EVALUATION OF THE PERSPECTIVES OF HIGH-TEMPERATURE TECHNOLOGY FOR DECENTRALIZED REGIONS OF THE COUNTRY[2]

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In [1, 2], the authors carried out studies of the physics of a high-temperature gas-cooled thorium reactor facility (HGTR, Tomsk) of low power. For this installation, the optimum configuration of the active zone and the material composition of nuclear fuel have been determined.

The reactor investigated in [1] can operate at least 3000 effective days at a power of 60 MW. The peculiarities of this installation are that in addition to the production of heat and electric energy, as well as hydrogen, the modification of the HGTR active zone is possible within the framework of the concept proposed by the staff of the Institute of Nuclear Physics of the SB RAS, Novosibirsk [3]. According to this concept, the near-axis part of the active zone is replaced by a long magnetic trap [3] with a high-temperature plasma, which ensures the generation of thermonuclear neutrons (DD-, DT-neutrons).

At the moment, calculated neutron-physical studies of various options for loading the HGTR active zone have been performed. The calculations were performed using verified calculation codes WIMS-D 5B, MCNPX2.6.0, MCU 5TPU and evaluated nuclear data libraries.

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[2] The work was supported by Russian Science Foundation № 18-19-00136 of April 18, 2018.