Module title			Abbreviation
FOKUS Research Module Theoretical Elementary Particle Physics with Mini Research Project			11-FM-TEP-MF-092-m01
Module coordinator		**Module offered by**	
chairperson of examination committee		Faculty of Physics and Astronomy	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
16	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	11-RQFT	

Contents

Specific and advanced knowledge of independent scientific work in the specialist field of Theoretical Elementary Particle Physics. Principles of relativistic quantum field theory, perturbation theory and application of Feynman rules, standard model of strong and electroweak interaction of leptons and quarks.

Intended learning outcomes

The students have special and advanced knowledge of independent scientific work in the field of Theoretical Elementary Particle Physics. They know the mathematical methods for the description of phenomena of Elementary Particle Physics and understand the structure of the standard model based on symmetry principles and experimental observations. They are able to summarise the acquired knowledge in an oral presentation. They are able to successfully implement the acquired methods in a mini research project and to write down the results in a report.

Courses (type, number of weekly contact hours, language — if other than German)

Theoretische Elementarteilchenphysik (Theoretical Elementary Particle Physics): V (4 weekly contact hours) + Ü/P (2 weekly contact hours), German or English, once a year (summer semester)
Kompaktseminar Theoretische Elementarteilchenphysik (Block Taught Seminar Theoretical Elementary Particle Physics): S (2 weekly contact hours), German or English, details on availability to be announced (block taught seminar (3 days), usually held during semester break)
Miniforschungsprojekt Theoretische Elementarteilchenphysik (Mini Research Project Theoretical Elementary Particle Physics): P (2 weekly contact hours), German or English, details on availability to be announced (either block taught during semester break or approx. 3 weeks part time)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

This module has the following assessment components
1. Topics covered in lectures and exercises: written examination (approx. 90 minutes) or talk (approx. 30 minutes) or oral examination of one candidate each or oral examination in groups (approx. 30 minutes) or project report (approx. 8 pages)
2. Seminar: talk (approx. 30 to 45 minutes)
3. Research project: project report (approx. 8 pages)

Assessment components 1 through 3 will be offered in German or English.
Students must register for assessment components 1 through 3 online (details to be announced).
Details on when assessment components 2 and 3 will be offered to be announced.
To pass this module, students must pass each of the assessment components 1 through 3.

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

Master's degree (1 major) FOKUS Physics (2010)
Master's degree (1 major) FOKUS Physics (2011)