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## Advanced Fuels for Generation IV reactors: Reprocessing and Dissolution –ASGARD

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\*The above authors are: the Coordinator of the project and the Domain Leaders. However, the project is a much larger effort with up to 90 contributors.

ASGARD is a Large Scale Integrated Project having as main objective the research on advanced/novel nuclear fuel fabrication and their respective reprocessing issues for Generation IV reactors.

The Strategic Energy Technology plan (SET-plan) of the European Commission identifies fission energy as an important contributor to meet long-term objectives for reduction of greenhouse gas emissions. Sustainability of nuclear power may be achieved by the introduction of fast neutron Generation IV reactors and their associated fuel cycle facilities, as described in the Strategic Research Agenda (SRA) of the Sustainable Nuclear Energy Technology Platform (SNE-TP).

The project seeks integration between reactor, fuel and recycling communities, which today is lacking. In some cases it results in discrepancies between the reactor design on one hand, and the technological feasibility of fabricating, dissolving and reprocessing the selected fuel on the other hand.

Oxide, Nitride and Carbide type of nuclear fuels are addressed with focus on dissolution, reprocessing and fabrication behavior.

It is an integrated effort of 16 institutions from 9 countries, and additional: Scientific Advisory Commission (4 representatives) and an Industrial Users Group (5 representatives).

The consortium consists on partners who have an extensive experience in research on fabrication of various kinds of fuels and in the recycling process. In addition, basic science laboratories participate with large capabilities in handling of highly active radioactive materials such as Chalmers University of Technology, Sweden as well as national research laboratories and also university laboratories with more limited radiochemical possibilities.

In order to ensure the know-how and appropriate training of the future generation, the project will allocate a large space to training and dissemination. Training sessions will consist on well selected lectures and hands-on training as well as summer schools. A travel fund is allocated for mobility of students and teachers and will be based on travel grant system with defined rules.

The main goal is to ensure the sustainability and safety of future nuclear power fleet.

It is funded by the 7th Framework Program (FP7) of the European Commission (Euratom).

It was officially launched on the 11th of January, 2012 and will continue for four years.

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