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Title: Method Development of HH-LIBS for Use in Stockpile Stewardship

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Topic: Method Development of HH-LIBS for Use in Stockpile Stewardship

Background Information

Student Name: Christopher Johnson

Academic Major: Nuclear Engineering

Institution: USMA

Graduation Year: 2021

Location of Internship: Los Alamos National Laboratory

Name of Advisor: Dr. John Auxier II

Description of Research Results

Research: I supported an ongoing project at LANL to increase method development in utilizing a Hand-Held LIBS device to promote stockpile stewardship.

Results: Helped in the initial method development of hand-held laser ablation breakdown spectroscopy (HH-LIBS) for element (e.g. Ga) in plutonium and other actinides. The method can be translated across a variety of sample types including metals and powders.

Internship Experience

What did you learn from this experience?: I learned the basics of plasma physics, spectroscopy, laser effects, and the operation of LIBS systems. Additionally, I gained significant knowledge of the development and components of nuclear weapons.

How did this work compliment your academic studies or enhance your professional development?: As a nuclear engineer, it is invaluable to see the insides of the nuclear complex. Plasmas and matter interactions will certainly be used in future classes, and this project will be continued in my Capstone this following year as well.

Internship Photos