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Ewelina Kucal

Neutron irradiation of ceramic construction materials for the Dual Fluid Reactor

Abstract:

Dual Fluid Reactor (DFR) is a novel concept of a reactor which is operating in temperature amounts to 1300°C. DFR need high temperature resistant materials that retain their mechanical properties and withstand corrosion processes under a large neutron flux. Good construction materials for DFR are hard ceramics (such as Silicon Carbide, Zirconium Carbide and Titanium Carbide).

It is important to study how neutron irradiation influence on construction materials during operation at high temperature. Study neutron irradiation inside research nuclear reactor would lead so many years. It is idea to use heavy ions instead neutron to study radiation damage. High displacement ratio of heavy ions significantly reduces the irradiation time and greatly shortens the experimental time.

In this presentation, proposition of method for study of neutron damage will be discussed.

Serdecznie zapraszamy,
M. Dąbrowski, T. Kwiatkowski