

Transportation Security Lab Ion Suppression of Explosives

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) Transportation Security Laboratory (TSL) is seeking to host one or more National Science Foundation (NSF) student scientists with backgrounds in chemistry or a related discipline to collaborate with TSL analysts and scientists. TSL is involved in the test and evaluation of explosive detection systems and continually seeks to improve methods, standards and testing practices.

- **Project Duration:** 10 weeks
- **Start Date:** Summer 2018
- **Location:** Atlantic City, New Jersey

Project Overview

In an effort to aid TSL in their efforts, selected students will explore the solvent-induced ion suppression of explosives for the different ionization schemes that can be utilized for analytical analysis. They will be expected to develop a formulated plan to address the problem using a Design of Experiment approach, analyze different explosives in different solvents, analyze the results and provide recommendations from their findings. This project may include, but is not limited to, the following tasks:

- Review open source literature
- Identify explosive(s) and solvents for use in the proposed study
- Develop a design of experiment approach for sample analysis
- Prepare and analyze samples using the different mass spectrometer interfaces
- Analyze the data and provide recommendations

Qualifications

Knowledge of analytical chemistry, particularly, liquid chromatography will be essential for this project.

Eligibility Requirements

- Citizenship: U.S. Citizen Only
- Degree: Bachelor Degree or higher
- Discipline(s): Chemistry or Chemical Engineering

For more information see <https://www.dhs.gov/science-and-technology/transportation-security-laboratory>