

International Conference on Fast Reactors and Related Fuel Cycles: Next Generation Nuclear Systems for Sustainable Development (FR17)



Contribution ID: 18

Type: POSTER

Modeling of Phenix End-of-Life control rod withdrawal tests with the Serpent-DYN3D code system

Wednesday, June 28, 2017 5:50 PM (1h 10m)

The nodal diffusion code DYN3D is under extension for Sodium cooled Fast Reactor (SFR) applications. As a part of the extension a new model for axial thermal expansion of fuel rods was developed. The model provides a flexible way of handling the axial fuel rod expansion that is each sub-assembly and node can be treated independently. In the current paper the new model will be described in details. The performance of the model will be assessed with the help of the benchmark on the control rod withdrawal tests performed during the PHÉNIX end-of-life experiments. The DYN3D results will be tested against the experimental data as well as against the numerical results provided by other participants to the benchmark.

Country/Int. Organization

Germany

Primary author: Mr NIKITIN, Evgeny (Helmholtz-Zentrum Dresden-Rossendorf)

Co-author: Dr FRIDMAN, Emil (Helmholtz-Zentrum Dresden-Rossendorf)

Presenter: Dr FRIDMAN, Emil (Helmholtz-Zentrum Dresden-Rossendorf)

Session Classification: Poster Session 2

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