

# Physics and Nuclear Disarmament.

**Tuesday, 28 October, 2025**

**Auditorium & Webcast 16:00 h**

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This year, the world commemorates the 80th anniversary of the atomic bombing in Japan. It reminds us that the threat of nuclear weapons is undiminished. Today, there exist around 12,000 nuclear weapons globally, and large fissile material stocks allowing the production of many more. The human suffering from nuclear weapons use, as experienced in Hiroshima and Nagasaki, necessitates nuclear disarmament from an ethical point of view, while the current geopolitical environment makes it unlikely in the foreseeable future.

Physicists have an important role: To enable international agreements on warhead and fissile material reductions, strong verification protocols are essential to monitor compliance. New concepts and techniques will be required and must be available should a political window of opportunity open in the longer term. As they can take many years to develop, continuing this work remains crucial today.

In this talk, elements of a possible verification toolbox will be presented. Among them are radiation detection techniques to establish the authenticity of nuclear warheads to be dismantled. Furthermore, nuclear archaeology is introduced as a toolbox to estimate weapons-usable fissile materials inventories based on reconstructing their past production using forensic measurements and computational science.

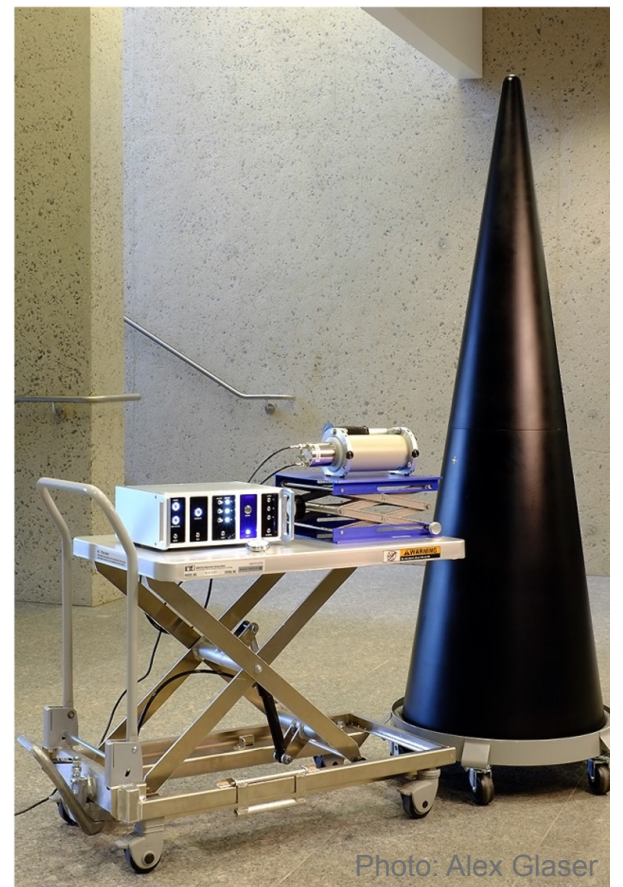


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