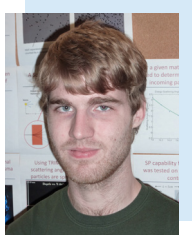


Brandon Lahmann, Massachusetts Institute of Technology (MIT) (lahmann@mit.edu)

Degree in Progress: PhD, Nuclear Science and Engineering ✦ Academic Advisor: Dr. Richard Petraso ✦ SSAP Program: 2014-Present

Research Topic:

Development of Nuclear Diagnostics for Analyzing the Properties of Inertial Confinement Fusion (ICF) and High Energy Density Plasmas

**What are your research responsibilities?**

I am responsible for the fielding and analysis of the compact solid-state state charge particle diagnostics known as Wedge Range Filters and Step Range Filters routinely utilized in experiments at the National Ignition Facility (NIF). I was involved in the development of a Neutron Temporal Diagnostic (NTD) for measuring fusion burn histories at the NIF and in the design of a compact neutron spectrometer for NIF, OMEGA, and Z in collaboration with Sandia National Laboratories (SNL). My role with the Wedge Range Filters at NIF has played a fundamental role in this effort

by allowing me to calibrate the neutron detection efficiencies of the future design (whose first implementation has been fielded at Z), using NIF data. In this way, NIF data has had the added benefit of directly helping me with the development work of the neutron spectrometer at Z.

How have you benefitted from the SSAP Program?

My research is primarily funded by the NNSA which has provided me a myriad of unique opportunities that would have otherwise been impossible. This funding has allowed me to attend events such as the SSAP Symposium and the APS Annual Division of Plasma Physics Meeting where I've been able to discuss my research and ideas with scientists and researchers throughout the ICF community. Additionally, I am regularly able to collaborate with scientists from various national laboratories thanks to funding from NNSA. These opportunities have provided me with

invaluable contacts and collaborators as well as providing me crucial feedback and exposure.

Have you spent time at one of the national laboratories?

I spent the summer of 2014 working as an intern in the High Energy Density Physics group at SNL. While there, I met several scientists who shared my excitement regarding the prospect of future fusion energy which fundamentally helped shape my career goals. This is also where I got most of my initial exposure to ICF and when I decided to begin my involvement with SSAP through MIT. I remain very excited about the potential of SNL's Magnetized Linear Inertial Fusion program and hope to help foster a strong collaboration between SNL and MIT.