**Module title**
FOKUS Research Module Quantum Phenomena in electronic correlated Materials

**Abbreviation**
11-FM-QPM-092-m01

**Module coordinator**
chairperson of examination committee

**Module offered by**
Faculty of Physics and Astronomy

**ECTS**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
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<tr>
<td>1 semester</td>
<td>graduate</td>
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**Method of grading**
Only after succ. compl. of module(s)

**Numerical grade**
10

**Contents**
Specific and advanced knowledge of independent scientific work in a current research area, especially in the specialist field of quantum phenomena in electronically correlated materials, reproduction of knowledge, acquisition of social and methodological competencies. Introduction to the exciting and current research area of "strongly correlated electron systems": Metal-insulator transitions, Kondo effect, heavy fermions, High-temperature superconductivity, and much more.

**Intended learning outcomes**
The students have special and advanced knowledge of independent scientific work in a current research area, especially in the field of quantum phenomena in electronically correlated materials, laboratory and measuring techniques, and are able to reproduce the acquired knowledge, to apply the acquired methods and to summarise a sub-area of the current research area in an oral presentation.

**Courses**
Quantenphänomene in elektronisch korrelierten Materialien (Quantum Phenomena in Electronic Correlated Materials): V (3 weekly contact hours) + Ü/P (1 weekly contact hour), German or English, once a year (details to be announced)

Kompaktseminar Quantenphänomene in elektronisch korrelierten Materialien (Block Taught Seminar Quantum Phenomena in Electronic Correlated Materials): S (2 weekly contact hours), German or English, details on availability to be announced (block taught seminar (3 days), usually held during semester break)

**Method of assessment**

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).

Assessment component 1 will be offered once a year (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)