FSI3015 Symmetries in Physics 7.5 credits

Symmetrier i fysiken

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

Establishment

Course syllabus for FSI3015 valid from Spring 2009

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

Quantum physics.

Language of instruction

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

Intended learning outcomes

To give an introduction to the use of symmetries in solving physical problems, the mathematical theory of group representations and a description of some important symmetry groups.

Course contents

Symmetries and symmetry groups. Basic group theory and theory of group representations. Lie groups and Lie algebras. The rotation and Lorentz groups. The Wigner-Eckart theorem and the Clebsch-Gordan series. Applications to physics.

Course literature

- **Compendium.**
- **H.F. Jones: Groups, representations and physics. 2nd ed. IOP Publishing 1998.**

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.

Other requirements for final grade

Solution of a number of homework problems.

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.