

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



Contribution ID: 406

Type: ORAL

## SELECTION OF A LAYOUT FOR THE BN-800 REACTOR HYBRID CORE

*Tuesday 27 June 2017 13:30 (20 minutes)*

The initial loading of BN-800 is mainly made of the uranium oxide fuel and partially of MOX fuel subassemblies (16% of the total quantity), which were fabricated using both the pellet technology and vibro-packing technology. With account of this specific completing process, such core is called the hybrid core.

The core layout was selected to simplify the future transition from the hybrid core to the core fully loaded with the MOX fuel and to maximally adapt BN-600 uranium fuel subassemblies fabrication to BN-800 uranium fuel subassemblies fabrication.

The hybrid core uses three types of fuel subassemblies with the different content of fissile material (degrees of enrichment) to retain fuel enrichment limits and fuel column height the same as in the MOX core. To ensure compatibility of uranium fuel subassemblies and MOX subassemblies, the plutonium content of the MOX fuel was defined to retain the same physical efficiency for respective types of fuel subassemblies. To minimize distortion of the power field, the MOX fuel subassemblies are arranged in the periphery of the hybrid core (within the high enrichment zone). Fuel subassemblies with the MOX pellet fuel are arranged in the first row, and fuel subassemblies with the vibro-packed MOX fuel are arranged in the peripheric row, under less severe operation conditions.

The report discusses the main prerequisites to develop the hybrid core, describes the core design, and gives information about main operation characteristics.

### Country/Int. Organization

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**Session Classification:** 1.4 CORE AND DESIGN FEATURES - 1

**Track Classification:** Track 1. Innovative Fast Reactor Designs