



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 662186

Research and Innovation Action (RIA)

MYRTE

Project title: **MYRRHA Research and Transmutation Endeavour**

Project coordinator: **Centre d'Etude de l'Energie Nucleaire
Fondation d'Utilite Publique, Bruxelles**

Website: <http://myrte.sckcen.be>

HZDR participant: **Institute of Fluid Dynamics**

Starting date: **01.04.2015**

Duration (months): **48**

Summary

The Strategic Research Agenda of the EU Sustainable Nuclear Energy Technical platform requires new large infrastructures for its successful deployment. MYRRHA has been identified as a long term supporting research facility for all ESNII systems and as such put in the high-priority list of ESFRI.

The goal of MYRTE is to perform the necessary research in order to demonstrate the feasibility of transmutation of high-level waste at industrial scale through the development of the MYRRHA research facility.

Within MYRRHA as a large research facility, the demonstration of the technological performance of transmutation will be combined with the use for the production of radio-isotopes and as a material testing for nuclear fission and fusion applications. Numerical studies and experimental facilities are foreseen to reach this goal. Besides coordination, international collaboration and dissemination activities, the MYRTE proposal contains 5 technical work packages.

The first and largest work-package is devoted to the realisation of the injector part of the MYRRHA accelerator to demonstrate the feasibility and required reliability of this non-semi-conducting part of the accelerator. The second workpackage addresses the main outstanding technical issues in thermal hydraulics by numerical simulations and experimental validation. Pool thermal hydraulics and thermal hydraulics of the fuel assembly will be the focus of this WP.

In the WP on LBE Chemistry, the evaporation from LBE, capture and deposition of Po and fission products will be studied in detail to complement the safety report. A small dedicated WP on experimental reactor physics is also foreseen to allow carrying out the necessary supplementary experiments at the GUINEVERE-facility to address the questions of the safety authorities. In a last WP, advanced studies on Americium-bearing oxide fuel are carried out to demonstrate the capability of developing minor actinide fuel for transmutation.