

Physics Colloquium

Particle Counting and Orthogonal Signal Fusion for Automated Threat Recognition in Cargo Screening

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September 20, 2017

4:00 p.m.

114 Begeman Hall

Rapid and efficient screening of cargo at ports, borders, and key infrastructure establishments is a high priority for many governments. The necessity of locating and identifying contraband and nuclear materials is critical to security. Active interrogation systems using high energy x-rays are widely deployed at these checkpoints and have been effective at imaging these cargoes. Here a system making use of a continuous wave high energy x-ray system that utilizes particle counting of both photon and neutron signatures to automatically identify contraband, nuclear materials, and provide superior imaging for operator assistance is presented. Work on 3D image reconstruction (EZ-3D™) and fusion with orthogonal signals including nuclear resonance fluorescence (NRF), as well as photofission (PNPF) and passive signatures, for the purpose of automated contraband/material identification and detection of shielded nuclear materials, will be discussed. In addition updates on the recently deployed system at the port of Boston will be presented.

This work has been supported by the US Department of Homeland Security, Domestic Nuclear Detection Office, under competitively awarded contract HSHQDC-12-C-00059. This support does not constitute an express or implied endorsement on the part of the Government.

Everyone Welcome! Refreshments Provided.