## Group Theory

### Module description

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Group Theory</td>
<td>11-GRT-152-m01</td>
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### Module coordinator
Managing Director of the Institute of Theoretical Physics and Astrophysics

### Module offered by
Faculty of Physics and Astronomy

### ECTS

<table>
<thead>
<tr>
<th>Method of grading</th>
<th>Only after succ. compl. of module(s)</th>
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<tbody>
<tr>
<td>6</td>
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### Duration

<table>
<thead>
<tr>
<th>Module level</th>
<th>Other prerequisites</th>
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<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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### Contents
- Group theory
- Finite groups
- Lie groups
- Lie algebra
- Depiction
- Tensors
- Classification theorem
- Applications

### Intended learning outcomes
The students know the basics of group theory, especially of Lie groups. They are able to identify problems of group theory and to solve them by using the acquired methods. They are able to apply group theory to the formulation and processing of physical problems.

### Courses
- (type, number of weekly contact hours, language — if other than German)
  - V (2) + R (2)
  - Module taught in: German or English

### Method of assessment
- (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
  - written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes)
  - or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentation/talk (approx. 30 minutes).

  If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.

  Language of assessment: German and/or English

### Allocation of places
- --

### Additional information
- --

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

### Module appears in
- Bachelor' degree (1 major) Physics (2015)
- Bachelor' degree (1 major) Mathematical Physics (2015)
- Bachelor' degree (1 major) Mathematical Physics (2016)