Update of the SBJ_V2019T XS Library for Multi-Group and Continuous-Energy MCNP Calculations of VVER Reactors

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Abstract. The paper presents the next step in the development of optimized SBJ_V2019T multi-group cross-section library for VVER-440 reactors. The presented procedure is based on the previously developed processing scheme, but also takes into account the specifics of the latest CAB S(α,β) scattering law model for hydrogen in light water. The multi-group cross-section libraries are prepared for the MCNP calculation code for both continuous-energy and multi-group calculations of the VVER-440 reactor using ENDF/B-VII.1 evaluated data. For simple benchmarking, the VVER-440 pin-by-pin benchmark was selected. Although the results presented in this paper are calculated in MCNP, but the developed XS processing scheme is capable of producing identical multi-group XS libraries for deterministic diffusion theory and transport calculation codes.