

SYLLABUS

Particle and Nuclear Physics 7.5 credits F0009T

Partikel- och kärnfysik

Course syllabus admitted: Autumn 2009 Sp 1 - Autumn 2009 Sp 2

DECISION

The syllabus was established by the Department of Applied Physics and Mechanical Engineering 2007-02-28, and remains valid from autumn 2007.

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Partikel- och kärnfysik

First cycle, F0009T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Fysik	Physics

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and Quantum Physics, MTF067.

Selection

The selection is based on 1-165 credits.

Examiner

Sverker Fredriksson

Course Aim

After the course, the student should:

- have a deep understanding of the modern physical world, including both micro- and macro-cosmos
- have a knowledge of large-scale and international research projects within the area
- have an insight into concepts, theoretical models and computational methods within the area

Contents

The basic properties of quarks, elementary particles and atomic nuclei, and of forces and reactions between them. Experimental methods, detectors and large-scale laboratories. Strong, weak and electromagnetic interactions. Static properties of particles. Collisions and decays. Quarks and the quantum chromodynamic theory. Unification of forces in Nature. Large-scale research programmes. Astroparticle physics. The physics front-line. Challenges for the future. The structure of nuclear matter. Potential models for nuclei. Nuclear reactions and radiation. Fission and fusion. Exotic nuclei and quark effects. Quark-gluon plasmas.

Realization

Lectures only.

Examination

Homework assignment/written exam. There can be alternative examination methods.

Overlap

The course F0009T is equal to MTF114, F7031T, MTF071

Literature. Valid from Autumn 2007 Sp 1

B. Povh et al.: Particles and Nuclei, Springer Verlag, latest edition (paperback).

Course offered by

Department of Engineering Sciences and Mathematics

Items/credits

Number	Type	Credits	Grade
0001	Assignment	7.5	G U 3 4 5

Last revised

The syllabus was established by the Department of Applied Physics and Mechanical Engineering 2007-02-28, and remains valid from autumn 2007.

Syllabus established

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