



**of the European Atomic Energy Community (Euratom)  
for nuclear research and training activities (2007-2011)**

**Collaborative Project**

***FREYA***

Project title: **Fast Reactor Experiments for hYbrid Applications**

Project number: **269665**

Project coordinator: **Studiecentrum voor Kernenergie, Brussel, Belgium**

HZDR participant: **Institute of Safety Research**

Starting date: **01.03.2011**

Duration (months): **60**

**Summary**

Building up on the former activities accomplished in the previous FPs, namely MUSE in FP5 and EUROTRANS in FP6, it is proposed in the FREYA project to extend the investigations of the subcritical configurations for validation of the methodology for on-line reactivity monitoring of ADS systems. The investigations will be related to the different subcriticality levels for the nominal operation mode of ADS.

In order to investigate the robustness of several proposed measurement techniques with regard to the reflector effect, it is foreseen to perform experiments with different reflector materials. To complete the validation of the methodology for subcriticality monitoring, the robustness of the reactivity indicators with regard to a change in vertical position of the neutron source will be investigated in view of possible variations of the height of the spallation source in a real ADS.

On the other hand given the objectives for MYRRHA / FASTEF as studied within FP7 CDT to be operated as a subcritical facility and a critical facility, an experimental programme in support of the design and licensing of both operation modes is needed. Although the experimental programme with regard to the critical mode operation of MYRRHA / FASTEF can generate useful information for the validation of reactor codes for LFR development, a dedicated effort for the validation of reactor codes for LFR developments is envisaged by the LFR community.