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Monte Carlo Simulation of a 12 MeV Cargo Container Inspection System IBRAHIM OZCAN, KATHERINE CHANDLER, member, RANDY SPAULDING, EDUARDO FARFAN, member — After the terrorist events of 9/11, border security has become one of the most important issues in national security due to the large number of cargo containers entering the country. Screening of all cargo containers for nuclear materials should be performed during border inspections. The technical aspects of inspecting cargo containers using electron accelerators have been studied previously. However, the radiological protection aspects involved in these studies have not been fully considered. This screening process may accidentally harm operators, workers, and bystanders; as well as stowaways hiding inside the containers. In this research project, external doses were estimated at various locations near the inspection system. A 12-MeV linear accelerator (LINAC) was used in the experiment. The relationship between the various locations and doses were determined in this simulation. The simulation was performed using MCNPX.

Ibrahim Ozcan

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