



Contribution ID: 792

Type: **not specified**

## **P2.221 Accident analysis with MELCOR-fusion code for DONES lithium loop and accelerator**

*Tuesday, 18 September 2018 11:00 (2 hours)*

Safety assessment is a key issue for the licensing of DONES facility, the DEMO-Oriented Neutron Source. A first phase of the safety assessment include Failure Mode Analyses of systems to identify postulated initiating events (PIEs), while deterministic accident analyses are lately performed to estimate source terms in radiological hazards. In addition, the deterministic analyses are also the basis to identify safety class systems and components, and to establish the operational range of system parameters as well as the actuation of the protection system.

In this paper two accident scenarios, previously identified as PIEs, have been simulated with the fusion version of the MELCOR 1.8.6 code. A loss of flow (LOFA) in the lithium loop due to the trip of the electromagnetic pump (EMP) and a loss of vacuum (LOVA) in the accelerator beam duct due to containment rupture have been studied to provide a preliminary estimation of the available actuation time for detection and mitigation systems with a particular focus on the beam shutdown system and isolation of the vacuum duct.

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**Session Classification:** P2