Building Future Safeguards Capabilities
SYMPOSIUM
ON INTERNATIONAL SAFEGUARDS

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Cosmic-ray Muography

Muon radiography uses naturally-occurring background radiation in the form of cosmic ray muons to passively inspect the contents of complex structures that cannot be imaged using conventional techniques such as X-rays. Cosmic muons are approximately 10,000 times as energetic as a typical X-ray and as such can penetrate shielded containers and much larger structures. This technology has recently become more widely known when it was used to discover a new chamber in the Great Pyramid of Khufu in Egypt.

Due to the nature of the interaction between muons and matter, muon radiography is especially suited to image material with high density and high atomic number Z inside shielded containers. This capability of muon radiography is very well aligned with the monitoring requirements for the growing number of heavily shielded spent fuel containers in intermediate storage sites. Their verification is a challenge for the safeguards inspectorates, and muon radiography may be a technology that can help to address this challenge. This presentation will give an overview of the current state-of-the art in muon radiography, drawing on results from an IAEA Consultancy Meeting in September 2017 and a Royal Society Meeting in May 2018.

Which "Key Question" does your Abstract address?

NEW1.2

Topics

NEW1

Which alternative "Key Question" does your Abstract address? (if any)

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