PAUL SCHERRER INSTITUT

PSI

15th – 19st June 2020

PSI school for master students 2020

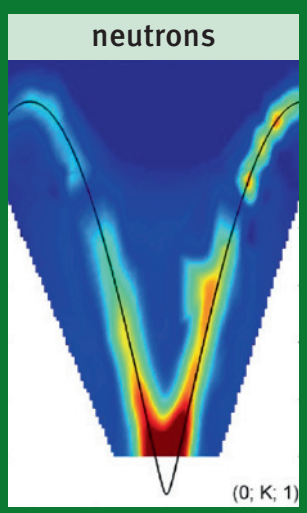
Introducing photons, neutron and muons for condensed matter physics and materials science

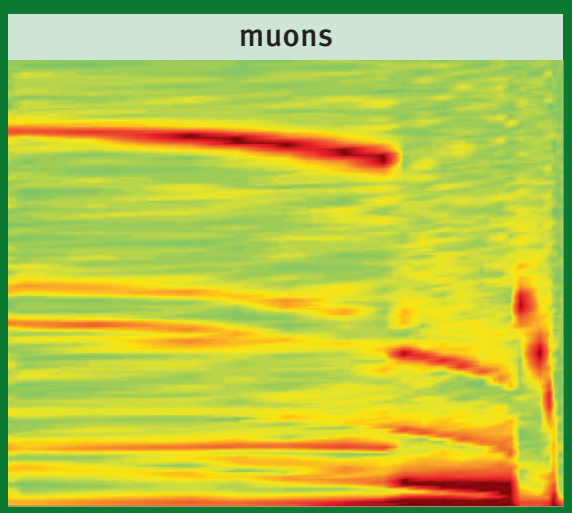
Scope

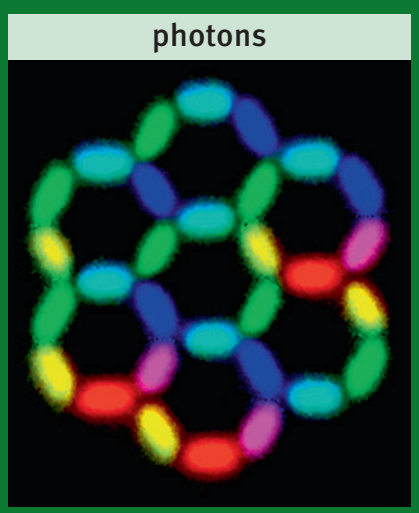
The aim of the course is that the students acquire a basic understanding of the interaction of photons, neutrons and muons with matter and how one can use these as tools to solve specific problems, in particular in the area of condensed matter physics and materials science.

The course runs for one week and takes place on the campus of the Paul Scherrer Institute (accommodation paid). The concepts are introduced in the morning lectures.

The afternoons include visits to all large scale facilities as well as in depth visit to some instruments of choice.







Content

- Production and interaction of photons, neutrons and muons
- Experimental setups: optics and detectors
- Crystal symmetry, Bragg's law, reciprocal lattice, structure factors
- Elastic and inelastic scattering with neutrons and photons
- X-ray absorption spectroscopy, x-ray magnetic circular dichroism
- Polarized neutron scattering for the study of magnetic materials
- Imaging techniques using x-rays and neutrons
- Introduction to and applications of muon spin rotation

Lecturers

Alex Amato
Laura Heyderman
Michel Kenzelmann
Hubertus Luetkens
Frithjof Nolting
Thomas Prokscha

Registration: http://indico.psi.ch/event/PSImasterschool
Deadline: March 16th 2020

Credit points available from ETH and some universities