

Replacing the lead coolant with Pb-Mg eutectic and the effect of these substitutions on the neutron-physical, thermophysical characteristics of fast reactors

Monday, 15 April 2019 16:15 (15 minutes)

The technical characteristics and safety conditions of the fast reactor are limited by the properties of the metal-free coolant. The lead coolant is chemically neutral, melts and boils easily at high temperatures, but the corrosiveness of lead requires great technological effort. The cause of corrosion activity is the charge polarity of lead, lead is electronegative and is a strong oxidizing agent. If you combine opposites in a eutectic alloy, you can get a compositionally stable liquid metal coolant. Magnesium is an attractive lead modifying agent. Lead - magnesium with a melting point of 248 C, lowers the oxidation potential of the alloy. Comparison of the two coolants were made by neutron and thermal characteristics.

Primary author: Mr YSKAKOV, Almas (Frank Laboratory of Neutron Physics)

Presenter: Mr YSKAKOV, Almas (Frank Laboratory of Neutron Physics)

Session Classification: Particle accelerators and nuclear reactors

Track Classification: Particle Accelerators and Nuclear Reactors