


**Module: Specialization II**

Module No.: physics630

**Course:**  universität**bonn**
**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:****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)