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Simulation of Fast Neutronics in an Accelerator-Driven Sub-Critical Core[1] C. GWYN ROSAIRE, Texas A&M University, Dept. of Nuclear Engineering, AKHDIYOR SATTAROV, PETER MCINTYRE, Texas A&M University, Dept. of Physics, PAVEL TSVETKOV, Texas A&M University, Dept. of Nuclear Engineering — Accelerator-driven subcritical fission in a molten salt core (ADSMS) is being developed as a technology for green nuclear power. ADSMS burns its fertile fuel to completion, it cannot melt down, and it destroys long-lived minor actinides. The ADSMS core consists of a vessel filled with a molten salt eutectic of UCl_3 and NaCl. The fast neutronics of ADSMS makes possible two unique benefits: isobreeding, a steady-state equilibrium in which ^{238}U is bred to ^{239}Pu and the ^{239}Pu fissions, and destruction of minor actinides, in which fission of the intermediary nuclides dominates of breeding. Results of simulations of the fast neutronics in the ADSMS core will be presented.

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