

**Modules:**

physics700 **Elective Advanced Lectures**  
 physics710 **Experimental Physics**

**Course:****Particle physics (E)**

Course No.:

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture	English	3	4	ST

**Requirements:****Preparation:**

Quantum Mechanics

**Form of Testing and Examination:**

Part of the obligatory courses for area of specialisation Nuclear and Particle Physics, separate oral examination is possible exceptionally.

**Length of Course:**

1 semester

**Aims of the Course:**

Introduction into particle physics, accelerators and detectors

**Contents of the Course:**

- Relativistic kinematics
- Interaction of radiation with matter
- Particle accelerators
- Targets and detectors
- Symmetries in particle physics
- QED
- Weak interaction, neutrinos
- Quark model
- QCD
- Standard model
- Cosmology

**Recommended Literature:**

A script for course will be available on-line

D.H. Perkins: Introduction to High Energy Physics, Cambridge University Press, ISBN 0521621968

H. Frauenfelder, E.M. Henley: Subatomic Physics, Prentice Hall, ISBN 0138594309

F. Halzen: A.D. Martin: Quarks and Leptons, John Wiley and Sons, ISBN 0471887412

D. Griffiths: Introduction to Elementary Particles, John Wiley and Sons ISBN: 0471603864

B. Povh, K. Rith, C. Scholz, F. Zetsche: Teilchen und Kerne, Springer-Verlag, ISBN 3540659285

C. Berger: Elementarteilchenphysik, Springer-Verlag, ISBN 3-540-41515-7