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Urgent Problems in Thermal Physics of Design-Basis and Severe Accidents at Nuclear Power Plants

The paper considers thermal and physical aspects in dynamics of design-basis and severe accidents at water-cooled nuclear power reactors with nuclear fuel damage. The most promising concepts of the corium confinement in the damaged reactor were analyzed. The main objective was to define the main areas to search and implement methods of efficient and safe heat removal in progression of emergencies.

Keywords: nuclear power plant, severe accident, corium, heat removal.