

A German Nuclear Archaeology Laboratory: Reconstructing the Nuclear Past to Enable a Nuclear-weapon-free Future

Initiative: Freigeist-Fellowships

Bewilligung: 03.07.2017

Laufzeit: 5 Jahre

Projekt-Website: <https://www.nvd.rwth-aachen.de>

Uncertainties of fissile material stockpiles usable for nuclear weapons are high. A research gap on how the international community could accurately establish these inventories must be closed to enable nuclear disarmament: The possibility of undeclared stocks that affect the strategic balance can negatively impact the feasibility of reducing warhead or fissile material inventories. The uncertainties must be understood and reduced as far as possible. Nuclear archaeology, i.e. reconstructing the past fissile material production using signatures measurable today and examining existing production records, could help achieve this. Specific work packages to develop this approach include developing a simulation tool to model the production based on data from the existing records, examining state-of-the-art measurement techniques, and developing physical models to deduce information on the fissile material production history from the measurement data. We will also study the production and management of knowledge on nuclear operations to assess which information may be accessible to inspectors. The work will culminate in developing nuclear archaeology strategies, tying together all available tools and methods in a way that allows for consistency-checking and results in a maximal understanding and reduction of stockpile uncertainties.

Projektbeteiligte

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