

MIT KAVLI INSTITUTE FOR ASTROPHYSICS AND SPACE RESEARCH

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 conducted 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 are involved in experiments carried by satellites, the International Space Station, or deep space probes. These 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 has roughly 40 students participating in research through the Undergraduate Research Opportunity Program (UROP) (<https://urop.mit.edu>) at any given time. Students can get involved with research at MKI by contacting individual faculty members.

MKI is the focus for MIT's participation in the Magellan Observatory Consortium in Chile, the Laser Interferometer Gravitational-Wave Observatory (LIGO), the Chandra X-ray Observatory Science Center, the Hydrogen Epoch of Reionization Array (HERA), and the Neutron Star Interior Composition Explorer (NICER). MKI leads the Science Operations Center for the Transiting Exoplanet Survey Satellite (TESS), a NASA-supported Explorer mission launched in 2018.

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 Robert A. Simcoe (simcoe@space.mit.edu), 617-253-1456.