## Theoretical Hadron Physics - physics616

**Degree** - M.Sc. in Physics (PO von 2014)

| ***Module*** | **Specialization: Theoretical Physics** |
|---|---|
| *Module No.* | physics61c |

| ***Course*** | **Theoretical Hadron Physics** |
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| *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)