Module: Specialization: Advanced Theoretical Physics

Module No.: physics62c

Course: Advanced Theoretical Hadron Physics

Course No.: physics637

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

Requirements for Participation:

Preparation:
physics616 (Theoretical Hadron Physics)

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

Length of Course:
1 semester

Aims of the Course:
Survey of methods of theoretical hadron physics in regard to current research

Contents of the Course:
Quantum Chromodynamics: Nonperturbative Results, Confinement
Lattice Gauge Theory
Chiral Perturbation Theory
Effective Field Theory for Heavy Quarks

Recommended Literature:
F. E. Close; An Introduction 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 2006)
A. V. Manohar, M. B. Wise; Heavy Quark Physics (Cambridge University Press 2000)
S. Weinberg; The Quantum Theory of Fields (Cambridge University Press 1995)