

Title of the course: **Multiphysics simulation of nuclear systems**

Content of the course:

Day 1 - The multiphysics approach and tools to modelling and simulation (I)

- Overview: Multiphysics in nuclear reactor simulation - multiscale approach, dimensional reduction, low-order models.
- Neutronic simulation models: structure of neutron transport, deterministic vs. stochastic.

Day 2 - The multiphysics approach and tools to modelling and simulation (II)

- Thermal-hydraulic simulation: models and tools.
- Mechanical aspects in the behaviour of nuclear systems and interaction with neutronics and thermal-hydraulics.

Day 3 - Seminars

- 1) A multi-physics modelling approach to the dynamics of nuclear reactors: an application to the Molten Salt Nuclear Reactors.
- 2) Reduced-order modelling: new approaches for computational physics to analyse the dynamics of GEN IV nuclear reactors. An application to the LFR.

Presentations by participants

Time: 17 – 19 May 2017

Location: Como Lake, Italy

Accommodation and living costs: around 50-60 Euro, with accommodation in university residences and meals at canteens.