

Lucas Boron-Brenner



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Biography

Lucas Boron-Brenner is a 2nd year student in the UNLV Radiochemistry PhD Program. He received his Bachelor of Science in Chemistry from the University of Maryland, College Park.

Research

Chromatographic Separations of Irradiated Transition Metal Foils for Nuclear Forensic Application

Post detonation nuclear forensics consists of the analysis of radioactive debris after a nuclear explosion to determine important information on the nuclear device. Currently, few studies have been performed to measure urban materials affected by high neutron fluxes from nuclear explosions. Common transition metals (Fe, Al, Cu, Au, Ni, and Ti) found in urban environments will be irradiated by neutron activation to mimic the expected activation. Methods for ion exchange chromatography will be determined to isolate out isotopes of interest. Commercial resins will be used to for separation of foil components. These isotopes of interest will be prepared as glass standards simulating glass found in the area of a nuclear incident. Development of standardized glasses will be useful for simulating different nuclear incidents. Experimental data can be determined from these standard glasses for future nuclear forensic application.

Publications, Presentations, and Awards

Chromatic Separation of Fast Neutron Activated Titanium for Post-Detonation Nuclear Forensic Analysis Presentation at the American Chemistry Society National Meeting, San Francisco, CA August 2014.

Study of Scandium and Titanium Adsorption on Ln Resin using Nitric, Hydrochloric, and Sulfuric Acid Matrices

American Nuclear Society Student Conference

April, 2013, Boston, MA.

2013 Glenn T. Seaborg Nuclear Forensics Graduate Summer Fellow

Lawrence Livermore National Laboratory

Livermore, California

Uranium Isotopic measurements of Fallout Spherules using Isotope Dilution Mass Spectrometry

LLNL Summer Student Symposium

Livermore, California