



Contribution ID: 81

Type: poster

Mobile Techniques for Rapid Detection of Concealed Nuclear Material

Friday, 24 October 2014 11:50 (40 minutes)

To prevent the diversion of nuclear material as well as illicit production, transport and use of nuclear material we investigated in mobile techniques to detect and identify such material in the field as early as possible. For that purpose we use a highly sensitive gamma measurement system installed in a car. It consists of two large volume plastic scintillators, one on each side of the car, each scintillator with 12 l active volume, and two extreme sensitive high purity Germanium detectors with 57 cm² crystal diameter, cooled electrically. The measured data are processed immediately with integrated, appropriate analysis software for direct assessment including material identification and classification within seconds. The software for the plastic scintillators can differentiate between natural and artificial radioactivity, thus giving a clear hint for the existence of unexpected material. In addition, the system is equipped with highly sensitive neutron detectors. We have performed numerous measurements by passing different radioactive and nuclear sources in relatively large distances with this measurement car. Even shielded as well as masked material was detected and identified in most of the cases. We will report on the measurements performed in the field (on an exercise area) and in the lab and discuss the capabilities of the system, especially with respect to timeliness and identification. This system will improve the nuclear verification capabilities also.

Country or International Organization

Germany

Primary author: ROSENSTOCK, Wolfgang (Fraunhofer Institute for Technological Trend Analysis INT)

Co-authors: RISSE, Monica (Fraunhofer Institute for Technological Trend Analysis INT); KOEBLE, Theo (Fraunhofer Institute for Technological Trend Analysis INT); BERKY, Wolfram (Fraunhofer Institute for Technological Trend Analysis INT)

Presenter: KOEBLE, Theo (Fraunhofer Institute for Technological Trend Analysis INT)

Session Classification: Technology Foresight and Emerging Technologies II: E-Posters