



# NES Colloquium

Wednesday, 15 June 2016, 11:00 – 12:00,  
OSGA/EG06

## LRS: Laboratory for Reactor Physics and Systems Behaviour

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As part of the Nuclear Energy and Safety Research Division (NES), the role and mission of the LRS is to act as the primary competence, education and scientific support centre for 1) neutronics and reactor physics; 2) multi-physics multi-scale modelling of thermal and fast reactor systems for integral safety assessments.

- Within the reactor physics area, the laboratory is engaged in both analytical and experimental R&D. The latter includes the design and realisation of neutronics experiments, nowadays at the CROCUS zero-power reactor, combined with the development of novel measurement techniques.
- Regarding safety assessments, the primary aim of the LRS is to develop and qualify state-of-the-art computational methodologies to simulate and better understand the complex behaviour of reactor systems during normal to transient/accident conditions and with integral account of spatial/temporal interactions between fluid dynamics, heat transfer, neutronics/radiation and thermo-mechanics. Within all of these disciplines, another major research activity is the development of uncertainty and sensitivity analysis methods. For Light-Water-Reactors, the research is conducted within the STARS program which also provides scientific support to the national partners. For innovative reactors, the research is carried out within the FAST program where emphasis is given to conceptual design studies of advanced systems for waste reduction and risk minimization.

At the colloquium, an overview of the LRS will be given and on-going research as well as scientific support activities will be illustrated. The close link to the EPFL as well as the education programs will also be presented. Finally, an outlook for future activities will be provided.