



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

Collaborative Project

CDT

Project title:	Central Design Team (CDT) for a Fast-spectrum Transmutation Experimental Facility
Project number:	232527
Project coordinator:	Studiecentrum voor Kernenergie / Centre d'Etude de l'Energie Nucleaire SCK / CEN, Mol, Belgium
HZDR participant:	Institute of Safety Research
Starting date:	01.04.2009
Duration (months):	42

Summary

Besides the European Global Energy Policy, the European Council adopted an action plan that covers nuclear technologies and support research in order to “further improve nuclear safety and the management of radioactive waste”. To obtain a more efficient and sustainable management of radioactive waste and hence reduce the burden on geological storage, one can apply partitioning and transmutation independently of future commitment or not to nuclear energy.

Within European Union many R&D organizations and industries are conducting since a decade strong R&D in the P&T field with substantial support from the European Commission. Fostering the European efforts towards a major facility realization would be very beneficial. This will speed up the development and put Europe at lead in this field.

The design of a fast spectrum experimental facility (FSEF) able to demonstrate efficient transmutation and associated technology through a system working in subcritical mode (ADS) and/or critical mode is thus the next step after FP6 IP-EUROTRANS. In the vision report of the “Sustainable Nuclear Energy Technological Platform”, the need was clearly expressed for a fast-spectrum experimental system to support the development and demonstration of an alternative technology to sodium.

Therefore, FSEF is proposed to be designed to an advanced level for decision to embark for its construction at the horizon of 2012 with the following objectives: demonstrate the ADS technology and the efficient transmutation of high level waste; be operated as a flexible irradiation facility; contribute to the demonstration of the Lead Fast Reactor technology (without jeopardising the above objectives).

The work programme is subdivided in 6 WP's: WP0: Management of the project; WP1: Definition of specifications and detailed work programme of FSEF; WP2: Design of the FSEF in sub-critical & critical mode; WP3: Balance of Plant; WP4: Instrumentation and Control; WP5: Key issues towards realization.