Title: **Mobile Computing Innovations for Safeguards Inspections**

Abstract:

Smartphones, tablet computers, phone-tablet hybrid "phablets," and wearable computing technology like the Pebble wristwatch computer, GoPro video systems, Google Glass, and lifeloggers are greatly expanding the reach of information systems and offer great potential for improving traditional safeguards activities. These devices are becoming more common, lighterweight, power-efficient, and functionally capable. In this report the authors explore mobile computing and its application to improving the effectiveness and efficiency of safeguards inspections. Potential uses include training, resource allocation, audio, video and photographic recording, inspection team tracking and other GIS applications, enhanced communications, situationally-aware information feeds, and sensor monitoring. Mobile devices such as smart phones and tablets may serve as sensor platforms, as communications hubs connecting humans and ambient sensor networks, and as tools for managing information on location and in real-time. Safeguards organizations will need to develop authenticatable applets that can be installed on mobile devices carried by inspectors. To this end we have been conducting research to:

- Understand the data already collected by mobile devices and see whether applets can be written to adapt these capabilities to support inspections.
- Connect all safeguards/verification sensors in an inspected facility wirelessly to the inspector's mobile device.
- Employ the use of specially designed quick response (QR) codes to rapidly identify and track items.
- Access virtual models of a facility in real-time while it is being inspected.
- Develop a suite of apps that might be in an inspector's toolbox, including, for example, functions such as access to previous inspection reports, site diagrams and photos; real-time reports on environmental conditions; inspection logistics support; and mission planning software.

While these capabilities offer increases in efficiency and effectiveness, they also present challenges in view of facility acceptance, usability, and the handling of sensitive information. The results of recent field trials and their implications for safeguards on-site inspections are explored.

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Suggested Topical Session: Concept and Approaches

Keeping abreast and making use of scientific and technological innovations