



Panel: “novel” nuclear reactors as an alternative disposal option

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Abstract. States and private industries are researching and developing reactor concepts that are not based on the current light- or heavy-water-cooled reactor technology. One important aspect of these so called novel or advanced nuclear reactor designs, both large gigawatt types and small modular reactors, is their potential for radioactive waste management. The prospects for their development and industrial use also largely depend on possible improvements to reactor safety, on the proliferation resistance of the fuel cycle and on the economics of those reactor concepts. The panelists will discuss opportunities and impediments to the implementation and use of advanced reactor concepts and their fuel cycles, as well as their use as an alternative disposal option. The discussion will be open for the audience to participate.

Regarding the method, a moderated panel discussion with four panelists is planned. First, after a short introduction by the moderator, the panelists will be given the opportunity to briefly present their view on important advantages and disadvantages of new reactors as a waste disposal option for about 20 min total. The focus should be on the involved fuel cycle (partitioning and transmutation); the state of science and technology of reactors for waste management, reprocessing and fuel fabrication; the impact of reactors on the quantity and composition of nuclear waste; and the possible deployment scenarios focusing on nuclear waste management.

The need to use reactors for this alternative disposal option is a controversial issue in light of differing views on the use of nuclear energy nationally and internationally. We plan to invite a heterogeneous panel with expertise in reactor-based nuclear waste management, nuclear safety and security; the state of science and technology of advanced nuclear reactors (technology readiness level); and nuclear power economics. Ideally this panel will express differing views on the use of nuclear power as the panel’s goal is explicitly to engage in an interactive discussion with the audience.