologies.

Desired Qualifications

- Operational experience with larger detector setups in experimental devices, including detector maintenance and data acquisition
- Printed Circuit Board schematic capture and layout experience (Altium software or alike), and mechanical design software (i.e. SolidWorks)
- Experience supporting scientific research programs
- Monte Carlo simulation packages (Geant4, MCNP, etc.)

Benefits

MSU employees receive excellent benefits including health/dental plans, a generous retirement plan, and educational assistance.

How to Apply

For immediate consideration, please go www.careers.msu.edu (posting 692133) and follow the application process.

In the cover letter of their application, applicants must highlight their interest in and experience/expertise related to the open position in the operations department of Prof. Cortesi. Applicants must provide a Curriculum Vita including a complete list of publications and presentations. Applicants must also provide contact information for at least three letters of recommendation.

MSU is committed to achieving excellence through cultural diversity. The university actively encourages applications and/or nominations of women, persons of color, veterans and person with disabilities.

About FRIB and MSU, and the East Lansing Community

FRIB is currently under construction and baselined at a total project cost of \$730M. Upon start of user operation in 2022, FRIB will enable scientists to make discoveries about the properties of rare isotopes in order to better understand the physics of nuclei, nuclear astrophysics, fundamental interactions, and applications of rare isotopes to benefit society.

MSU is one of the largest university campuses in the U.S. with a beautiful campus of 5,000 tree-filled acres. It has 17 degree-granting colleges and is a center for academic and research activities as well as the arts and athletics.

The campus sits between Lansing (Michigan's capital city) and East Lansing. The Lansing area has a population of 350,000 and offers lovely suburban areas, loft condos and other urban living opportunities as well as easy-to-get-to rural areas. A symphony orchestra, excellent health care, many community and professional theatres, rivers, lakes, outdoor festivals, close access to large cities and Lake Michigan make for a near perfect living environment.

MSU is an affirmative action, equal opportunity employer.