FSK3550 X-ray Physics and Applications 6.0 credits

Röntgenfysik och tillämpningar

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for FSK3550 valid from Spring 2015

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

Admitted to PhD studies in Physics, Biological Physics, or related fields of study.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After the course you should be able to:

- describe the x-ray optical properties of materials for different x-ray energies on the basis of the general laws of x-ray radiation interaction with matter
- explain different possibilities to generate x-ray radiation
  explain the working principle of different x-ray optics on the basis of their material x-ray optical properties
- apply the knowledge on x-ray sources and optics to explain experimental arrangements in the field of modern x-ray physics
- apply the knowledge on x-ray interaction with matter to explain different types of analytical methods that use x-ray radiation as a probe
- present your own research topic and its relation to modern x-ray science

Course contents

Part 1: X-ray basics
X-ray interaction with matter, X-ray sources, X-ray optics, X-ray detectors
Part 2: Application examples and special topics

Disposition

6 lectures, 6 student seminars, x-ray lab

Course literature

David Attwood, Soft X-ray and Extreme Ultraviolet Radiation, Cambridge University Press

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

INL1 – homework problems, 3,0 hp, grading: P/F
RED1 – oral presentation, 3,0 hp, grading: P/F

Other requirements for final grade

To pass the course you have to pass the homework problems and give an oral presentation about your own research.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.