

Recent Activities at the Radiological Engineering, Detection, and Dosimetry (RED2) Laboratory at Texas A&M University

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BACKGROUND

Dr. Shaheen A. Dewji is an Assistant Professor in the Department of Nuclear Engineering at Texas A&M University and a Faculty Fellow of the Center for Nuclear Security Science and Policy Initiatives (NSSPI). In her prior role at Oak Ridge National Laboratory, Dewji was Radiological Scientist in the Center for Radiation Protection Knowledge, where her recent work has included assessment of patient release criteria for nuclear medicine patients, as well as development of dose coefficients associated with the external exposure and internal uptake of radionuclides due to contaminated environmental media. Prior, Dr. Dewji spent five productive years with the Safeguards and Security Technology Group at ORNL as a Nondestructive Assay Systems Engineer, focusing on nuclear material measurement of uranium enrichment, holdup (MUF), and signature analysis. Dr. Dewji completed her Masters and Ph.D. degrees in Nuclear and Radiological Engineering at the Georgia Institute of Technology in Atlanta, GA. As a native of Vancouver, Canada, she received her Bachelor of Science in Physics from the University of British Columbia.

ABSTRACT

The mission of the Radiological Engineering, Detection, and Dosimetry (RED2) Laboratory at Texas A&M University has focused on harnessing both computational capabilities in radiation transport modeling and experimental measurements using radiation detection for applications in radiation protection, dosimetry, health physics, and nuclear materials accounting. Research thrusts in computational dosimetry have focused on the investigation of the development of dose coefficients using age/sex-specific anthropomorphic computational phantoms and radionuclide biokinetic models for occupational nuclear workers, members of the public, nuclear medicine, space, defense, and emergency response. Research activities in radiation detection have focused on validation and verification of gamma-ray spectroscopic detector responses for decommissioning contaminated environmental media; field triage assessment of radiation uptake during nuclear, radiological, and fission product release events; and nuclear materials control, accounting, and safeguards of special nuclear material. Ongoing research activities and prospective research opportunities will be discussed.