Advanced Topics in High Energy Particle Physics - physics639

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)

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