



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654935

## Research and Innovation Action (RIA)

# SESAME

- Project title: **thermal hydraulics Simulations and Experiments for the Safety Assessment of METal cooled reactors**
- Project coordinator: **Nuclear Research and Consultancy Group, Petten, Netherlands**
- HZDR participant: **Institute of Fluid Dynamics**
- Project homepage: <http://sesame-h2020.eu/>
- Starting date: **01.04.2015**
- Duration (months): **48**

### Summary

The thermal-hydraulics Simulations and Experiments for the Safety Assessment of METal cooled reactor (SESAME) project supports the development of European liquid metal cooled reactors (ASTRID, ALFRED, MYRRHA, SEALER). The project focusses on pre-normative,

fundamental, safety-related, challenges for these reactors with the following objectives:

- Development and validation of advanced numerical approaches for the design and safety evaluation of advanced reactors;
- Achievement of a new or extended validation base by creation of new reference data;
- Establishment of best practice guidelines, Verification & Validation methodologies, and uncertainty quantification methods for liquid metal fast reactor thermal hydraulics.

The SESAME project will improve the safety of liquid metal fast reactors by making available new safety related experimental results and improved numerical approaches. These will allow system designers to improve the safety relevant equipment leading to enhanced safety standards and culture.

Due to the fundamental and generic nature of SESAME, developments will be of relevance also for the safety assessment of contemporary light water reactors. By extending the knowledge basis, SESAME will allow the EU member states to develop robust safety policies. At the same time, SESAME will maintain and further develop the European experimental facilities and numerical tools.

The consortium of 25 partners provides American-European-wide scientific and technological excellence in liquid metal thermal hydraulics, as well as full alignment with ESNII and with NUGENIA where of interest. A close interaction with the European liquid metal cooled reactor design teams is foreseen involving them in the Senior Advisory Committee. They will actively advise on the content of the project and will be the prime end-users, ensuring their innovative reactor designs will reach highest safety standards using frontier scientific developments.