

**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 or oral): 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)