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SARNET is the Severe Accident Research NETWORK of Excellence federating European research on severe accidents (SA) in nuclear power plants.

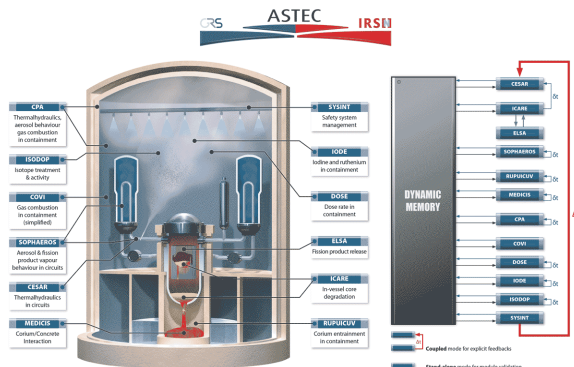
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The network has been set up under the aegis of EC Framework Programmes (FP) to perform R&D on SA in water-cooled NPPs with two projects, both coordinated by IRSN (F), in the FP6 (2004-08) and FP7 (2009-13).

The aim was to better coordinate the national efforts, optimising the use of experimental facilities and available expertise. SARNET was a success, with the sustainable integration of European SA research capacities and significant research achievements.

Since mid-2013, SARNET continues as a network fully integrated in the NUGENIA Technical Area N°2 (TA2), named "Severe accidents" and still coordinated by IRSN.

A reorientation from pure knowledge-based R&D towards R&D for prevention and mitigation of SA consequences has been confirmed.



www.sar-net.eu

In continuity with the 2 FP projects (2004-13), the SARNET TA2 work has well progressed on:

- **Capitalising knowledge** in common tools like the **ASTEC integral code**. A **new course on ASTEC training** will be organized by IRSN in Aix-en-Provence (F) in June 2018 (www.enstti.eu)
- **Collaborative work** (in-kind projects, joint interpretation of existing experiments...) on research-priorities as corium/debris coolability, Pool scrubbing or the CoreSOAR project on core degradation state of the art.
- **Preserve and disseminate the knowledge** to younger generations and training new experts in SA field.

THE "EXCELLENCE SPREADING" PROGRAMME IN SARNET

- **Mobility programme** under which university students and young researchers go to internship programmes.
- **Text book on SA phenomenology**, edited by Prof. B.Raj Sehgal, past SARNET coordinator of Excellence Spreading activities, covering historical aspects of LWRs safety and phenomena concerning SA progression.

Periodic European Review Meetings on Severe Accident Research, ERMSAR Conferences

- These biannual conferences, open to NUGENIA and non-NUGENIA members, focusing on the latest research progress of the network and on international knowledge on SA, are also an opportunity for world-wide researchers to discuss the future R&D priorities in this field.
- The ERMSAR Proceedings are freely available on SARNET web-site and selected papers have been published on special numbers of Annals of Nuclear Energy journal.
- **8 ERMSAR Conferences have been organized**, last one ERMSAR 2017 in Warsaw (PL) by NCBJ gathered 179 participants from 27 countries and 84 organizations (25% of participants from out of Europe), confirming ERMSAR as one of the major international events on SA.
- **Next ERMSAR 2019 will be in Prague (CZ) organized by ÚJV Řež in March 2019**

www.ermars2019.com



SARNET Education Short Courses

- **Education short courses (one week) on SA phenomenology** raising competences of the university students and young researchers engaged in SA research plus **Information/training courses** for NPP staff or regulatory authorities interested in SA management procedures.
- During the previous two SARNET projects, 5 courses were organized about the SA Phenomenology.
- **Two SARNET TA2 Severe Accident Phenomenology Short Courses** - in 2015 in Stockholm (S) by KTH and in 2017 in Ljubljana (SI) by IJS, with more than 100 students from 20 countries and a program covering SA progression in current Gen.II NPPs but also the different Gen.III solutions addressing a SA.
- **Next SARNET TA2 Short Course on SA Phenomenology is planned in 2019 in Madrid (E).**

PERSPECTIVES

- **After 15 years, the SARNET network of excellence activities continues in NUGENIA TA2 and efforts are continuous on preservation and on the successful transfer of SA knowledge to younger generations.**
- Links with other OECD/NEA and EC programmes will be maintained and reinforced, in particular with the European Nuclear Education Network **ENEN** on education & training activities.



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