



Project Title

Cosmic Ray Muon Tomography

Project Reference Code: DNDO-LANL-Durham

Hosting Site

Los Alamos National Laboratory
Los Alamos, NM

Project Description

The Threat Reduction team in LANL's Physics Division has developed methods which use naturally occurring background radiation from cosmic ray muons to detect, characterize, and image shielded special nuclear materials (SNM). Muons have a unique set of properties that allow them to penetrate significant amounts of shielding that defeats typical radiographic probes like photons or neutrons, and measurements of muon scattering as they pass through shielded containers gives information on the object's internal substructure. Neutrons induced by interactions of fissile material with cosmic ray muons also can be used to detect SNM, and the muon tracks associated with these neutrons can be used to construct images of the neutron emission source.

Our team is researching these methods for various applications in nuclear threat reduction. We use analysis techniques and charged particle tracking detector technology adapted from large particle physics experiments. We are currently constructing several different types of next-generation muon tracking detectors for these and other applications.

Disciplines

Nuclear Physics
Particle Physics
Nuclear Engineering
Engineering, All
Physics, All

Mentor(s)

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Internship Coordinator

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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.