

Postdoctoral Associate in Inertial Confinement Fusion and High Energy Density Physics

The High Energy Density Physics (HEDP) Division at the MIT Plasma Science and Fusion Center has an opening for a Postdoctoral Associate in the areas of HEDP and Inertial Confinement Fusion (ICF) physics. The successful candidate will participate in research involving collaborations with several Universities around the world and the National Laboratories in the United States. In addition to supporting and possibly advancing current projects, new areas of research in HEDP/ICF should also be explored by the candidate. Supporting the supervision of current students is also expected. Some travel is required.

The HEDP Division has a long history of exploring the physics of HEDP and ICF physics using experimental and theoretical methods. Experiments are currently being performed at the OMEGA laser at University of Rochester, the NIF laser at Lawrence Livermore National Laboratory, and the Z-machine at Sandia National Laboratory using a suite of nuclear and x-ray diagnostics developed and implemented by MIT and its collaborators. These diagnostics are used to probe spatial and temporal variations in an ICF implosion through spectral, temporal, and imaging measurements of fusion products and x-rays. These measurements are being used to study a wide variety of physics processes and issues such as implosion dynamics and performance, the relationship of implosion symmetry to laser drive symmetry, the relative timing of the shock and compression phase, charged-particle transport and heating, ion-ion and ion-electron relaxation physics, kinetic and multi-ion effects and their possible impact on ignition designs, and the accuracy of various hydrodynamic and ion-kinetic simulations. Other HEDP experimental work at OMEGA and NIF involves nuclear astrophysics, magnetic reconnection, plasma jets, and hydrodynamic instabilities in plasmas. Theoretical work is also being conducted in the area of slowing down and transport of ions and electrons in high-energy-density plasmas. In addition, an important goal of the Division is to educate and train young students and scientists; at present, the Division has ten graduate students and one postdoc. For more information about the HEDP Division, see <https://www-internal.psfc.mit.edu/research/hedp/index.html>

QUALIFICATIONS: The successful candidate must have a Ph.D. and preferentially a strong experimental background in the area of HEDP, ICF, plasma physics, laboratory-astronomy or atomic physics. Computational skills are essential. A strong desire to identify new areas of research and tackle a broad range of issues related to the physics of matter in the ICF and HEDP regime is highly desirable. In addition, the candidate must enjoy working in a team environment with staff and students from MIT, other Universities, National Laboratories, and able to communicate effectively.

A postdoctoral appointment will be for two years with the possibility of renewal based upon satisfactory job performance. The position will remain open until a qualified candidate is identified and/or hired. MIT is an equal opportunity employer. It welcomes applications from women and members of minority groups, as well as from others who would bring additional dimensions to the university's research. Candidates interested in this position should send 1) a cover letter, 2) a CV with a complete list of publications, and 3) a list with the names and contact information of three references to Dr. Johan Frenje (jfrenje@psfc.mit.edu). Interested candidates may apply on-line at <https://hr.mit.edu/careers>. Please reference job number 20174.