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## Exploring Disruptive Technology for Safeguards Verification

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The U.S. Department of Energy, National Nuclear Security Administration (NNSA), Office of Nonproliferation and Arms Control, Safeguards Technology Team (SG Tech) has established a forward leaning R&D program in anticipation of rapid technological advances in nuclear power and nuclear material production, and the consequent opportunities for and challenges to safeguards verification. Specifically, many new projects are based on technologies and discoveries from research sectors not traditionally associated with safeguards tools and methods, such as advances in lasers, data visualization, additive manufacturing for detector parts, and know-how from high energy physics. Other example efforts include 1) innovative detector materials such as stilbene and pulse-shape discriminating plastics, 2) battery-free, wireless tags for inventory monitoring and tracking in harsh environments, 3) non-invasive acoustics methodology under evaluation as an on-site inspection tool to verify D2O concentration, and 4) NuGoo, a method for acquiring environmental samples using a peelable gel to extract microscopic amounts of nuclear material from rough surfaces, such as wood or concrete. SG Tech establishes its projects and project teams from the U.S. Department of Energy National Laboratories and other U.S. agencies, U.S. academia and the U.S. private sector. It works closely with the IAEA Department of Safeguards managers and end users to align its program to meet pressing verification needs, and quality, performance and reliability standards. SG Tech also engages and invites willing partners through NNSA's bilateral agreements to test and validate these concepts.

### Which "Key Question" does your Abstract address?

CHA3.2

### Topics

CHA3

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