

Severe Accidents research in the frame of SNETP/NUGENIA: Recent major achievements (2019-2023)

Tuesday, 14 November 2023 11:00 (20 minutes)

Severe Accidents (SA) are the most complex, extreme, and unlikely accident scenarios that might occur in a Nuclear Power Plant (NPP). However, no matter how unlikely they are, the five accidents that already occurred in commercial NPPs (TMI-2 [1], Chernobyl-4 [2] and Fukushima Daiichi (Units 1 through 3) [3]), highlight that “improbable” does not mean “impossible” and, given their potential consequences, their investigation is necessary to prevent and/or mitigate them.

Early this century, the Severe Accident Research NETwork of Excellence (SARNET) was born as an EC project and a decade later it became the Technical Area 2 (TA2) of NUGENIA, the SNETP (Sustainable Nuclear Energy Technology Platform) pillar devoted to research on Gen. II and Gen. III Light Water Reactors (LWRs). During these years, NUGENIA TA2 has produced meaningful advances in methodologies used for managing severe accidents, from enabling severe accident analytical tools to characterize the mitigation devices performance, passing through extension of some databases and exploration of new methodologies. For these achievements, the support of the different EURATOM Framework programs has been instrumental.

The proposed paper describes the most recent achievements from SNETP/NUGENIA research (2019-2023) related to phenomena occurring during a severe accident. . Besides, the commitment to knowledge dissemination through courses and conferences is highlighted. Finally, there is a consensus that any investigation on severe accidents to be launched in the coming years should have a direct impact on either reducing the uncertainties associated to their modelling or on optimizing their management, or on both. A specific project is currently running to identify and prioritize the issues deserving further research in the coming 10 years.

Speaker Bio

Primary author: HERRANZ, Luis E. (CIEMAT)

Co-authors: BENTAIB, A. (IRSN); GABRIELLI, Fabrizio (KIT); ROCCHI, Federico (ENEA); KLJENAK, Ivo (JSI); PILUSO, Pascal (CEA); PACI, Sandro (UNIPI)

Presenter: HERRANZ, Luis E. (CIEMAT)

Session Classification: Day 2- Parallel Session - III : Safety and Severe Accidents

Track Classification: Safety and Severe Accidents