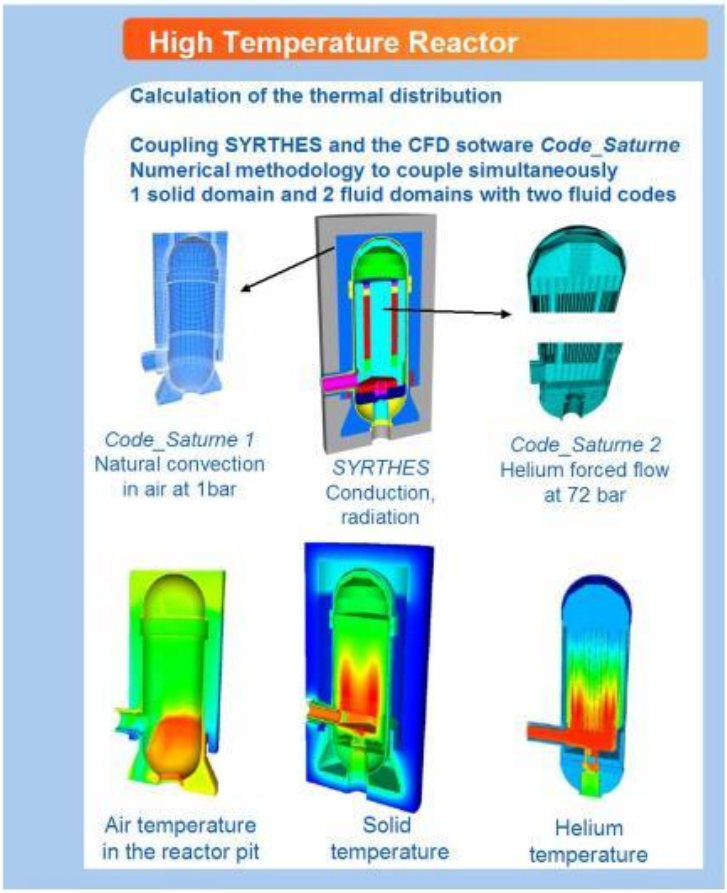
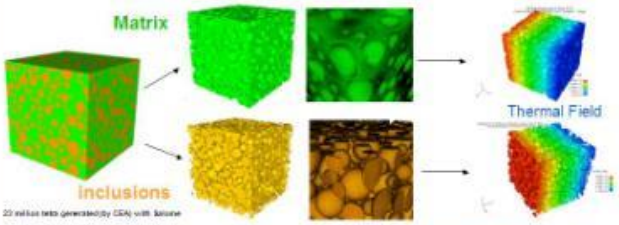
SYRTHES – EXEMPLES D'APPLICATIONS

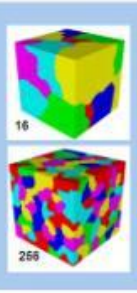


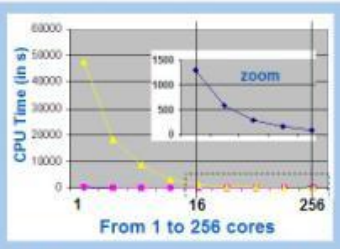
Concrete Material Properties

Evaluation of homogeneous diffusive properties of micro-structure with explicit representation of inclusions (high contrast)



Mesh refinement from 23 Millions to 1.496 Billion cells





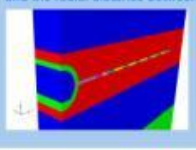
High efficiency on multi-processor cluster

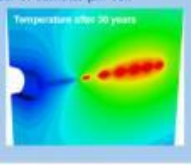
High Level Long Lived Radioactive Waste

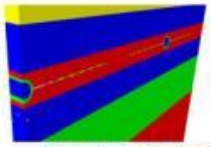
Within the framework of 2006 French law on radioactive waste, an evaluation of the industrial perspectives of Generation IV Reactors deployment is requested.

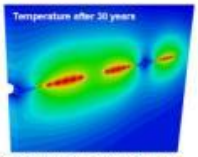
The waste geological disposal repository is subjected to thermal requirements amongst several other constraints.

A half cell model is used to optimize the number of canister per cell and the radial distance between two cells

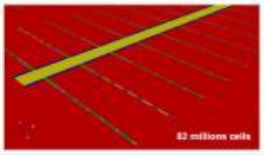


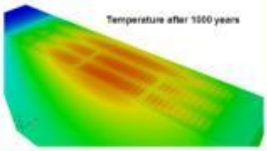






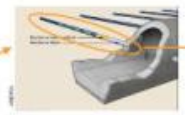
For some scenarios, very long thermal transient over hundreds of years have to be considered to capture the thermal peak due to americium.
The calculation domain has to be expanded to a half module made up of around 150 cells and 900 canisters

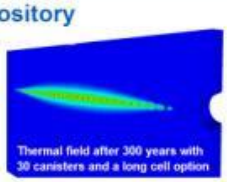




High Level Long Lived Radioactive Waste

Understanding thermal heat transfer and optimizing of deep repository





Simulations over very long time (30 to 4000 years)

Optimisation of the number of packages per cell

The calculation scheme for the repository size optimisation is done thanks to YACS (within Salome)