



Luis E. Herranz<sup>1</sup> and Sandro Paci<sup>2</sup>

<sup>1</sup>Unit of Nuclear Safety Research, CIEMAT Madrid (Spain)  
<sup>2</sup>University of Pisa – Department of Civil and Industrial Engineering DICI (Italy)



MUSA Consortium

28 Organizations  
(25% non EU)

4 years duration  
from June 2019

630 person months

MUSA overall costs  
€ 5,768,452.50

This project has received funding from Euratom research and training programme 2014-2018 under grant agreement No 847441



7 WP leaders

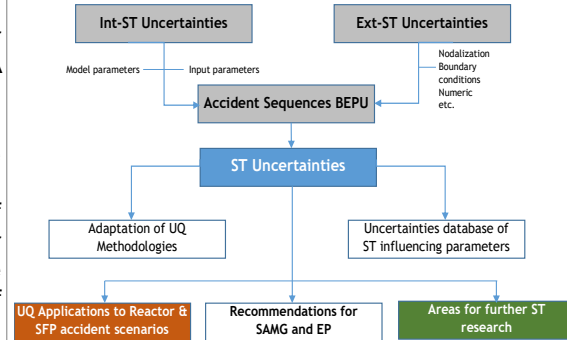


## Objectives

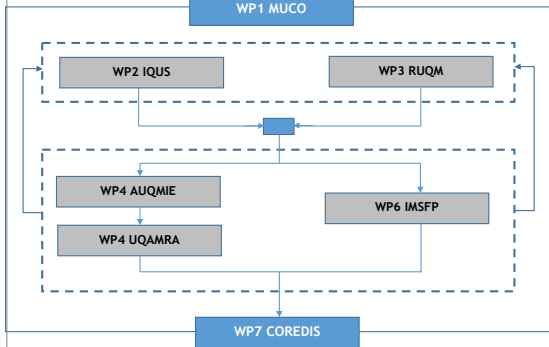
In a so complex field as Severe Accidents (SA), knowing uncertainties of safety analyses would provide a better assessment of safety margins, insights to optimize SA management, and help to identify key areas on which research might yield significant safety enhancement.

MUSA aims to consolidate a harmonized approach for the application of Uncertainty and Sensitivity Analyses (UaSA) in SA modeling, with specific focus on Source Term (ST) Figure of Merits (FOM). By doing so, not only the prediction of timing for the failure of safety barriers and of the radiological ST will be possible, but also the quantification of the uncertainty bands of the selected FOMs.

Both Gen. II and III reactors and Spent Fuel Pools (SFP) accident scenarios are being addressed.



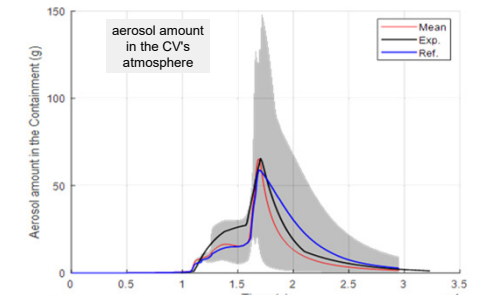
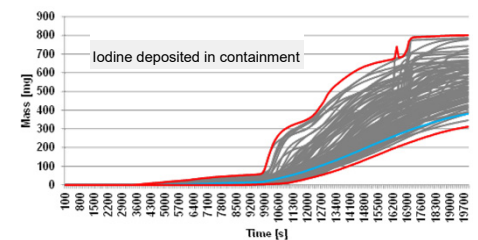
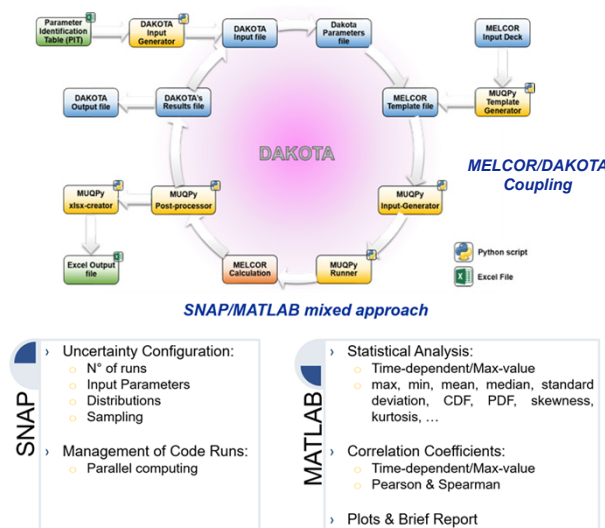
## Approach



- WP1** MUSA COordination (MUCO), by CIEMAT
- WP2** Uncertainty Sources (IQUS), coordinated by GRS
- WP3** Uncertainty Methods (RUQM), coordinated by KIT
- WP4** Modelling uncertainties in IETs (AUQMIE), by ENEA
- WP5** Analysis and Management of Reactor Accidents (UQAMRA), by JRC
- WP6** Uncertainty Quantification and Innovative Management of SFP Accidents (IMSFP), by IRSN
- WP7** Communication & Results DISsemination (COREDIS), coordinated by UNIPI & LGI

## Current Status

- ❑ A large, though still incomplete, database of the uncertainties in input variables built in WP2 (LB, UB and PDFs).
- ❑ Uncertainty quantification methodologies reviewed and adapted to SA in WP3.
- ❑ UaSA training in WP4 on PHEBUS-FPT1 test highlighted challenges and provided insights to identify and solve some of the issues found (SA/Uncertainty Tools coupling, post processing, code crashes, etc.).



- ❑ UaSA in WP5 and WP6 is presently ongoing for reactor and SFP accidents.

## Perspectives

- MUSA is meaning a better exploitation of the research previously performed within the EU framework.
- MUSA gathers experienced SA modelers from all over the world to face a huge challenge and to ease spreading the expected impacting outputs for SA analyses.
- In addition, MUSA encourages cooperation in research, innovation, and young generation's formation.

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