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Beam window design for ADS systems in JAEA

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To reduce the burden of the geological disposal of high-level waste (HLW), the Japan Atomic Energy Agency (JAEA) has investigated an accelerator-driven system (ADS) to transmute minor actinide (MA) included in HLW. Since the ADS is a hybrid system of an accelerator and a subcritical core, there are various inherent issues in the research and development of the ADS. As one of the critical issues, the design of a beam window which is a boundary of the accelerator and the subcritical core, has been pointed out.

In this study, a new beam window concept was investigated by the coupled analysis of neutronics, particle transport, thermal hydraulics and structural analyses. Through these coupled analyses, feasible beam window concept was presented.

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