

## **Sensitivity analyses for severe accident phenomena simulations**

Internship / Master thesis in collaboration with TRACTEBEL

A severe accident in a nuclear power plant corresponds to an accident with significant reactor core melting. Physical simulations of severe accident phenomena are key to the understanding and then the mitigation of such accidents. In the frame of an European R&D project on severe accident, a Phenomena Identification and Ranking Table (PIRT) exercise is ongoing in order to assess the level of current knowledge of the most safety significant severe accident phenomena, to guide future R&D in the field. To support the identification of safety significant phenomena, sensitivity analyses are foreseen for severe accident phenomena simulations, which consist of applying statistical tool(s) combined with dedicated severe accident code(s). Phenomena to be evaluated could include Molten-Core and Concrete Interactions (MCCI) and containment response, hydrogen risk in containment, source term assessment, etc.