Domestic Nuclear Detection Office Summer Internship Program

Project Title
TlBr Project

Project Reference Code: DNDO-LLNL-Swanberg

Hosting Site
Lawrence Livermore National Laboratory
Livermore, CA

Project Description
Thallium Bromide (TlBr) is of significant interest for use in room temperature gamma spectroscopy applications. It possesses a number of properties considered critical for a gamma detector, including a high resistivity, high average atomic number (Tl: 81, Br: 35), and relatively high electronic carrier mobility-lifetime product. Because of this, the full width at half maximum (FWHM) for Cs-137 at 662 keV has been demonstrated to be as low as 1.3% at room temperature. Previously, use of TlBr at room temperature was limited by long term degradation, generally thought to be due to ionic conduction. We have recently achieved long term stability in TlBr through various surface treatments and are now building a prototype detector system. This will involve fabricating the detectors, integrating with new electronics, and demonstrating system performance.

Disciplines
Nuclear Engineering
Physics (General)
Computer Systems Design (including Signal Processing)
Software Engineering
Engineering, All

Mentor(s)
Erik Swanberg, swanberg3@llnl.gov, 925-423-7573

Internship Coordinator
Barry Goldman, goldman1@llnl.gov, 925-422-5177

The name and contact information of the hosting site internship coordinator is provided for further assistance with questions regarding the hosting site; local housing availability, cost, or roommates; local transportation; security clearance requirements; internship start and end dates; and other administrative issues specific to that research facility. If you contact the internship coordinator, identify yourself as an applicant to the DNDO Summer Internship Program.

Interns will not enter into an employee/employer relationship with the Hosting Site, ORAU/ORISE, DHS, DNDO or DOE. No commitment with regard to later employment is implied or should be inferred.