

Physics Department Seminar

Friday March 14th, 2014

3:00pm in Physical Science 105

“Detecting Uranium-233”



Mr. Thomas Gosnell
Senior Scientist
Lawrence Livermore
Laboratory
Physics Alum 1967



Abstract:

Uranium-233 is a fissile material, one of only three in existence in large quantities. As such, it can be used as fuel in nuclear reactors or, possibly, nuclear weapons. International interest in the use of a thorium reactor fuel cycle has renewed. In particular, India has pursued development of a thorium fuel cycle for 50 years and is now constructing an Advanced Heavy Water Reactor with mixed oxide fuel (thorium and low-enriched uranium) to breed ^{233}U . This fuel cycle is expected to help India's use of thorium-based reactors to meet 30% of its electricity demands by 2050. Anticipating the possible future appearance of illicit ^{233}U “in the wild,” it is prudent to examine its likely radiation signature with the aim of detecting illicit ^{233}U . This presentation will discuss a possible signature.

