### Module title
Quantum Mechanics - Exercises

### Abbreviation
11-T-QA-152-m01

### Module coordinator
Managing Director of the Institute of Theoretical Physics and Astrophysics

### Module offered by
Faculty of Physics and Astronomy

### ECTS
5

### Method of grading
Numerical grade

### Only after succ. compl. of module(s)
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### Duration
1 semester

### Module level
Undergraduate

### Other prerequisites
Admission prerequisite to assessment: completion of exercises (approx. 13 exercise sheets per semester). Students who successfully completed approx. 50% of exercises will qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the semester.

### Contents
Exercises in quantum mechanics according to the content of 11 T-SEV. Among others Wave function and Schrödinger equation (SG), formalisation of QM, eigenvalue equations, postulates of QM, one-dimensional problems, spin-1/2 systems, angular momentum, central potential, hydrogen atom, movement in the electromagnetic field, addition of angular momenta, approximation methods, atoms with several electrons, etc.

### Intended learning outcomes
The students are familiar with the mathematical methods of quantum mechanics and are able to independently apply them to the description and solution of problems of quantum theory and to interpret the results in a physical manner.

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

**Ü** (2)

Module taught in: Ü: 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. 120 minutes)
Language of assessment: German and/or English

### Allocation of places
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### Additional information
Registration: If a student registers for the exercises and obtains the qualification for admission to assessment, this will be considered a declaration of will to seek admission to assessment pursuant to Section 20 Subsection 3 Sentence 4 ASPO (general academic and examination regulations). If the module coordinators subsequently find that the student has obtained the qualification for admission to assessment, they will put the student’s registration for assessment into effect. Only those students that meet the respective prerequisites can successfully register for an assessment. Students who did not register for an assessment or whose registration for an assessment was not put into effect will not be admitted to the respective assessment. If a student takes an assessment to which he/she has not been admitted, the grade achieved in this assessment will not be considered.

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

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### Module appears in
Bachelor’ degree (1 major) Nanostructure Technology (2015)
Bachelor’ degree (1 major) Nanostructure Technology (2020)
Bachelor’ degree (1 major) Quantum Technology (2021)