

Abstract Submitted  
for the DNP15 Meeting of  
The American Physical Society

**Determination of Concentrations of Radioactive Nuclides in Soil Samples using Gamma Ray Spectroscopy**<sup>1</sup> ARSALAN ADIL, JOSHUA WEAVER, University of Richmond — A hyper-pure Germanium detector system was used to determine the contents and concentrations of various nuclides in soil samples collected from different parts of the United States. These include areas in close proximity to nuclear power plants, areas susceptible to nuclear fallout from weapons testing from the pre Comprehensive Nuclear Test Ban Treaty (CTBT) period, and areas vulnerable to fallout from Fukushima from the west coast. The concentrations of naturally occurring nuclides in the  $^{238}\text{U}$ ,  $^{232}\text{Th}$ , and  $^{40}\text{K}$  decay chains as well as that of synthetic isotopes of  $^{137}\text{Cs}$  and  $^{60}\text{Co}$  were measured with the aid of Genie-2000 and Radware (gf3m). An efficiency curve was obtained by designing a simulation and compared with standard sources. The research, now in its next stage, aims to do the same in samples from Karachi (Pakistan) which is home to three nuclear power plant projects but has no available baseline radioactivity measurements.

<sup>1</sup>University of Richmond

Arsalan Adil  
University of Richmond

Date submitted: 01 Aug 2015

Electronic form version 1.4