

Particle Detectors and Instrumentation (E/A) - physics713

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

<i>Module</i>	Elective Advanced Lectures: Experimental Physics
<i>Module No.</i>	physics70a

<i>Course</i>	Particle Detectors and Instrumentation (E/A)
<i>Course No.</i>	physics713

Category	Type	Teaching			Semester
		Language	hours	CP	
Elective	Lecture with laboratory	English	3+1	6	ST

Requirements for Participation:

Preparation: Completed B.Sc. in Physics, with experience in quantum mechanics, atomic- and nuclear 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: Designing an experiment in photoproduction on π^0 , selection and building of appropriate detectors, set-up and implementation of an experiment at ELSA

Contents of the Course: Quark structure of mesons and baryons, nucleon excitation; electromagnetic probes, electron accelerators, photon beams, relativistic kinematics interaction of radiation with matter, detectors for photons, leptons and hadrons; laboratory course: setup of detectors and experiment at ELSA

Recommended Literature:

B. Povh, K. Rith, C. Scholz, F. Zetsche; Teilchen und Kerne (Springer, Heidelberg 6. Aufl. 2004)

Perkins; Introduction to High Energy Physics (Cambridge University Press 4. Aufl. 2000)

W. R. Leo; Techniques for Nuclear and Particle Detection (Springer, Heidelberg 2. Ed. 1994)

K. Kleinknecht; Detektoren für Teilchenstrahlung (Teubner, Wiesbaden 4. überarb. Aufl. 2005)