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Researching floating nuclear reactors from a 3S perspective

Recently, an interdisciplinary research project on floating nuclear reactors was initiated. The overall goal of the project is to perform research related to the safety, safeguards and security of such systems, and to support Safeguards and Security by Design. The project, which will run for 3.5 years, will investigate challenges associated with equipping ships with nuclear reactors. Such challenges could be a concern for e.g., nuclear infrastructure and transports of nuclear material, technical research on different reactor concept and their intended operation; and research related to legal and regulatory issues associated with the ownership/licensing, operation and maintenance of the ships and reactors.
The project is divided into three phrases. The first phase includes an overview of floating reactor concepts, identification of common challenges, assessments of to what extent existing safeguards and security practices can be applied, and the identification of gaps for further research. In the second phase, proliferation resistance studies and nuclear material assessments will be performed, together with research on the legal frameworks. In the third phase, recommendations on regulatory pathways for ship-based reactors will be presented, together with suggestions concerning physical protection and the verification of nuclear material for safeguards purposes. In this paper we will describe the project in more detail, and elaborate on results from the first months of execution.

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