FSI3215 Advanced Topics in Condensed Matter Physics 7.5 credits

Avancerade ämnen i kondenserade materiens fysik

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

Establishment

Course syllabus for FSI3215 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Basic knowledge in theoretical physics, in particular quantum physics and relativity theory on undergraduate level.

Language of instruction

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

Intended learning outcomes

After the course the PhD student should

- have gained a good understanding of a current topics in condensed matter research.
- have improved skills to read research papers so as to explain the content to peers in oral presentations.
- have improved skills to discuss research literature with peers.
- be able to solve condensed matter physics problems which were out of reach before the course.

Course contents

Modern topics in condensed matter research which (probably) will differ each time the course is given. Possible topics for the course include: correlated fermions systems in 1D and conformal field theory methods in condensed matter physics; Dirac materials; exotic superconductors; Kondo effect; Anderson localization.

Disposition

This is a course on modern topics in condensed matter physics. The topic will vary, depending on the current interests and needs of the students participating.The course will consist of weekly meetings of the participants during one period under the guidance of a senior researcher. The meetings will consist of lectures by the course leader(s) and the participants, presentations of the participants, discussions between the participants.

Course literature

See course homepage

Examination

- SEM1 - Seminars, 4.5 credits, grading scale: P, F
- RAP1 - Report, 3.0 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.

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

Other requirements for final grade

Solving 80% of given homework problems; participation in at least 85% of the weekly meetings; seminar.

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.