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Session 2:

Title: Advanced Safeguards and Proliferation Resistance of the Future Nuclear Fuel Cycle Systems

The proliferation-resistant nuclear fuel cycle impedes diversion by host states seeking to acquire nuclear weapons or other nuclear explosive devices. International Safeguards including the Comprehensive Safeguards Agreement and the Additional Protocol is the most effective extrinsic measures. To find a good balance of “safeguard-ability (so-called extrinsic measure or institutional barrier)” and “impede-ability (intrinsic measure or technical barrier)” will come to be essential for nuclear fuel cycle designers to optimize civilian nuclear technology in terms of nuclear non-proliferation, although it is of importance that PR measures should economically be viable. Among many measures, the advanced Safeguards with high detectability can play a dominant role for PR in States complying with full institutional controls, i.e., Integrated Safeguards. Intrinsic measures may work only for the case of breakout from international institution, although it may scarcely occur in States like Japan because of its thorough transparency policy. In this context, Japanese primary challenge in nonproliferation for future nuclear fuel cycle is to accomplish robust Safeguards system to meet Safeguards criteria.