PAUL SCHERRER INSTITUT

17th – 21st June 2019

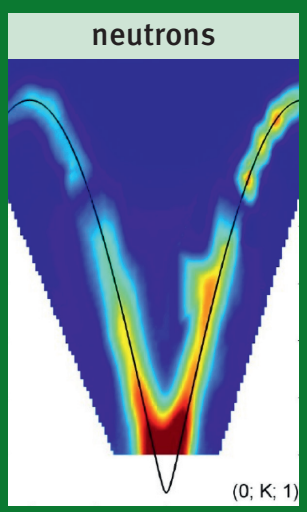
PSI school for master students 2019

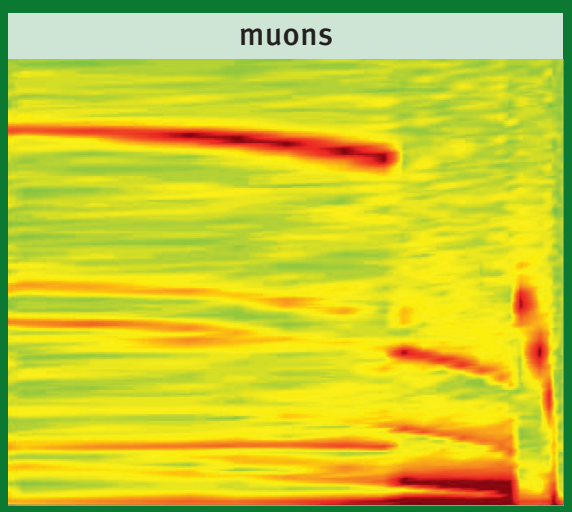
Introducing photons, neutron and muons for condensed matter physics and materials science

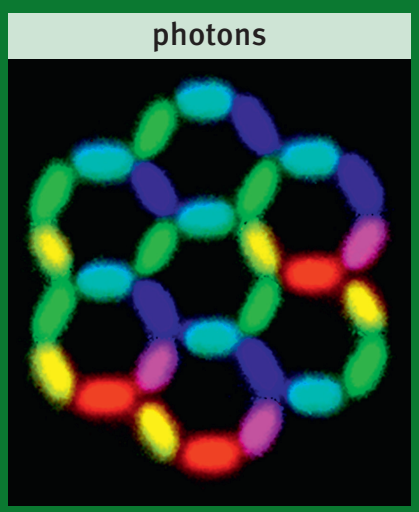
Scope

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 and worked out with active participation of the students in the afternoon exercises, which also include visits to the large scale facilities (Swiss Light Source, Swiss Spallation Neutron Source, Swiss Muon Source).







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 17th 2019

Credit points available from ETH and some universities