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Study of Heat Transfer Processes in Modelled Core of Nuclear Reactor with Helium Coolant

The paper considers prospects of multi-purpose use of high-temperature gas (helium) nuclear reactors. The processes of hydrodynamics and heat exchange in the modelled core of the high-temperature nuclear reactor with spherical fuel elements were studied. The influence of geometrical and mode parameters on the temperature distribution was analyzed. The paper presents results of calculating unsteady regime with reduction of in consumption of coolant flow in the core.

Keywords: nuclear reactor, thermophysical studies, helium coolant, spherical fuel elements.