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Investigation of the contact resistance between the pebble beds and the box wall surface in the gas flow condition

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The contact resistance effect in the interface between pebble beds and the structure was studied. The lithium ceramics is used as breeder with the form of sphere-shaped pebbles for the extraction of the tritium in some TBM candidates of ITER. It could act as a thermal resistance in the interface and affect the pebbles and structural material temperature. Some models related to the contact resistance of the pebble beds were studied with the experimental results. The most of the heat transfer experiments were carried out with the limited box filled with the pebble. There is no flow motion of gas in the box. The flow of the gas is essential for the extraction of the tritium. The effects of the gas flow was considered based on the current models. CFD code, ANSYS-CFX 17.0 was used to evaluate the thermal performance in the box structure with and without the gas flow.

Eligible for student paper award?

No

Authors: PARK, Seong Dae (Korea Atomic Energy Research Institute); Dr LEE, Dong Won (Korea Atomic Energy Research Institute); Dr KIM, Dong Jun (Korea Atomic Energy Research Institute); Dr KIM, Suk-Kwon (Korea Atomic Energy Research Institute); Dr YOON, Jae Sung (Korea Atomic Energy Research Institute); Dr JIN, Hyoung Gon (Korea Atomic Energy Research Institute); Dr LEE, Eo Hwak (Korea Atomic Energy Research Institute); Dr AHN, Mu-Young (National Fusion Research Institute)

Presenter: PARK, Seong Dae (Korea Atomic Energy Research Institute)

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