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Degree in Progress: PhD, Physics ✦ Academic Advisor: Dr. Richard Petrasso ✦ NLUF Program: 2011-Present

Research Topic:

High Energy Density Plasma Physics and Inertial Confinement Fusion



What are your research responsibilities?

On a typical day, I test and develop diagnostics at the Massachusetts Institute of Technology (MIT) accelerator laboratory, prepare for experiments on OMEGA, and analyze data from programmatic and basic science campaigns at the National Ignition Facility (NIF). My projects include charged-particles spectrometer analysis at MIT, kinetic mix experiments and multiple nuclear burn diagnostic on OMEGA, and particle-time-of-flight detectors at the NIF.

How have you benefitted from the NLUF Program?

My work is funded through NNSA grants. My experiment time allocation

on OMEGA is provided through the NLUF program. My graduate funding is provided by a DOE/NNSA Stewardship Science Graduate Fellowship (SSGF). The important financial funding aside, I have benefited greatly from the accumulated knowledge and support of the high energy density physics (HEDP)/inertial confinement fusion (ICF) community, and SSAP helped build this community.

Did the SSAP give you the opportunity to work with others you might not have otherwise?

One of the most rewarding aspects of my work is the opportunities to work with—and learn from—other scientists in the HEDP and ICF community. Whether it is planning an experiment on OMEGA, or understanding diagnostic output at the NIF, they are always there to lend sound advice. At the same time, when I provide diagnostic support for experiments, I learn about important, open questions in my field and innovative approaches

to addressing them. These are all made possible by SSAP support.

Have you spent time at one of the national laboratories?

As part of my SSGF practicum, I spent three months at Lawrence Livermore National Laboratory, and had a chance to participate in a Jupiter Laser Facility (JLF) experiment and a Linac Coherent Light Source (LCLS) experiment. It turned out that spending time at two different user facilities with scientists outside my usual field was very helpful for my own research. I want to address basic science questions in HEDP, and I want to use laser-driven plasma to answer questions in other fields of science. That summer gave me a chance to step outside my research bubble, and for a bit at least, poke my head into other target chambers (literally, in the case of JLF) to see how research is carried out in other HED facilities.