



FSH3301 Experimental Nuclear Physics 8.0 credits

Experimentell kärnfysik

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

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

Establishment

Course syllabus for FSH3301 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Phd Student.

Language of instruction

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

Intended learning outcomes

After completing the course the student should be able to:

1. Identify the most important topical research areas in current Experimental Nuclear Physics
2. Have in-depth working knowledge of experimental and data analysis techniques in one of the chosen specializations and understand the basic foundations in theory.
3. Be able to critically evaluate scientific articles regarding methodology and results as well as set the research performed in the article into a larger context, i.e. assess its significance.
4. Present new research papers clearly and in a concise way to peer students, as well as participate in discussion of the articles.
5. Describe the development of the research field within the chosen specialization by following the current scientific literature.

Course contents

The course will focus on a specific area of experimental nuclear physics. It will cover detailed experimental and data analysis techniques relevant for the chosen subject area.

Examples of topical areas that can be covered are:

- Techniques for in-beam gamma-ray spectroscopy far from stability
- Lifetime measurements of excited nuclear states in the ps-ns range using recoil Doppler shift techniques.
- Lifetime measurements using Doppler shift attenuation methods
- Lifetime measurements using fast timing detectors
- Photon angular correlation and distribution measurements
- Photon polarization measurements
- Charged particle detection techniques
- Neutron detection techniques

Disposition

Self studies with guidance.

Examination based on written report and seminar.

Course literature

Research papers on Experimental Nuclear Physics

Examination

- PRO1 - Project, 4.0 credits, grading scale: P, F
- SEM1 - Seminars, 4.0 credits, grading scale: P, F

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.

Other requirements for final grade

Seminar and report.

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.