

Module title		Abbreviation
Modern Physics 1 - Exercises (Atoms and Quantum Physics)		11-L-AA-NV-152-m01
Module coordinator		Module offered by
Managing Director of the Institute of Applied Physics		Faculty of Physics and Astronomy
ECTS	Method of grading	Only after succ. compl. of module(s)
4	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
Exercises in Atomic and Quantum Physics according to the contents of 11-L-OAV. Among others: Fundamental experiments: Atoms: Specification of atomic values, masses and energies, Rutherford scattering; photons: Radiation laws, photoelectric effect, Compton effect; electrons: Elementary charge, e/m determination, interference experiments, matter wave, Schrödinger equation, uncertainty relation, simple quantum mechanical systems, questions of interpretation, recent experiments; quantum mechanics of hydrogen atoms, magnetic moment and spin, atomic structure, Periodic Table of the Elements		
Intended learning outcomes		
The students understand the basic principles and contexts of quantum phenomena as well as Atomic and Molecular Physics. They are able to mathematically formulate physical contexts of Atomic and Quantum Physics and to autonomously apply their knowledge to the solution of mathematical-physical tasks.		
Courses (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		
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Workload		
120 h		
Referred to in LPO I (examination regulations for teaching-degree programmes)		
§ 53 I Nr. 1 b)		
Module appears in		
First state examination for the teaching degree Grundschule Physics (2015) First state examination for the teaching degree Realschule Physics (2015) First state examination for the teaching degree Mittelschule Physics (2015)		