### Module title

**Module title**: FOKUS Research Module Theoretical Elementary Particle Physics  
**Abbreviation**: 11-FM-TEP-092-m01

### Module coordinator

Chairperson of examination committee

### Module offered by

Faculty of Physics and Astronomy

### ECTS

12

### Method of grading

Numerical grade

### Only after succ. compl. of module(s)

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### Duration

1 semester

### Module level

Graduate

### Other prerequisites

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.

### Courses

**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 (1 to 3 days) held towards the end of semester break or at the beginning of the subsequent semester)

### Method of assessment

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)

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

### 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)