Dynamic System Simulation of Fissile Solution Systems

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ABSTRACT

A time-dependent dynamic system simulation model of fissile solution systems is described. The model is composed of four coupled sub-models: neutron kinetics, radiolytic gas generation, core thermal, and plenum models. The performance of the model is compared against experimental data of SUPO, KEWB, Silene, and HRE aqueous homogeneous reactors. Model extensions to address accelerator-driven sub-critical systems are also discussed. AHR conceptual designs incorporating all “lessons learned” from experimental history and modelling is presented as the ideal design for Mo-99 production.