Abstract Submitted
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Applications of Nuclear Resonance Fluorescence[1] GLEN WARREN, REBECCA DETWILER, PATRICK PEPLOWSKI, Pacific Northwest National Laboratory — Nuclear resonance fluorescence (NRF) has been used for several decades to study nuclear structure. In the process, a nucleus absorbs a photon at a discrete energy, and then decays back to its ground state. The energy of the emitted photons are specific to the excited isotope. Pacific Northwest National Laboratory is investigating the feasibility of NRF-based solutions for certain national security and homeland security applications. For this effort, we developed an analytical model to describe both the strength of the NRF signal and the background and conducted a series of measurements on depleted uranium to test that model. Good agreement was found between the data and measurements, and the model was used to study the feasibility of applications. The measurements, models and findings from the feasibility studies will be discussed in this talk.

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