
Abstract:
With the aim to develop a joint proposal for a harmonised European methodology for safety assessment of advanced reactors with fast neutron spectrum, SARGEN_IV (Safety Assessment for Reactors of Gen IV) Euratom coordination action project gathered together 22 partners’ safety experts from 12 EU Member States. The group consisted of eight European Technical Safety Organisations involved in the European Technical Safety Organisation Network (ETSON), European Commission’s Joint Research Centre (JRC), system designers, industrial vendors as well as research & development (R&D) organisations. To support the methodology development, key safety features of four fast neutron spectrum reactor concepts considered in Deployment Strategy of the Sustainable Nuclear Energy Technology Platform (SNETP) were reviewed. In particular, outcomes from running European Sustainable Nuclear Industrial Initiative (ESNII) system projects and related Euratom collaborative projects for Sodium-cooled Fast Reactors, Lead-cooled Fast Reactors, Gas-cooled Fast Reactors, and the lead-bismuth eutectic cooled Fast Spectrum Transmutation Experimental Facility were gathered and critically assessed. To allow a consistent build-up of safety architecture for ESNII reactor concepts, the safety issues were further categorised to identify common phenomena related to materials. Outcomes of the present work also provided guidance for identification and prioritisation of further R&D needs respective to the identified safety issues.

URI:

Authors:
TUCEK Kamil
HERMSMEYER Stephan
AMMIRABILE Luca
BLANC D.
WATTELLE E.
BURGAZZI Luciano
FROGHERI Monica
MANSANI L.
EHSTER-VIGNOUD S.
CARLUEC Bernard
AOUST Th.