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Thermophysical Studies for Safety Assessment of Promising Nuclear Power Plants

The paper describes the role of thermophysical studies for safety assessment and improvement of nuclear reactor technologies. The research considers the issues of using nanofluids for core cooling purposes and analyzes heat transfer problems in promising technologies of generation IV reactor designs with helium coolant and supercritical water. Besides, original results of calculations related to degraded heat transfer in seven-rod fuel assembly design with VVER-SKD geometrical parameters were presented.

Keywords: nuclear reactor, thermophysical studies, nanofluids, helium coolant, supercritical water.