

<b>Module title</b>		<b>Abbreviation</b>
Modern Physics 1 - Exercises (Atoms and Quantum Physics)		11-L-AA-152-m01
<b>Module coordinator</b>		<b>Module offered by</b>
Managing Director of the Institute of Applied Physics		Faculty of Physics and Astronomy
<b>ECTS</b>	<b>Method of grading</b>	<b>Only after succ. compl. of module(s)</b>
5	numerical grade	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
1 semester	undergraduate	--
<b>Contents</b>		
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		
<b>Intended learning outcomes</b>		
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.		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
Ü (2) Module taught in: Ü: German or English		
<b>Method of assessment</b> (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		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
§ 77 I Nr. 1 b)		
<b>Module appears in</b>		
First state examination for the teaching degree Gymnasium Physics (2015)		