Kursnamn Synchrotron radiation techniques for magnetic materials
Name of course

Omfattning (högskolepoäng) 5 + 5
ECTS credits

Tidsperiod VT 2014 (period 3-4)
Course period

Antal platser 15
Maximum number of participants

Kursens syfte samt motivering till varför den bör vara fakultetsgemensam (max 150 ord)
Aim of course and motivation as to why it should be considered “multidisciplinary” to the extent that the faculty should allocate extra financing.
This course provides an overview of the powerful synchrotron-based tools that are currently available to address problems in modern magnetism. The aim is to give an account of the experimental methods, data analysis and instrumentation used in synchrotron-based research in magnetism-related areas. The theoretical foundations as well as theoretical modeling for x-ray magnetic spectroscopy will be given.

Kursinnehåll, kursens uppläggning samt examinationsform (max 150 ord)
Contents, study format and form of examination
The main topics include:
Survey of experimental methods
Electronic structure and spectroscopy
Theoretical spectroscopy framework
X-ray magnetic circular and linear dichroism
Investigations of ferro- and ferri-magnetic materials
Investigations of antiferromagnets
Magnetic imaging with x-ray microprobes
Time-resolved x-ray magnetic measurements
X-ray magnetic spectroscopy at 2p edges vs. 3p edges
Electron magnetic circular dichroism

The course consists of two parts, a more general part (8 lectures), followed by a more specialized part (6 lectures).
In the first part there will a a one-day visit to the Swedish synchrotron facility MAX-Lab with hands-on experience.
In addition, in the second part about 10 literature seminars covering relevant publications in the field will be arranged.

A description of the course is available on the homepage which was prepared for the course when it was given last. This information is currently moved to a new server and can be requested if necessary.

Målgrupp/er (specifiera ämnen/inriktningar) samt rekommenderade förkunskaper
Target group/s (specify, if possible, subject/specialization) and recommended background
Graduate students in physics, chemistry and technology conducting research in magnetism or related areas. The student should have basic knowledge in solid-state physics or solid-state chemistry (or equivalent).

Huvudansvarig institution: Institutionen för fysik och astronomi
Department with main responsibility

Andra inblandade institutioner (specifera hur).
Other departments involved (specify how).

Kontaktperson/er (namn, e-postadress)
Contact person (name, e-mail address)
Olof Karis Department of Physics and Astronomy, Box 516, 751 20 Uppsala, E-post: olof.karis@fysik.uu.se,
Peter Oppeneer, Department of Physics and Astronomy, Box 516, 751 20 Uppsala, E-post: Peter.Oppeneer@fysik.uu.se

Anmälan om kursdeltagande till
Application from course participants should be sent to
Olof Karis, Department of Physics and Astronomy, Box 516, 751 20 Uppsala, E-mail: olof.karis@fysik.uu.se

Senast 2014-02-10
Not later than