Contribution ID: **96** Type: **Poster only**

Measurement of neutron-induced fission cross sections and migration effect of gaseous fission product in MSR

As only one of the six candidate reactor types for Generation IV nuclear power systems that adopts liquid fuel, Molten Salt Reactor (MSR) has aroused growing attention worldwide and characterized by the following advantages: 1) MSR adopts the liquid fuel and is characterized by high temperature and low pressure during the operation and water-free cooling, leading the higher inherent safety. 2) MSR allows for continuous online fuel reprocessing, which is conducive to improving fuel utilization and reducing radioactive waste. 3) MSR has high temperature output, resulting in the high efficiency of power generation and hydrogen production, etc.

The unique characteristics of flow and online processing in MSR lead to a significant difference in MSR gaseous fission products behavior in comparison with the solid fuel reactors: The krypton and xenon gaseous fission products circulating with the fuel salt in the primary loop would migrate from the fuel salt to the circulating bubbles and graphite. When gaseous fission products migrate to the graphite and subsequently diffuse into the graphite, the safety of reactor will be significantly influenced. Meanwhile, gaseous fission products will enter the cover gas and then move out of the core via the bubbling system, which thus provides a feasible way for the medical radioisotope production.

Field of Research

Instruments & Applications

Experiment/Theory

Experiment

Primary author: FU, Bolin (Shanghai Institute of Applied Physics (SINAP), CAS)

Presenter: FU, Bolin (Shanghai Institute of Applied Physics (SINAP), CAS)

Session Classification: Aug. 6 afternoon