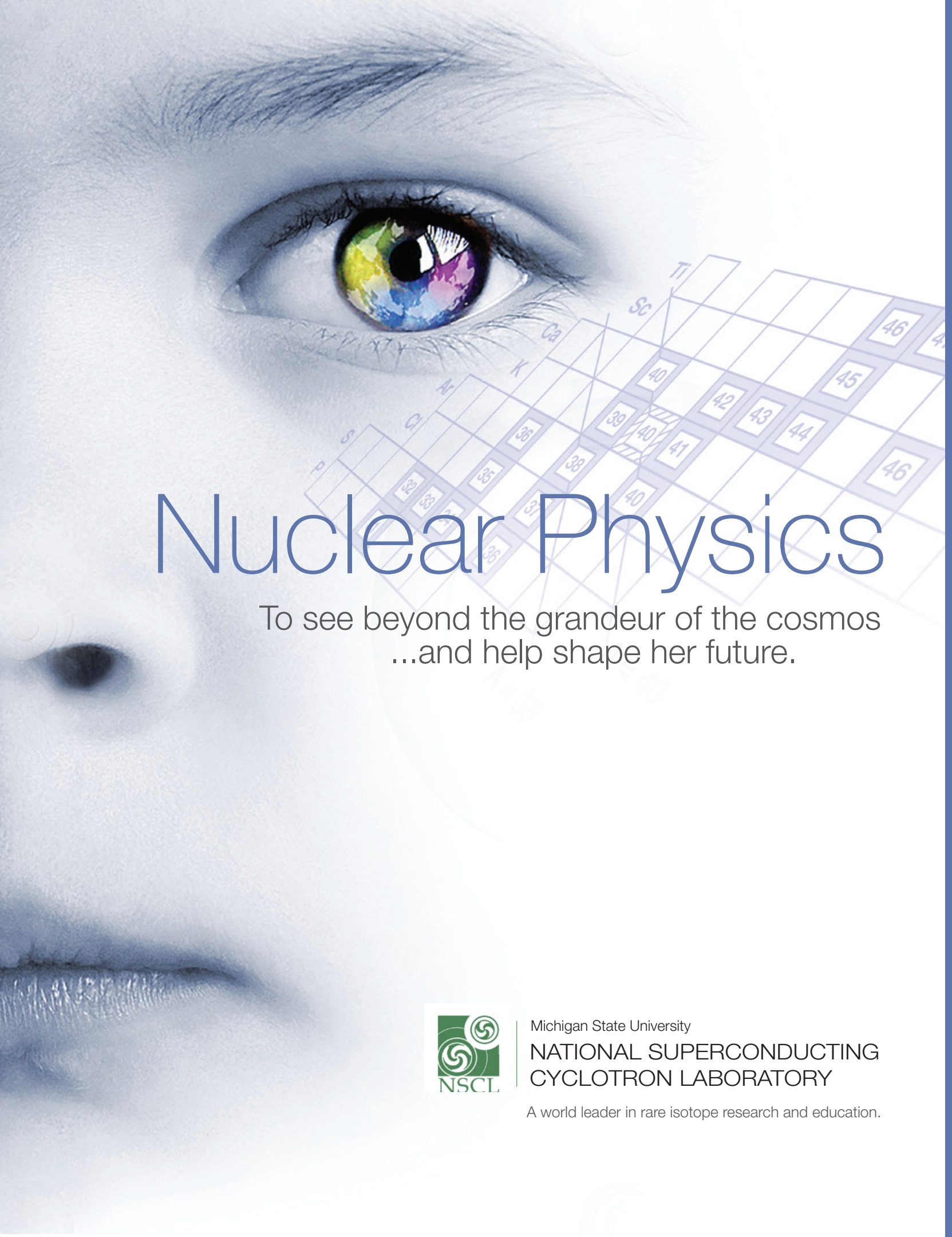


Nuclear Physics

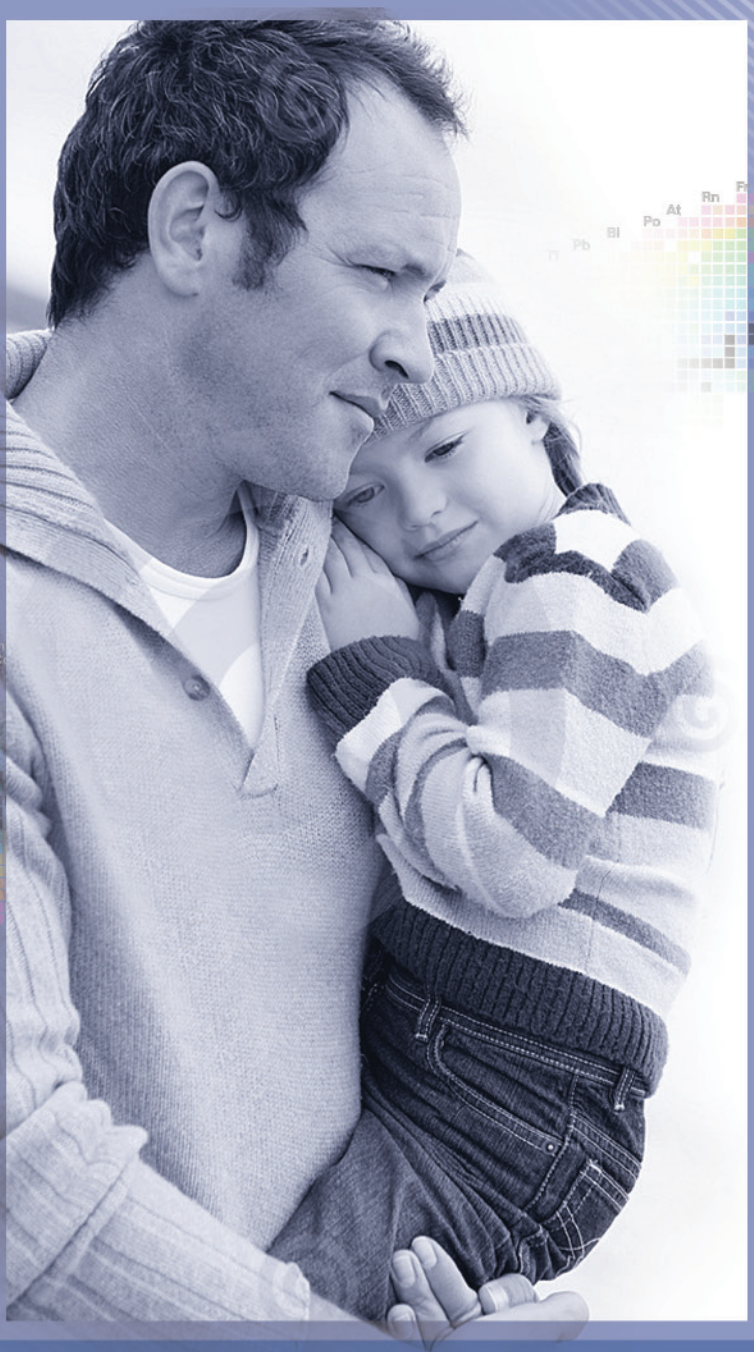
To see beyond the grandeur of the cosmos
...and help shape her future.

NSCL

Michigan State University
NATIONAL SUPERCONDUCTING
CYCLOTRON LABORATORY

A world leader in rare isotope research and education.

The Cornerstone for Discovery, for Innovation, for Solutions.



Nuclear science research enhances life, leads to better health.

The physics done at NSCL (National Superconducting Cyclotron Laboratory) at Michigan State University, and laboratories like it around the world, is the cornerstone for discovery, for innovation, for solutions. Nuclear science has also yielded knowledge that has led to better health. Examples of benefits from nuclear science include:

- **Cures for cancer and deadly blood clots**
- **Remarkable diagnostic tools**
- **Ways to make our food and homes safer**
- **Ways to assess health risks to astronauts in space**
- **Tools for archaeologists, military defense, security**

The world's first superconducting medical cyclotron was designed and built by NSCL and used at Harper Hospital in Detroit to treat patients with advanced prostate cancer doubling their chance of survival. Today, VARIAN corporation markets a superconducting medical cyclotron for proton therapy, that is based on a conceptual design developed at NSCL.

A world leader in Rare Isotope Research and Education

NSCL

National Superconducting Cyclotron Laboratory

Research at the National Superconducting Cyclotron Laboratory (NSCL) aims at understanding the origin of the elements in the cosmos and the nature of nuclear matter. Located on the campus of Michigan State University, NSCL is dedicated to fostering cutting-edge research and educating the next generation of scientists by providing an open and stimulating research and education environment and state-of-the-art research capabilities.

NSCL is the most advanced rare isotope user facility in the nation, used by more than 700 scientists from the United States and abroad.

Supported by the National Science Foundation and Michigan State University, NSCL operates two superconducting cyclotrons: the K500, the first cyclotron to use superconducting magnets, and the more powerful K1200. By coupling these two cyclotrons into a single, powerful accelerator system, it became possible to produce intense beams of rare isotopes and establish NSCL as one of the world-leaders in rare isotope science.

The laboratory has earned international recognition for its basic research in nuclear science, nuclear astrophysics, and for its pioneering innovations in the design of superconducting accelerators, superconducting beam transport and analysis systems, and highly sensitive experimental apparatus.

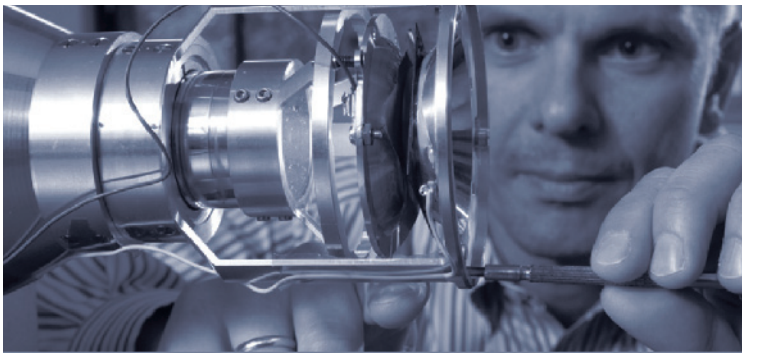
Funding provided by the National Science Foundation.

Progress in science is linked to support for research. It's a simple equation. The United States must renew its commitment to supporting the study of physical sciences if we want to keep the magic of discovery – for our children and grandchildren. Without fundamental research, no advances.

Michigan's Rare Opportunity.

FRIB

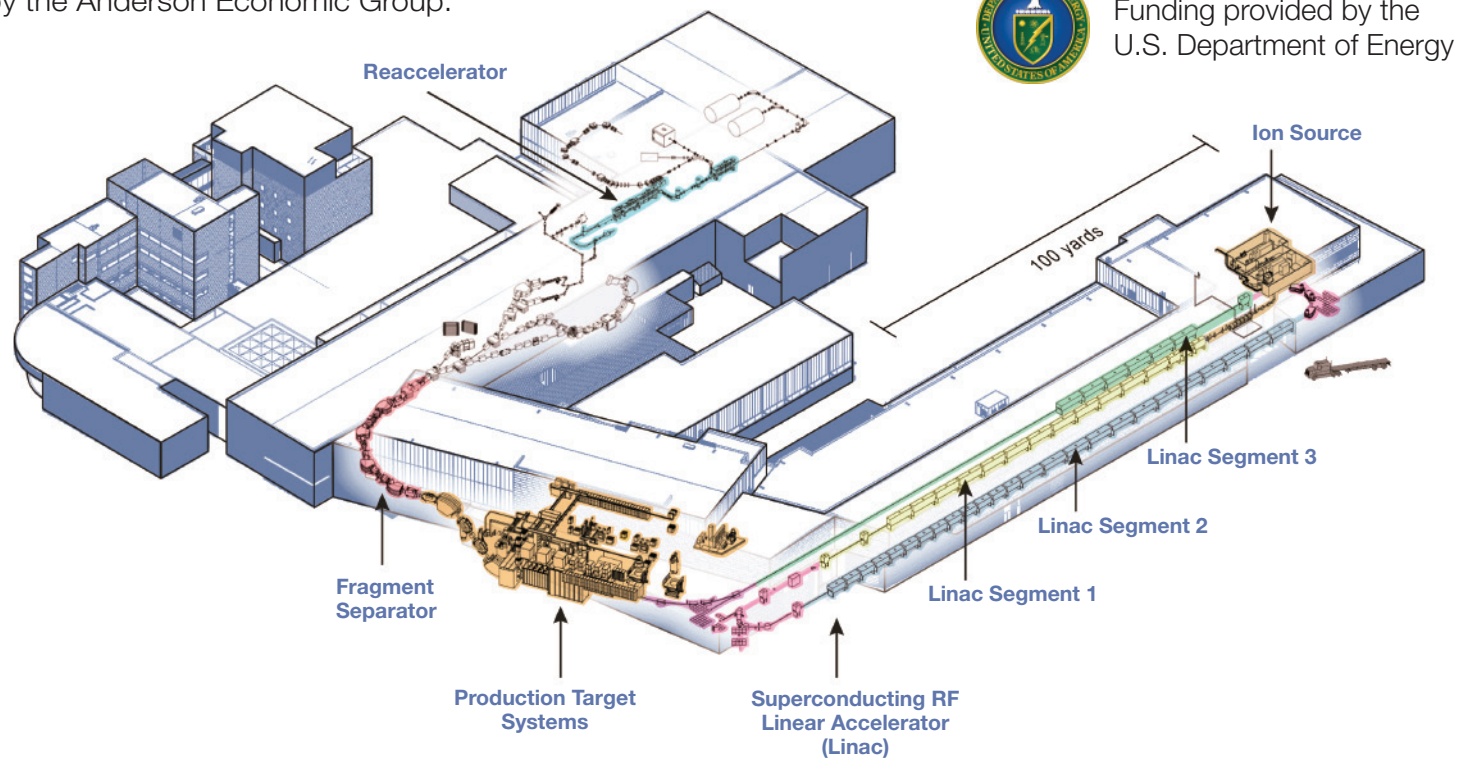
Facility for Rare Isotope Beams



The cutting-edge Facility for Rare Isotope Beams (FRIB) will be the most powerful rare isotope accelerator facility in the world. FRIB will attract top researchers from around the world to conduct experiments in basic nuclear science, astrophysics, and applications of isotopes to other fields. It is expected to bring $1 billion in economic activity and 400 jobs to Michigan, according to an analysis by the Anderson Economic Group.

The FRIB project was formally established in June 2009 with the signing of a cooperative agreement between Michigan State University (MSU) and the U.S. Department of Energy (DOE). FRIB is scheduled for completion by 2020.

Funding provided by the U.S. Department of Energy



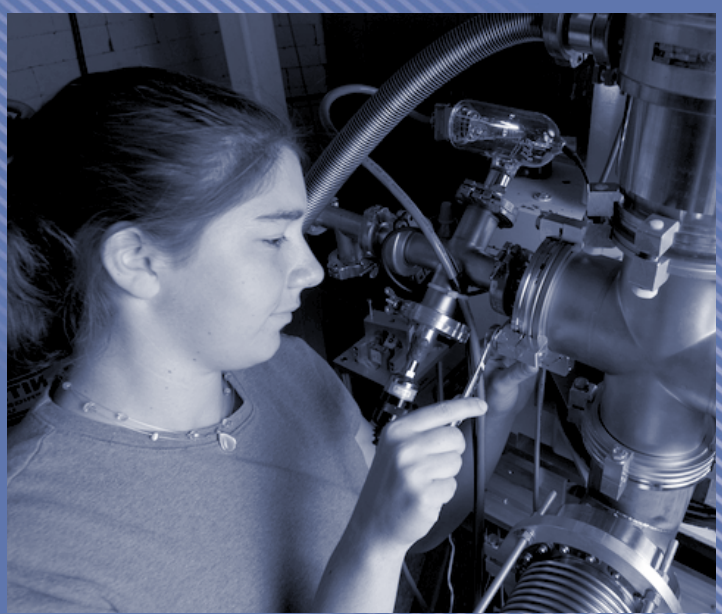
The U.S. Department of Energy Office of Science's Office of Project Assessment conducted a review of the FRIB Project and indicated that the project remains on track for scheduled completion, with construction of conventional facilities anticipated to begin in spring 2012.

Universities are places of Great Inspiration.

Supporting our universities must be a national priority.

Our nation's young minds are our most precious resource. For our students to succeed, we need to train them with the best equipment and let them work side by side with the best mentors in the world. Advanced education is critical for our nation's future.

- **NSCL faculty teach more than 3,000 students each year**
- **NSCL faculty are national leaders in dynamic, innovative teaching methods that emphasize individual attention for students**
- **The laboratory hosts a 10 week hands-on Research Experience for Undergraduates Summer program**
- **NSCL educates over 10% of the nation's Ph.D.s in nuclear science**
- **U.S World and News Report ranks the MSU nuclear physics graduate program #1 in the nation**



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