Module: Specialization: Theoretical Physics

Module No.: physics61c

Course: Theoretical Hadron Physics

Course No.: physics616

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	3+2	7	WT

Requirements for Participation:

Preparation:
Advanced quantum theory (physics606)
Quantum field theory (physics755)
Group theory (physics751)

Form of Testing and Examination:
Requirements for the examination (written): successful work with the exercises

Length of Course:
1 semester

Aims of the Course:
Introduction to the theory of strong interaction, hadron structure and dynamics

Contents of the Course:
Meson and Baryon Spectra: Group theoretical Classification, Simple Quark Models
Basics of Quantum Chromodynamics: Results in Perturbation Theory
Effective Field Theory
Bethe-Salpeter Equation

Recommended Literature:
F. E. Close, An Introduction to Quarks and Partons (Academic Press 1980)
F. Donoghue, E. Golowich, B.R. Holstein; Dynamics of the Standard Model (Cambridge University Press 1994)
C. Itzykson, J.-B. Zuber; Quantum Field Theory (Dover Publications 2005)
S. Weinberg; The Quantum Theory of Fields (Cambridge University Press 1995)