

<b>Module title</b>		<b>Abbreviation</b>
Ultrafast spectroscopy and quantum-control		o8-PCM4-161-m01
<b>Module coordinator</b>		<b>Module offered by</b>
lecturer of the seminar "Nanoskalige Materialien"		Institute of Physical and Theoretical Chemistry
<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	graduate	Prior completion of modules o8-PCM1a and o8-PCM1b recommended.
<b>Contents</b>		
This module discusses advanced topics in ultrafast spectroscopy and quantum control. It focuses on ultrashort laser pulses, time-resolved laser spectroscopy and coherent control.		
<b>Intended learning outcomes</b>		
Students are able to describe the generation of ultrashort laser pulses and to characterise them. They can explain the theory of time-resolved laser spectroscopy and name experimental methods. They can describe the principles and applications of quantum control.		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
S (2) + Ü (1) Module taught in: 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)		
a) written examination (approx. 90 minutes) or b) oral examination of one candidate each (approx. 20 minutes) or c) talk (approx. 30 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>Workload</b>		
150 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
Master's degree (1 major) Chemistry (2016) Master's degree (1 major) Mathematics (2016) Master's degree (1 major) Physics (2016) Master's degree (1 major) Nanostructure Technology (2016) Master's degree (1 major) Computational Mathematics (2016) Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016) Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016) Master's degree (1 major) Chemistry (2018) Master's degree (1 major) Computational Mathematics (2019) Master's degree (1 major) Mathematics (2019) Master's degree (1 major) Nanostructure Technology (2020) Master's degree (1 major) Physics (2020)		

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)  
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)  
Master's degree (1 major) Physics International (2020)  
Master's degree (1 major) Quantum Engineering (2020)  
Master's degree (1 major) Quantum Technology (2021)  
Master's degree (1 major) Computational Mathematics (2022)  
Master's degree (1 major) Functional Materials (2022)  
Master's degree (1 major) Mathematics (2022)  
Master's degree (1 major) Quantum Engineering (2024)  
Master's degree (1 major) Physics International (2024)  
Master's degree (1 major) Computational Mathematics (2024)  
Master's degree (1 major) Mathematics (2024)