Contribution ID: **105** Type: **POSTER**

Calculation and Experimental Data Analysis of Neutron Spatial/Energy Distribution in the BOR-60 Blanket

Wednesday, 28 June 2017 17:50 (1h 10m)

At present, a wide range of tests is performed in the BOR-60 reactor in support of reactors under operation, construction and design in Russia and worldwide. Most of the tests are performed in the reactor core regions of the peak dose accumulation rates. However, there is a high demand for irradiation testing to be performed in the BOR-60 blanket.

An important feature of any nuclear facility is neutron spatial/energy distribution in the reactor. An experimental data analysis of neutron spectra takes much effort and time. The effective volume of an irradiation rig is rather limited, which makes it difficult to install dozens of neutron activation detectors at the expense of tested samples. Therefore, irradiation parameters are confirmed experimentally using several detectors; and spatial/energy distribution of the neutron field is obtained in calculation.

RIAR's experience in thorough calculations and experiments in support of BOR-60 operation shows good agreement between the calculated and experimental core parameters. The deviation of the calculated values from the experimental ones in the blanket is higher, and there are much less experimental data. Therefore, verification of the applied calculation codes, models and methods is a crucial relevant issue.

Country/Int. Organization

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Session Classification: Poster Session 2

Track Classification: Track 6. Test Reactors, Experiments and Modeling and Simulations