International Safeguards: Policy, Technology, and Nondestructive Assay of Spent Fuel

Abstract: International Safeguards exist to monitor and control nuclear material with the ultimate goal of preventing nuclear weapons proliferation. One of the most challenging nuclear materials to safeguard is spent fuel, due to its complexity and high neutron and gamma emission rate. Several technologies exist to measure spent nuclear fuel, but the International Atomic Energy Agency (IAEA) has requested improved techniques with higher sensitivity and accuracy. This talk will provide an introduction to safeguards and nonproliferation at a high level including motivations, historical context, and the role of the IAEA. Discussions will also include spent fuel verification science and technology, focusing on neutron coincidence counting and the differential die-away concept.