The Institute, a multidisciplinary research center with 12 faculty from Chemistry and Physics, is funded by the Department of Energy as a Center of Excellence. A superconducting cyclotron operates 24/7 for basic research and for testing electronics for space satellites.

Basic Nuclear Research
The Institute supports a world-class program in basic research covering topics that are of current interest around the world.

Radioactive Beams
Using existing equipment, radioactive ion beams are created and used for research in a broad range of subjects including how stars evolve and the origin of the elements.

$5M Upgrade to Cyclotron Facilities
DOE is supporting a facility upgrade. When complete the cyclotrons will be used to greatly expand the capabilities for radioactive beams and also support a new program of applied research.

Nuclear Medicine
With a history of medical applications starting with a neutron cancer therapy program with M.D. Anderson in the 1970’s and 1980’s, new programs to develop on line neutron cancer therapy program with M.D. Anderson in the late 1980's, and recently have been funded to address high energy beam systems. Research is conducted in radiation oncology physics, radiotherapy dosimetry, and radiobiology.

Cyclotron Institute currently help over 30 companies and government labs ensure that cosmic ray heavy ion beams are highly reliable and meet their requirements.

By bombarding circuit components with particle beams while the electronics operate, scientists at the Cyclotron Institute currently help over 30 companies and government labs ensure that cosmic ray heavy ion beams are highly reliable and meet their requirements. Cyclotron-based heavy ion facilities have been created and used for research and development of heavy ion-based technology programs.

Nuclear Energy Programs
Current research includes nuclear data, nuclear systems, nuclear waste management, and design of subcritical experiments using on reactors. Capabilities are in place for coupled modeling and high vacuum plant for proof of principle experiments for advanced system engineering and prototyping as well as for simulation capabilities for design and analysis of advanced energy systems.

Nuclear Science Center
This facility has one-remarkable TRIGA reactor, a production beam, that can be pulsed. The Center also possesses a variety of other facilities including the Texas Nuclear Research Facility, a diagnostic radiochemistry, and a neutron “nuclear” system. One of the best-equipped facilities for type in the country, the NSC is used in our laboratory courses as well as in our research programs.

Radiation Damage Studies for Satellites
By bombarding circuit components with particle beams while the electronics operate, scientists at the Cyclotron Institute currently help over 30 companies and government labs ensure that cosmic ray interactions in space do not cause catastrophic failure in satellite electronics.

Medical Physics
Research in fundamental radiation oncology physics, radiotherapy physics, and proton and heavy ion therapy physics. Development of nuclear medicine and nuclear oncology strategies for therapy of cancer are pursued and have been implemented in practical therapy regimens. Cyclotron- and reactor-based radionuclides have been produced for diagnosis and treatment using functional probes and radio-labeled compounds. Combination products have been developed using functional biological agents and diagnostic systems.

Studies of Radiation Interactions with Materials
Low energy (0.1 to 10 MeV) accelerators are used in fundamental studies of radiation damage of solids and behavior of materials under extreme conditions. These experimental results are used in the design of future experiments and materials.

Large Cyclotron Facility in US
The Nuclear Engineering program at Texas A&M is the largest in the nation with 257 undergraduate and graduate students and was recently rated among the top 5 nuclear engineering programs in the world (one of 2 in the U.S.) by the NSA. The Nuclear Engineering Department has a wide spectrum of expertise and research areas, and the department supports a diverse list of research facilities.

Bush School for Government and Public Service
The Bush School of International Studies and the Cyclotron Institute engage multiple faculty, with a wide array of professional and academic backgrounds, to research and develop solutions addressing nuclear terrorism, deterrence in the 21st century, grand strategy, nuclear proliferation, and national security.

Integrated Center for Homeland Security (ICHS)
The ICHS explores the entire range of homeland security activities, identifies research, educational, and outreach needs, and helps match them against the world class capabilities of Texas A&M in a way that promotes national level visibility, attracts outside resources and support, and encourages inside cooperation and collaboration.

College of Liberal Arts (CLA)
International relations (IR) scholars in CLA use cutting edge quantitative methods to understand the political and economic forms of international conflict and cooperation. They seek to produce useful theoretical and methodological innovations and train the next generation IR scholars.

Nuclear Security Science and Policy Institute (NSSPI)
NSSPI advances science and technology to help prevent nuclear proliferation and guard against nuclear terrorism; it educates the next generation of leaders in the field of nuclear security; secures civil capabilities of Texas A&M University; is very well supported by DOE, and it develops nuclear security policy options, especially those affected by technological factors.

Institute for Science, Technology, and Public Policy (ISTPP)
This institute provides a core, interdisciplinary leadership and research team with unique and potentially transformative insights into issues of national and international security. It develops public policy options, especially those affected by technological factors.

Institute for National Security Education and Research (INSER)
INSER forms partnerships between national security laboratories and Texas A&M to execute research in support of laboratory missions and to develop and deliver educational programs that produce a more versatile national security workforce.

Building on our Strengths . . .
Through investments in people and facilities, Texas A&M University has established strong foundations in the core areas of Basic Nuclear Sciences, Nuclear Applications and Nuclear Policy. Participants include TAMU Distinguished Professors, winners of national and international awards, and key national and international leaders.

Through the Institute’s support of a diverse list of research facilities and the major house of the Department of Nuclear Engineering, the Institute provides a core, interdisciplinary leadership and research team charged with addressing the needs of homeland security and national security.

Life Sciences
• Nuclear Nanotechnology
• Nuclear Medicine and Nuclear Oncology
• Protons and Heavy Ion Radiobiology
• Non-commercially Available Radionuclide Production

Nuclear Materials
• Radiation Tolerant Components
• Advanced Fuel Cycles for Nuclear Power
• Nuclear Waste Separations and Management

Nuclear Energy
• Clean and Sustainable Energy Systems
• Space Power and Propulsion Systems
• Systems Modeling

For more information, visit our website at nuclear.stanford.edu or contact us at nuclear@stanford.edu.