Brendan C. Lyons

Graduate Institution: Princeton University

Graduate Discipline: Plasma Physics

Hometown: Nutley, NJ

Relevant SC Research: Fusion Energy Sciences

Research Interest:

Brendan is interested in theoretical and computational plasma physics with applications to fusion science. He has previously studied magnetohydrodynamic (MHD) instabilities in both astrophysical and fusion plasmas, as well as laser-plasma interactions (with applications to inertial confinement fusion), field-reversed configuration (FRC) plasmas, and experimental temperature measurement using infrared cameras. He is currently writing a code to solve for the neoclassical bootstrap current in nonaxisymmetric toroidal plasmas. Such a code, when combined with existing MHD solvers, will allow for the numerical study of hybrid kinetic-MHD instabilities, such as neoclassical tearing modes and sawtooth modes, which are expected to be important in the operation of future tokamak experiments, such as ITER.

About Me:

Brendan just completed his third year of studies in the Princeton University Program of Plasma Physics. He received his bachelor's degree in physics from Princeton University in 2009, graduating with high honors. While an undergraduate, he participated in numerous independent research projects, including two summer internships in the Princeton Physics Department, a SULI internship at the Princeton Plasma Physics Laboratory, and a study abroad internship at École Polytechnique near Paris, France. He developed a strong interest in plasma physics in the beginning of his junior year and has pursued research in this field since then. After receiving his Ph.D., he intends to pursue a career in research at a national laboratory, with the goal of advancing the international effort to develop fusion power as an affordable energy alternative.

Brendan is a student member of the American Physical Society (APS). In 2008, he won an Outstanding Undergraduate Poster Award at the 50th Annual Meeting of the APS Division of Plasma Physics. He is an avid baseball and football fan. In his spare time, he plays intramural sports for the Princeton Plasma Physics Laboratory, pitching for the lab's softball team. In addition, he has taken up the Irish sport of hurling in the past couple years and plays for the Hoboken Guards Hurling Club.