



# NUCLEAR REACTOR SIMULATION

## FP6 INTEGRATED PROJECT (2005-2008)

[www.nuresim.com](http://www.nuresim.com)

### Objectives of the NURESIM project

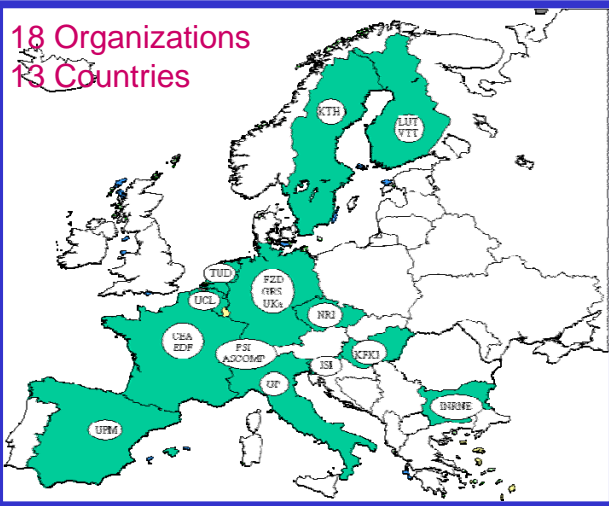
- To build a European software platform for advanced Core Physics, Thermal-Hydraulics and Multi-Physics coupling
- To implement a first set of Sensitivity and Uncertainty tools
- To validate the platform through comparison to experiments and benchmarking

### The NURESIM Roadmap :

A single platform, 3 successive projects

- **NURESIM (2005-2008)**: Basis of the platform with first significant possibilities
- **NURISP (2009-2011)**: Consolidation + extension
- **NURENEXT (>2011)**: Confirmation + rationalization + further extension

18 Organizations  
13 Countries

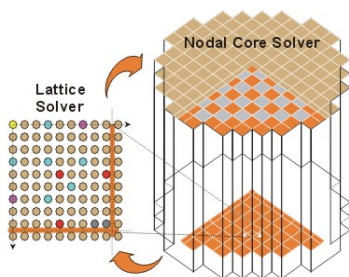


+ 6 Users' Group members :  
AREVA-NP, FORTUM, FZK, IRSN, TÜV-SÜD, TRACTEBEL Eng.

### Target of the NURESIM Roadmap

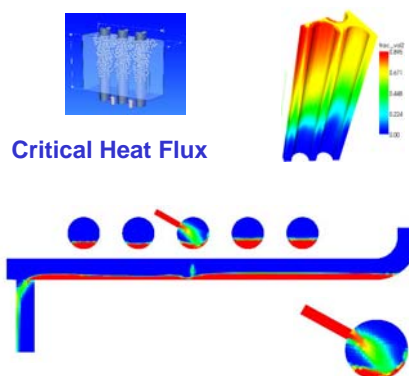
- **An Integrated Platform**
  - ✓ Common functions, multiscale, multiphysics, user friendly
- **A Reference Platform**
  - ✓ An optimized set of codes, beyond SOA, well validated, standardized, capacity to connect external codes
- **A European Platform**
  - ✓ A joint European effort, a European product
- **For Simulation of Nuclear Reactors**
  - ✓ Gen-II to Gen-IV, Users' Group with the Industry

### Core Physics



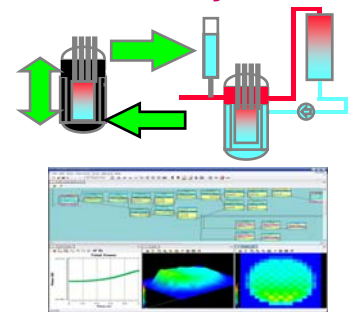
Advanced Monte-Carlo Methods  
Advanced Deterministic Methods  
Advanced Neutron Kinetics  
Benchmarking

### Thermal-Hydraulics



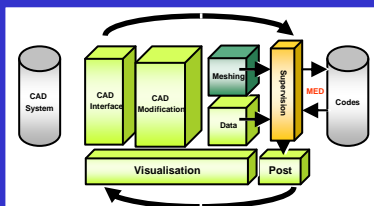
Pressurized Thermal Shock

### Multi-Physics



### Sensitivity and Uncertainty tools

Deterministic and statistical methods for multiphysics modules  
Implementation within the NURESIM platform of procedures for propagation of uncertainties



Integration with the SALOME Platform