Module: Specialization: Advanced Experimental Physics

Module No.: physics62a

Course: Advanced Topics in High Energy Particle Physics

Course No.: physics639

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

Requirements for Participation:

Preparation:
physics611 (Particle 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:
To discuss advanced topics of high energy particle physics which are the subject of current research efforts and to deepen understanding of experimental techniques in particle physics.

Contents of the Course:
Selected topics of current research in experimental particle physics. Topics will be updated according to progress in the field. For example:
- LHC highlights
- CP-violation experiments
- Experimental challenges in particle and astroparticle physics
- Current questions in neutrino physics

Recommended Literature:
A. Seiden; Particle Physics: A Comprehensive Introduction (Cummings 2004)
R.K. Ellis, B.R. Webber, W.J. Stirling; QCD and Collider Physics (Cambridge Monographs on Particle Physics 1996)
C. Burgess, G. Moore; The Standard Model: A Primer (Cambridge University Press 2006)
F. Halzen, A. Martin; Quarks and Leptons (J. Wiley, Weinheim 1998)
C. Berger; Elementarteilchenphysik (Springer, Heidelberg, 2. überarb. Aufl. 2006)