The MIT Kavli Institute for Astrophysics and Space Research (MKI) (http://space.mit.edu) offers students, faculty, and professional research staff opportunities to participate in a broadly based program of astrophysics and space-related research. For example, research programs are carried out in X-ray, radio, and optical/infrared astronomy; gravitational physics and space plasma physics; and space engineering. Areas of research include cosmology, exoplanets, the oldest stars, galaxies and intergalactic matter in the early universe, high-energy astrophysics, astrophysics in strong gravitational fields, and theoretical astrophysics, among other topics.

Studies often involve experiments carried by sounding rockets, orbiting satellites, deep space probes, or the International Space Station (ISS). The experimental programs are complemented by ground-based research in similar fields and by laboratory development of suitable instrumentation for the space-based and ground-based experiments. An active program of theoretical studies in astrophysics and space physics is also supported.

MKI is the focus for MIT’s participation in the Magellan Observatory Consortium in Chile, the Laser Interferometer Gravity Wave Observatory, the Chandra X-ray Observatory Science Center, the Suzaku X-ray astrophysics mission, and the Murchison Widefield Array radio telescope in Western Australia. MKI leads the development of the Transiting Exoplanet Survey Satellite (TESS), a NASA-supported Explorer mission scheduled for launch in 2017. MKI is also participating in the development of the Neutron Star Interior Composition Explorer (NICER), an X-ray timing instrument to be installed on the ISS in 2016.

Extensive data handling and computational facilities are available for the analysis and reduction of scientific data. An experienced, well-equipped group of engineers and technicians provides design, construction, and testing of instrumentation in support of the ground-based and flight programs.

The variety of scientific and technical problems that arise in these investigations affords numerous opportunities for graduate thesis research. In addition, there is major participation by undergraduate students in programs of theoretical studies, data analysis, and the development of new instruments.

For further information, contact the director, Professor Jacqueline N. Hewitt, Room 37-241, 617-253-7501.