Experimental Particle Physics

Abbreviation: 11-TPE-092-m01

Module Coordinator: Managing Director of the Institute of Applied Physics

Module offered by: Faculty of Physics and Astronomy

ECTS: 4

Method of Grading: Only after succ. compl. of module(s)

Duration: 1 semester

Module level: Graduate

Other prerequisites: Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

Contents

Physics with modern particle detectors at the LHC and at the Tevatron. Discovery of the Higgs boson. Search for supersymmetry and other physics beyond the standard model. Determination of the top quark mass and W mass as well as other parameters of the standard model. Introduction to modern methods of analysis and assessment of systematic errors.

Intended learning outcomes

The students are familiar with the principles of modern particle detector physics, especially with currently open questions of Particle Physics, which are examined by using these detectors. They know modern methods of analysis and are able to put results into context and to assess their systematic uncertainties.

Courses

R + V (no information on SWS (weekly contact hours) and course language available)

Method of assessment

a) written examination (approx. 90 minutes) or b) oral examination of one candidate each or oral examination in groups (approx. 30 minutes per candidate, for modules with less than 4 ECTS credits approx. 20 minutes) or c) project report (approx. 8 to 10 pages, time to complete: 1 to 4 weeks) or d) presentation/seminar presentation (approx. 30 minutes)

Assessment offered: When and how often assessment will be offered depends on the method of assessment and will be announced in due form under observance of Section 32 Subsection 3 ASPO (general academic and examination regulations) 2009.

Language of assessment: German, English

Allocation of places

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Additional information

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor' degree (1 major) Physics (2010)
Bachelor' degree (1 major) Physics (2012)
Bachelor' degree (1 major) Mathematical Physics (2009)
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