

# Module Catalogue

for the Module studies (Master)

## Quantum Technology

Examination regulations version: 2021 Responsible: Faculty of Physics and Astronomy

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## The subject is divided into

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#### **Abbreviations used**

Course types:  $\mathbf{E} = \text{field trip}$ ,  $\mathbf{K} = \text{colloquium}$ ,  $\mathbf{O} = \text{conversatorium}$ ,  $\mathbf{P} = \text{placement/lab course}$ ,  $\mathbf{R} = \text{project}$ ,  $\mathbf{S} = \text{seminar}$ ,  $\mathbf{T} = \text{tutorial}$ ,  $\ddot{\mathbf{U}} = \text{exercise}$ ,  $\mathbf{V} = \text{lecture}$ 

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: A = thesis, LV = course(s), PL = assessment(s), TN = participants, VL = prerequisite(s)

#### **Conventions**

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

#### **Notes**

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

#### In accordance with

the general regulations governing the degree subject described in this module catalogue:

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

15-May-2019 (2019-36)

27-Jun-2019 (2019-41)

14-Nov-2019 (2019-52)

22-Jan-2020 (2020-13)

o6-May-2020 (2020-39)

22-Jul-2020 (2020-57)

17-Dec-2020 (2020-110)

10-Mar-2021 (2021-17)



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o9-Jun-2021 (2021-58)
22-Dec-2021 (2021-85)
05-Jul-2022 (2022-52)
31-Jan-2023 (2022-86)
15-Jun-2023 (2023-58)
13-Dec-2023 (2023-107)
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This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.



## Winter Term 2021

(o ECTS credits)



Modul	o titlo	_			Abbreviation	
		s in Physik			11-EXP6-161-mo1	
		·				
	e coord			Module offered by	1 A . L	
	1	f examination committee		Faculty of Physics a	and Astronomy	
ECTS	1	od of grading	Only after succ. con	ipi. or module(s)		
6		rical grade				
Duratio	_	Module level	Other prerequisites			
1 seme		graduate	Approval from exam	ination committee r	equired.	
Curren		s in experimental or theor	etical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
univers	sity or s	study abroad.				
Intend	ed lear	ning outcomes				
Course V (3) +	edge. The state of	hey are able to classify th	e subject-specific co anguage — if other than Ger	ntexts and know the	hods necessary to acquire this application areas.  ot every semester, information on whether	
a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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						
Worklo	Workload					
180 h						
Teachi	Feaching cycle					



	_	17/2/41	O WEYOURAINI C		
Module	e title	,	Abbreviation		
Curren	Current Topics in Physik				11-EXP6A-161-m01
Module	e coord	inator		Module offered by	
chairpe	erson o	f examination committee		Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites	i	
1 seme	ster	graduate	Approval from exam	ination committee r	equired.
Conten	ts				
1	•	in Experimental or Theol tudy abroad.	retical Physics. Credi	ted academic achiev	rements, e.g. in case of change of
Intend	ed learı	ning outcomes			
subdis knowle	cipline dge. Th		nd the measuring and e subject-specific co	d/or calculation mether the description in the desc	ney have knowledge of a current hods necessary to acquire this application areas.
V (3) +	-	number of weekly contact flours, i	anguage — ii other than Ger	man)	
Metho	d of ass	<b>Sessment</b> (type, scope, langua	ge — if other than German,	examination offered — if no	ot every semester, information on whether
a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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					
<del></del>					
Additional information					
Worklo	Workload				
180 h	180 h				

**Teaching cycle** 



NA - J1	- 4:41 -				ALL
	Module title  Current Topics in Physik				Abbreviation 11-EXP5-161-m01
Curren	Current ropics in Filysik			1	11-5752-101-11101
Modul				Module offered by	
chairpe	erson o	of examination committee	! <b>F</b>	Faculty of Physics a	and Astronomy
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites	i	
1 seme	ster	graduate	Approval from exam	ination committee r	equired.
Conter	its				
		s in Experimental or Theo study abroad.	retical Physics. Credi	ted academic achiev	rements, e.g. in case of change of
Intend	ed lear	ning outcomes			
knowle	edge. T	hey are able to classify th	e subject-specific co	ntexts and know the	hods necessary to acquire this application areas.
		sessment (type, scope, langua ole for bonus)	ige — if other than German,	examination offered — if no	ot every semester, information on whether
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					
<del></del>					
Workload					
150 h					
Teachi	ng cvcl	le	_		



88 - 31. 4:41			ALL variation	
Module title Current Topics in Physik			Abbreviation	
Current Topics III Physik			11-EXP7-161-m01	
Module coordinator		Module offered by	,	
chairperson of examination committe	e	Faculty of Physics a	and Astronomy	
ECTS Method of grading	Only after succ. con	npl. of module(s)		
7 numerical grade				
Duration Module level	Other prerequisites			
1 semester graduate	Approval from exam	ination committee r	equired.	
Contents				
Current topics of Experimental and Th change of university or study abroad.	eoretical Physics. Acc	redited academic ac	hievements, e.g. in case of	
Intended learning outcomes				
subdiscipline of Physics and understaknowledge. They are able to classify to Courses (type, number of weekly contact hours, V(3) + R(1)	he subject-specific co	ntexts and know the		
Method of assessment (type, scope, langu	age — if other than German.	examination offered — if no	ot 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				
<del></del>				
Workload				
210 h				

**Teaching cycle** 



WURZBURG 15 (15 ) 83 0 2 1							
Modul	Module title Abbreviation						
Curren	t Topic	s in Physik			11-EXP8-161-m01		
Modul	e coord	inator		Module offered by			
chairpe	erson o	f examination committee	!	Faculty of Physics a	nd Astronomy		
ECTS	Metho	od of grading	Only after succ. con	ıpl. of module(s)			
8	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
1 seme	ster	graduate	Approval from exam	ination committee re	equired.		
Conter	its						
1	•	of Experimental and The versity or study abroad.	eoretical Physics. Acc	redited academic ac	hievements, e.g. in case of		
Intend	ed learı	ning outcomes					
Theore subdis knowle	tical Ph cipline dge. Th	ysics of the Master's pro	gramme of Nanostruend the measuring and e subject-specific co	cture Technology. Th I/or calculation meth ntexts and know the	of a module of Experimental or ey have knowledge of a current nods necessary to acquire this application areas.		
V (4) +		namber of weekly contact flours,	- I other than der	many			
Metho	d of ass	sessment (type, scope, langua	ge — if other than German,	examination offered — if no	et every semester, information on whether		
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							
Allocat	Allocation of places						

#### **Additional information**

#### Workload

240 h

#### **Teaching cycle**



Module title					Abbreviation	
Current Topics in Quantum Technology					11-EXN5-212-m01	
Modul	e coord	inator		Module offered by	l	
chairp	erson o	f examination committee		Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	ıpl. of module(s)		
5	nume	rical grade				
Durati	on	Module level	Other prerequisites			
1 seme	ester	graduate	Approval from exam	ination committee r	equired.	
Conte	nts					
	•	in experimental or theor tudy abroad.	etical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
Intend	ed lear	ning outcomes				
knowle	edge. H es (type, r	nysics and insight into the e/She is able to classify and the classify and the contact hours, I	and to link the learnt.	He/She knows abo	ich are necessary to acquire this ut fields of application.	
		t in: German or English				
		<b>sessment</b> (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
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						
Workload						
150 h	150 h					
Teachi	ng cycl	e				

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



Module title				Abbreviation		
Current Topics in Quantum Technology					11-EXN6-212-m01	
Module	e coord	inator		Module offered by	l	
chairpe	erson o	f examination commit	tee	Faculty of Physics a	and Astronomy	
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)		
6	nume	rical grade				
Duratio	on	Module level	Other prerequisites	Other prerequisites		
1 seme	ster	graduate	Approval from exan	pproval from examination committee required.		
Conten	ıts					
	•	in experimental or the tudy abroad.	eoretical physics. Credi	ted academic achiev	ements, e.g. in case of change of	
Intend	ed lear	ning outcomes				
The student posseses advanced knowledge meeting the requirements of a module in theoretical or experimental physics on Master's level in the study programme Quantum Technology. He/She commands knowledge in a current field in physics and insight into the measuring and calculating methods which are necessary to acquire this knowledge. He/She is able to classify and to link the learnt. He/She knows about fields of application.						
Courses (type, number of weekly contact hours, language — if other than German)						
V (3) + R (1) Module taught in: German or English						

 $\textbf{Method of assessment} \ (\textbf{type}, \textbf{scope}, \textbf{language} - \textbf{if other than German, examination offered} - \textbf{if not every semester, information on whether} \ (\textbf{type}, \textbf{scope}, \textbf{language} - \textbf{if other than German, examination offered} - \textbf{if not every semester, information on whether} \ (\textbf{type}, \textbf{scope}, \textbf{language}) \ (\textbf{type}, \textbf{language}) \$ 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**

Workload

### 180 h

#### Teaching cycle



Module	Module title Abbreviation					
Current Topics in Quantum Technology				11-EXN7-212-m01		
Module	Module coordinator			Module offered by	<u> </u>	
chairpe	erson o	f examination committee		Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	ipl. of module(s)		
7	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	graduate	Approval from exam	ination committee r	equired.	
Conten	ts					
1		in experimental or theor tudy abroad.	etical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
Intende	ed lear	ning outcomes				
physics rent fie	s on Ma ld in pl	aster's level in the study	orogramme Quantum e measuring and cald	Technology. He/She culating methods wh	ule in theoretical or experimental e commands knowledge in a cur- ich are necessary to acquire this ut fields of application.	
Course	<b>S</b> (type, r	number of weekly contact hours,	anguage — if other than Ger	man)		
V (3) + Module		t in: German or English				
		<b>sessment</b> (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
or oral pages) If a writ stead to of asse nation	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						
<del></del>						
Additional information						
	<del></del>					
Workload						
210 h	210 h					
Teachi	ng cycl	e				



Module title Abbreviation							
Current Topics in Quantum Technology 11-EXN8-212-mo1							
Module	e coord	inator		Module offered by	Į.		
chairpe	erson o	f examination committee		Faculty of Physics a	and Astronomy		
ECTS	Metho	od of grading	Only after succ. com	ıpl. of module(s)			
8	nume	rical grade					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	graduate	Approval from exam	ination committee r	equired.		
Conten	ts						
		in experimental or theor tudy abroad.	etical physics. Credit	ed academic achiev	ements, e.g. in case of change of		
Intend	ed lear	ning outcomes					
rent fie knowle	ld in pl dge. Ho <b>s</b> (type, r		e measuring and calc and to link the learnt.	ulating methods wh He/She knows abo	e commands knowledge in a cur- nich are necessary to acquire this ut fields of application.		
V (4) + Module		t in: German or English					
		sessment (type, scope, langua le for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether		
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							
Workload							
240 h							
Teachi	Feaching cycle						
	one of the control of						

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



Module title Abbreviation							
Curren	t Topic	s in Quantum Technolog	у		11-EXN6A-212-m01		
Module coordinator				Module offered by			
chairpe	erson o	f examination committee	2	Faculty of Physics a	and Astronomy		
ECTS	Meth	od of grading	Only after succ. con	ıpl. of module(s)			
6	nume	rical grade					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	graduate	Approval from exam	ination committee r	required.		
Conten	ts		•				
		in experimental or theoretudy abroad.	retical physics. Credit	ed academic achiev	rements, e.g. in case of change of		
Intend	ed lear	ning outcomes					
rent fie knowle Course V (3) +	ld in pl dge. H <b>S</b> (type, r R (1)	hysics and insight into the e/She is able to classify number of weekly contact hours,	e measuring and cald and to link the learnt.	ulating methods wh He/She knows abo	e commands knowledge in a cur- nich are necessary to acquire this ut fields of application.		
Metho	d of ass	it in: German or English sessment (type, scope, langua	age — if other than German, o	examination offered — if n	ot every semester, information on whether		
written or oral pages) If a writ stead t of asse nation	examir examir or pres tten exa ake the essmen date at	nation (approx. 90 to 120 nation in groups (groups sentation/talk (approx. 3 amination was chosen as a form of an oral examina	of 2, approx. 30 minu o minutes). s method of assessmention of one candidate r must inform student	tes per candidate) c ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-		
Allocation of places							
Additio	Additional information						
Worklo	Workload						
180 h	18o h						

**Teaching cycle** 



Module	title				Abbreviation	
Advanced Topics in Solid State Physics					11-CSFM-161-m01	
Module	coordi	nator		Module offered by		
	ng Dire	ctor of the Institute	of Theoretical Physics	Faculty of Physics a		
ECTS	Metho	d of grading	Only after succ. co	mpl. of module(s)		
6	numer	ical grade				
Duration	n	Module level	Other prerequisites	5		
1 semes	ter	graduate	Approval from exan	nination committee r	required.	
Content	S					
vered in	any of		These topics may relate		vanced courses on topics not co- arch developments or to subjects	
Intende	d learn	ing outcomes				
			edge and understanding ections between researc		c of Condensed Matter Physics	
Courses	(type, n	umber of weekly contact ho	ours, language — if other than Ge	erman)		
V (3) + R	2 (1)					
			anguage — if other than German,	examination offered — if no	ot every semester, information on whether	
a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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	on of p	laces				
Additional information						
Workload						
180 h						
Teaching cycle						



Module	e title			Abbreviation		
Advanced Topics in Physics					11-CSPM-161-m01	
Modul	e coord	linator		Module offered by		
chairperson of examination committee				Faculty of Physics and Astronomy		
ECTS	Meth	od of grading	Only after succ. con	mpl. of module(s)		
6	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 semester graduate Approval from		Approval from exam	proval from examination committee required.			
Contents						
This module will enable lecturers of Physics to teach advanced courses on topics not covered in any of the other						

modules. These topics may relate either to recent research developments or to subjects not included in the regular curriculum.

#### Intended learning outcomes

The students advance their knowledge and understanding of an advanced topic of nanostructure technology and acquire insights into the connections between research and teaching.

Courses (type, number of weekly contact hours, language - if other than German)

V(3) + R(1)

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**

#### Workload

180 h

#### Teaching cycle

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



Modul	e title				Abbreviation		
Advanced Topics in Quantum Technology					11-CSNM-212-m01		
Modul	e coord	inator		Module offered by	I.		
_	ing Dire	ector of the Institute o	f Theoretical Physics	Faculty of Physics a	and Astronomy		
ECTS	Metho	od of grading	Only after succ. co	mpl. of module(s)			
6	nume	rical grade					
Duration	on	Module level	Other prerequisite	s			
1 seme	ester	graduate	Approval from exar	nination committee r	required.		
Conter	nts						
that ca	ın not b	e covered by any othe		es may either reflect	ve lectures on advanced topics new developments in research or		
Intend	ed learı	ning outcomes					
			ge and understanding o etween research and te		in quantum technology, thereby		
Course	<b>es</b> (type, r	number of weekly contact hou	ırs, language — if other than Ge	erman)			
V (3) + Modul		t in: German or Englis	h				
			nguage — if other than German,	examination offered — if n	ot every semester, information on whether		
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							
Alloca	tion of p	olaces	,				
Additional information							
Workload							
180 h							
Teachi	Teaching cycle						



## **Summer Term 2022**

(o ECTS credits)



		///×A1					
Module	Module title Abbreviation						
Current	t Topic	s in Physik		11-EXP6-161-m01			
Module	coord	inator		Module offered by			
chairpe	erson o	f examination committee		Faculty of Physics a	and Astronomy		
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)			
6	nume	rical grade					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	graduate	Approval from exam	ination committee r	equired.		
Conten	ts						
		s in experimental or theor study abroad.	etical physics. Credit	ed academic achiev	ements, e.g. in case of change of		
Intende	ed lear	ning outcomes					
subdise knowle	cipline dge. Th <b>s</b> (type, r		nd the measuring and e subject-specific co	d/or calculation met ntexts and know the	ney have knowledge of a current hods necessary to acquire this application areas.		
V (3) +	R (1)						
		sessment (type, scope, langua ole for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether		
nutes) prox. 8 If a writ stead to of asse nation	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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						
Allocat	Allocation of places						
Additional information							
Workload							
180 h	180 h						
Teachi	Teaching cycle						



			<b>T</b>			
Module title			Abbreviation			
Current Topics in Physik			11-EXP6A-161-m01			
Module coordinator		Module offered by				
hairperson of examination committee		Faculty of Physics a	and Astronomy			
CCTS Method of grading	Only after succ. com	pl. of module(s)				
numerical grade						
Ouration Module level	Other prerequisites					
semester graduate	Approval from exam	ination committee r	equired.			
Contents						
Current topics in Experimental or Theo university or study abroad.	retical Physics. Credit	ed academic achiev	rements, e.g. in case of change of			
ntended learning outcomes						
cnowledge. They are able to classify the Courses (type, number of weekly contact hours,	· · · · · · · · · · · · · · · · · · ·		application areas.			
/ (3) + R (1)						
<b>Method of assessment</b> (type, scope, languan odule is creditable for bonus)	age — if other than German, e	examination offered — if no	ot every semester, information on whether			
a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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						
Workload						

180 h

Teaching cycle

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 $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$ 

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		/// X A 1	J NEON RAIDI				
Module title Ab					Abbreviation		
Curren	Current Topics in Physik				11-EXP5-161-m01		
Modul	e coord	inator		Module offered by			
chairp	erson o	f examination committee	?	Faculty of Physics a	and Astronomy		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
5	nume	rical grade					
Duration	on	Module level	Other prerequisites				
1 seme	ester	graduate	Approval from exam	ination committee r	equired.		
Conter	nts						
	•	in Experimental or Theo tudy abroad.	retical Physics. Credit	ed academic achiev	vements, e.g. in case of change of		
Intend	ed lear	ning outcomes					
subdis knowle	cipline edge. Th	of Physics and understa ney are able to classify th	nd the measuring and e subject-specific co	d/or calculation met ntexts and know the	ney have knowledge of a current hods necessary to acquire this application areas.		
		number of weekly contact hours,	language — if other than Ger	man)			
V (2) +							
			age — if other than German,	examination offered — if no	ot every semester, information on whether		
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							
	<del></del>						
Additio	onal inf	ormation					

#### Workload

150 h

#### **Teaching cycle**



88 - 31. 4:41			ALL variation			
Module title Current Topics in Physik			Abbreviation			
Current Topics III Physik			11-EXP7-161-m01			
Module coordinator		Module offered by	,			
chairperson of examination committe	e	Faculty of Physics a	and Astronomy			
ECTS Method of grading	Only after succ. con	npl. of module(s)				
7 numerical grade						
Duration Module level	Other prerequisites					
1 semester graduate	Approval from exam	ination committee r	equired.			
Contents						
Current topics of Experimental and Th change of university or study abroad.	eoretical Physics. Acc	redited academic ac	hievements, e.g. in case of			
Intended learning outcomes						
subdiscipline of Physics and understaknowledge. They are able to classify to Courses (type, number of weekly contact hours, V(3) + R(1)	he subject-specific co	ntexts and know the				
Method of assessment (type, scope, langu	age — if other than German.	examination offered — if no	ot 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						
Workload						
210 h						

**Teaching cycle** 



		/// >// 1	J (SIZONE RAID)				
Module	e title			Abbreviation			
Current	t Topics	s in Physik		11-EXP8-161-m01			
Module	coord	inator		Module offered by			
chairpe	rson o	f examination committee	9	Faculty of Physics a	and Astronomy		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
8	nume	rical grade					
Duratio	n	Module level	Other prerequisites	i			
1 seme	ster	graduate	Approval from exam	ination committee r	equired.		
Conten	ts						
		of Experimental and The versity or study abroad.	eoretical Physics. Acc	redited academic ac	hievements, e.g. in case of		
Intende	ed learı	ning outcomes					
knowle Course	dge. Th	of Physics and understaney are able to classify the number of weekly contact hours,	e subject-specific co	ntexts and know the	hods necessary to acquire this application areas.		
V (4) +	R (2)						
		<b>sessment</b> (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether		
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							
Allocat	Allocation of places						
Additio	Additional information						
Worklo	Workload						

240 h

**Teaching cycle** 



Modul	e title	,			Abbreviation		
Current Topics in Quantum Technology					11-EXN5-212-m01		
Module coordinator				Module offered by			
chairp	erson o	f examination committee		Faculty of Physics a	and Astronomy		
ECTS	Meth	od of grading	Only after succ. con	ıpl. of module(s)			
5	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
1 seme	ester	graduate	Approval from exam	ination committee r	required.		
Conter	nts						
		in experimental or theor tudy abroad.	etical physics. Credit	ed academic achiev	rements, e.g. in case of change of		
Intend	ed lear	ning outcomes					
rent fie knowle	eld in pl edge. H		e measuring and cald and to link the learnt.	ulating methods wh He/She knows abo	e commands knowledge in a curnich are necessary to acquire this ut fields of application.		
V (2) +	_	number of weekly contact nours, i	anguage — ir other than Gei	man)			
		t in: German or English					
Metho	d of ass	sessment (type, scope, langua	ge — if other than German,	examination offered — if no	ot every semester, information on whether		
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							
Worklo	Workload						
150 h							
Teachi	Feaching cycle						
	_ · ·						



Module title Abbreviation							
Current Topics in Quantum Technology					11-EXN6-212-m01		
Modul	e coord	inator		Module offered by			
chairpe	erson o	f examination committee	9	Faculty of Physics a	and Astronomy		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
6	nume	rical grade					
Duratio	on	Module level	Other prerequisites				
1 seme	ster	graduate	Approval from exam	ination committee r	equired.		
Conter	its						
	•	in experimental or theo tudy abroad.	retical physics. Credit	ed academic achiev	ements, e.g. in case of change of		
Intend	ed lear	ning outcomes					
physic: rent fie	s on Ma eld in pl	aster's level in the study	programme Quantum ne measuring and cald	Technology. He/Shoculating methods wh	lule in theoretical or experimental e commands knowledge in a cur- nich are necessary to acquire this ut fields of application.		
Course	<b>S</b> (type, r	number of weekly contact hours,	language — if other than Ger	rman)			
V (3) +		t in: German or English					
			age — if other than German,	examination offered — if no	ot every semester, information on whether		
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							
<del></del>							
Additional information							
<del></del>							
Workload							
180 h							
Teachi	ng cycl	е					
	<del>-</del>						



Module title Abbreviation						
Current Topics in Quantum Technology 11-EXN7-212-mo1						
Module	e coord	linator		Module offered by	l	
chairpe	erson o	f examination committ	ee	Faculty of Physics a	and Astronomy	
ECTS	Meth	od of grading	Only after succ. co	mpl. of module(s)		
7	nume	rical grade				
Duratio	n	Module level	Other prerequisite	S		
1 seme	ster	graduate	Approval from exar	Approval from examination committee required.		
Conten	ts					
		s in experimental or the study abroad.	oretical physics. Cred	ited academic achiev	ements, e.g. in case of change of	
Intend	ed lear	ning outcomes				
The student posseses advanced knowledge meeting the requirements of a module in theoretical or experimental physics on Master's level in the study programme Quantum Technology. He/She commands knowledge in a current field in physics and insight into the measuring and calculating methods which are necessary to acquire this knowledge. He/She is able to classify and to link the learnt. He/She knows about fields of application.						
Courses (type, number of weekly contact hours, language — if other than German)						
V (3) + R (1) Module taught in: German or English						

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

Language of assessment derman analy of English
Allocation of places
Additional information
Workload

#### Teaching cycle

210 h



Module	e title		Abbreviation		
Current	t Topic	s in Quantum Technolog	sy		11-EXN8-212-m01
Module	e coord	inator		Module offered by	<u>.</u>
chairpe	erson o	f examination committe	e	Faculty of Physics and Astronomy	
ECTS	Metho	od of grading	Only after succ. co	mpl. of module(s)	
<del></del> 8	nume	rical grade			
Duratio	n	Module level	Other prerequisites	S	
ı seme	ster	graduate	Approval from exam	nination committee i	required.
Conten	ts				
	•	in experimental or theo tudy abroad.	retical physics. Credi	ted academic achiev	vements, e.g. in case of change of
Intende	ed lear	ning outcomes			
physics rent fie	s on Ma Id in pl	aster's level in the study nysics and insight into t	programme Quantun ne measuring and cal	n Technology. He/Sh culating methods wh	dule in theoretical or experiment te commands knowledge in a cu hich are necessary to acquire thi out fields of application.
Course	<b>S</b> (type, r	number of weekly contact hours,	language — if other than Ge	erman)	
V (4) + Module		t in: German or English			
		<b>sessment</b> (type, scope, langu le for bonus)	age — if other than German,	examination offered — if n	ot every semester, information on whether
or oral pages) f a writ	examir or pres tten exa	nation in groups (groups sentation/talk (approx. a amination was chosen a	of 2, approx. 30 minugo 30 minutes). s method of assessm	utes per candidate) on nent, this may be cha	ndidate each (approx. 30 minute or project report (approx. 8 to 10 anged and assessment may in- amination in groups. If the meth

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

Early dage of assessment. German and of En	5.1311
Allocation of places	
Additional information	

#### Workload

240 h

#### **Teaching cycle**



·					
Module title	Abbreviation				
Current Topics in Quantum Technology 11-EXN6A-212-mo1					
Module coordinator	Module offered by				
chairperson of examination committee	Faculty of Physics and Astronomy				
ECTS Method of grading Only after	succ. compl. of module(s)				
6 numerical grade					
Duration Module level Other pre	equisites				
ı semester graduate Approval	rom examination committee required.				
Contents					
Current topics in experimental or theoretical physuniversity or study abroad.	cs. Credited academic achievements, e.g. in case of change of				
ntended learning outcomes					
	g and calculating methods which are necessary to acquire this he learnt. He/She knows about fields of application.  her than German)				
Module taught in: German or English					
<b>Method of assessment</b> (type, scope, language — if other t nodule is creditable for bonus)	an German, examination offered $-$ if not every semester, information on whether				
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					
<del></del>					
Additional information					
Workload					

180 h

**Teaching cycle** 



		1 84.74	5 (12.75)	33 <b>%~ 1</b> 7			
Module title Abbreviation					Abbreviation		
Advan	ced Top	ics in Solid State Physic	S		11-CSFM-161-m01		
Modul	e coord	inator		Module offered by			
Managing Director of the Institute of Theoretical Physics and Astrophysics			neoretical Physics	Faculty of Physics and Astronomy			
ECTS Method of grading 0		Only after succ. con	mpl. of module(s)				
6	nume	rical grade					
Durati	on	Module level	Other prerequisites	<b>i</b>			
1 seme	ester	graduate	Approval from exam	nination committee r	equired.		
Conte	nts						
vered i	in any o		se topics may relate		ranced courses on topics not co- arch developments or to subjects		
Intend	ed lear	ning outcomes					
		advance their knowledgensights into the connection			of Condensed Matter Physics		
Course	<b>es</b> (type, r	number of weekly contact hours,	language — if other than Ge	rman)			
V (3) +	R (1)						
		<b>sessment</b> (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether		
nutes) prox. 8 If a wri stead to of asse nation	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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						
Alloca	Allocation of places						
Additio	Additional information						
Worklo	oad						
180 h							
Teachi	Teaching cycle						

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



Modul	bbreviation				
Advanced Topics in Physics				1:	1-CSPM-161-m01
Modul	e coord	linator		Module offered by	
chairperson of examination committee			nittee	Faculty of Physics and Astronomy	
ECTS	Meth	Nethod of grading Only after succ.		mpl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites	sites	
1 semester graduate		Approval from exar	Approval from examination committee required.		
Conter	nts				
This m	odule v	vill enable lecturers	of Physics to teach advar	ced courses on topics i	not covered in any of the othe

modules. These topics may relate either to recent research developments or to subjects not included in the regular curriculum.

#### **Intended learning outcomes**

The students advance their knowledge and understanding of an advanced topic of nanostructure technology and acquire insights into the connections between research and teaching.

Courses (type, number of weekly contact hours, language - if other than German)

V(3) + R(1)

**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

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#### **Additional information**

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#### Workload

180 h

#### Teaching cycle

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

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		_			T		
Module title					Abbreviation		
Advan	Advanced Topics in Quantum Technology 11-CSNM-212-mo1						
Modul	le coord	inator		Module offered by			
	ging Dire	ector of the Institute of Th	neoretical Physics	Faculty of Physics a	and Astronomy		
ECTS	ECTS Method of grading Only after succ. compl.			npl. of module(s)			
6	nume	rical grade					
Durati	on	Module level	Other prerequisites	i			
1 seme	ester	graduate	Approval from exam	nination committee r	equired.		
Conte	nts						
that ca	an not b		odule. These lecture	s may either reflect i	ve lectures on advanced topics new developments in research or		
Intend	led lear	ning outcomes					
		deepen their knowledge Its into the interface betv			in quantum technology, thereby		
Course	<b>es</b> (type, r	number of weekly contact hours,	language — if other than Ge	rman)			
V (3) + Modul		t in: German or English					
		sessment (type, scope, langua ble for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether		
or oral pages) If a wri stead of asso nation	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							
Additi	Additional information						
Workle	Workload						
180 h							
Teachi	Teaching cycle						

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



## Winter Term 2022

(o ECTS credits)



W	ÜRZBI	JRG 1	5 (628)	33 9	Quantum Technology
Module	e title				Abbreviation
Current	t Topic	s in Physik			11-EXP6-161-mo1
Module coordinator Module offered by				!	
chairpe	erson o	f examination committee	?	Faculty of Physics	and Astronomy
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
6	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	graduate	Approval from exam	nination committee	required.
Conten	ts				
		s in experimental or theoretudy abroad.	retical physics. Credit	ed academic achie	vements, e.g. in case of change of
Intende	ed lear	ning outcomes			
Theore subdis	tical Ph cipline	nysics of the Master's pro	gramme of Nanostru nd the measuring and	cture Technology. T d/or calculation me	of a module of Experimental or hey have knowledge of a current thods necessary to acquire this e application areas.
Course	<b>S</b> (type, i	number of weekly contact hours,	language — if other than Ge	rman)	
V (3) +	R (1)				
		sessment (type, scope, langua ble for bonus)	age — if other than German,	examination offered — if r	not every semester, information on whether
nutes) prox. 8 If a writ stead t	or c) or to 10 p tten ex ake the	ral examination in groups pages) or e) presentation amination was chosen as e form of an oral examina	s (groups of 2, approx /talk (approx. 30 min s method of assessm tion of one candidate	a. 30 minutes per ca utes). ent, this may be cha e each or an oral ex	ne candidate each (approx. 30 mindidate) or d) project report (apanged and assessment may inamination in groups. If the method recks prior to the original examination

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** Workload

**Teaching cycle** 

180 h



Modul	- title				Abbreviation		
		s in Physik			11-EXP6A-161-m01		
Module coordinator				Module offered by			
		f examination committee		Faculty of Physics a	and Astronomy		
ECTS	1	od of grading	Only after succ. con		,		
6	1	rical grade					
Duratio		Module level	Other prerequisites				
1 seme	ster	graduate	Approval from exam	ination committee r	equired.		
Conter	its						
		s in Experimental or Theoretudy abroad.	retical Physics. Credit	ted academic achiev	rements, e.g. in case of change of		
Intend	ed lear	ning outcomes					
Course V (3) +	edge. The state of	ney are able to classify the number of weekly contact hours, last the sessment (type, scope, langua	e subject-specific co anguage — if other than Ger	ntexts and know the	hods necessary to acquire this application areas.  ot every semester, information on whether		
a) writt nutes) prox. 8 If a wri stead t of asse nation	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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						
Allocat	Allocation of places						
Additional information							
Worklo	Workload						
180 h	180 h						
Teachi	ng cycl	e					



AA	UKZBU	JKG P	15 (15)	33 9 2 5	
Module	e title	-			Abbreviation
Curren	t Topic	11-EXP5-161-m01			
Module	e coord	inator		Module offered by	
chairpe	erson o	f examination commit	tee	Faculty of Physics a	and Astronomy
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites	1	
1 seme	ster	graduate	Approval from exam	nination committee re	equired.
Conten	its		,		
		in Experimental or Th tudy abroad.	eoretical Physics. Credi	ted academic achiev	rements, e.g. in case of change of
Intend	ed lear	ning outcomes			
Theore subdis	tical Ph cipline	nysics of the Master's of Physics and unders	programme of Nanostru	cture Technology. Th d/or calculation metl	of a module of Experimental or ney have knowledge of a current hods necessary to acquire this application areas.
Course	<b>S</b> (type, r	number of weekly contact hou	ırs, language — if other than Ge	rman)	
V (2) +	R (2)				
		<b>sessment</b> (type, scope, lar ble for bonus)	nguage — if other than German,	examination offered — if no	ot every semester, information on whether
or oral pages) If a wri- stead t of asse- nation Langua	examir or pres tten exa ake the essmen date at	nation in groups (group sentation/talk (approx amination was chosen e form of an oral exam t is changed, the lectu the latest. ssessment: German a	ps of 2, approx. 30 minutes). It as method of assessmination of one candidate are must inform student	ites per candidate) o ent, this may be char e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-

#### Allocation of places

#### **Additional information**

#### Workload

150 h

#### **Teaching cycle**



			O WEOVERSON C				
Module	title	,			Abbreviation		
Current Topics in Physik					11-EXP7-161-m01		
Module coordinator M				Module offered by			
chairpe	erson o	f examination committee		Faculty of Physics a	and Astronomy		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)			
7	nume	rical grade					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	graduate	Approval from exam	ination committee r	equired.		
Conten	ts						
1	•	of Experimental and The versity or study abroad.	oretical Physics. Acc	redited academic ac	hievements, e.g. in case of		
Intend	ed learı	ning outcomes					
subdis knowle	cipline dge. Th		nd the measuring and e subject-specific co	d/or calculation mether the description in the desc	ney have knowledge of a current hods necessary to acquire this application areas.		
V (3) +				. ,			
			ge — if other than German,	examination offered — if no	ot every semester, information on whether		
or oral pages) If a writ stead t of asse nation	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						
Allocat	Allocation of places						
Additio	Additional information						
Worklo	Workload						
210 h	210 h						

**Teaching cycle** 



WU	KZBU	IKG 1	5 (123) 23 8	33 0 2 5	,		
Module	title				Abbreviation		
Current Topics in Physik 11-EXP8-161-mo1							
Module	Module coordinator Module offered by						
chairper	son of	examination committee		Faculty of Physics a	and Astronomy		
ECTS	Metho	d of grading	Only after succ. con	npl. of module(s)			
8	nume	rical grade					
Duration	1	Module level	Other prerequisites				
1 semes	ter	graduate	Approval from exam	ination committee r	equired.		
Content	S						
		of Experimental and The versity or study abroad.	oretical Physics. Acc	redited academic ac	hievements, e.g. in case of		
Intende	d learr	ning outcomes					
Theoreti subdisc knowled	cal Ph ipline lge. Th	ysics of the Master's pro of Physics and understa ey are able to classify th	gramme of Nanostrude and the measuring and e subject-specific co	cture Technology. Th d/or calculation met ntexts and know the	of a module of Experimental or ney have knowledge of a current hods necessary to acquire this application areas.		
		umber of weekly contact hours, I	anguage — if other than Ger	rman)			
V (4) + R	(2)						
			ge — if other than German,	examination offered — if no	ot every semester, information on whether		
or oral e pages) of If a writt stead ta of asses nation d	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	Allocation of places						
	<del></del>						
Addition	Additional information						

#### Workload

240 h

#### **Teaching cycle**



Module	title	,			Abbreviation		
Current	t Topic	s in Quantum Technology	/		11-EXN5-212-m01		
Module	e coord	inator		Module offered by			
Module coordinator chairperson of examination committee				Faculty of Physics a	and Astronomy		
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)			
5	nume	rical grade					
Duratio	n	Module level	Other prerequisites				
1 seme	ster	graduate	Approval from exam	ination committee r	equired.		
Conten	ts						
	•	in experimental or theor tudy abroad.	etical physics. Credit	ed academic achiev	ements, e.g. in case of change of		
Intende	ed lear	ning outcomes					
rent fie knowle Course	ld in pl dge. Ho <b>s</b> (type, r		e measuring and calc and to link the learnt.	culating methods wh He/She knows abo	e commands knowledge in a cur- nich are necessary to acquire this ut fields of application.		
V (2) + Module	` '	t in: German or English					
		<b>sessment</b> (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether		
or oral pages) If a writ stead t of asset nation	examin or pres aten exa ake the essmen date at	nation in groups (groups of sentation/talk (approx. 30 amination was chosen as a form of an oral examina	of 2, approx. 30 minu o minutes). s method of assessmo tion of one candidate r must inform student	tes per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-		
Allocation of places							
Additional information							
Worklo	ad						
150 h	50 h						

**Teaching cycle** 



Modul	e title	,			Abbreviation			
Curren	t Topic	s in Quantum Technolog	у		11-EXN6-212-m01			
Modul	e coord	linator		Module offered by				
chairp	erson o	f examination committe	e	Faculty of Physics	and Astronomy			
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)				
6	nume	rical grade						
Durati	on	Module level	Other prerequisites	i				
1 seme	ester	graduate	Approval from exam	ination committee i	required.			
Conte	nts							
		s in experimental or theostudy abroad.	retical physics. Credit	ed academic achiev	vements, e.g. in case of change of			
Intend	ed lear	ning outcomes						
Course V (3) +	edge. H es (type, 1 R (1)	e/She is able to classify number of weekly contact hours, at in: German or English	and to link the learnt	. He/She knows abo	nich are necessary to acquire this but fields of application.			
Metho	d of as		age — if other than German,	examination offered — if n	ot every semester, information on whether			
or oral pages) If a wri stead to of assenation	examin or pres tten ex take the essmen date at	nation in groups (groups sentation/talk (approx. g amination was chosen a e form of an oral examina	of 2, approx. 30 minus of 2, approx. 30 minutes). s method of assessmation of one candidate r must inform student	ites per candidate) of ent, this may be cha e each or an oral exa	ndidate each (approx. 30 minutes) or project report (approx. 8 to 10 anged and assessment may insemination in groups. If the method weeks prior to the original exami-			
Alloca	Allocation of places							
	-							
Additio	onal inf	ormation						
	,							
Worklo	oad							

180 h

**Teaching cycle** 



Module	e title				Abbreviation	
Current	t Topic	s in Quantum Techno	ology		11-EXN7-212-m01	
Module coordinator				Module offered by		
chairpe	erson o	f examination comm	ittee	Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
7	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	graduate	Approval from exam	ination committee r	equired.	
Conten	its					
		in experimental or tl tudy abroad.	heoretical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
Intende	ed lear	ning outcomes				
knowle	dge. H	e/She is able to class	sify and to link the learnt.	He/She knows abo	nich are necessary to acquire this ut fields of application.	
V (3) + Module		t in: German or Engli	sh			
			anguage — if other than German,	examination offered — if no	ot every semester, information on whether	
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						
			<u> </u>			
Allocation of places						

#### **Additional information**

#### Workload

210 h

#### **Teaching cycle**



Modul	e title				Abbreviation	
Curren	t Topic	s in Quantum Techn	ology		11-EXN8-212-m01	
Modul	e coord	dinator		Module offered by		
chairp	erson o	of examination comm	ittee	Faculty of Physics a	and Astronomy	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
8	nume	erical grade				
Durati	on	Module level	Other prerequisites			
1 seme	ester	graduate	Approval from exam	ination committee r	equired.	
Conte	nts					
		s in experimental or t study abroad.	theoretical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
Intend	ed lear	rning outcomes				
Knowle Course V (4) +	edge. H es (type, R (2)	le/She is able to clas	ssify and to link the learnt. ours, language — if other than Ge	He/She knows abo	nich are necessary to acquire this ut fields of application.	
Metho	d of as	sessment (type, scope,		examination offered — if no	ot every semester, information on whether	
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						
Alloca	tion of	places				

#### **Additional information**

#### Workload

240 h

#### **Teaching cycle**



Module title Abbreviation						
Curren	t Topic	s in Quantum Techno	logy		11-EXN6A-212-m01	
Module	e coord	linator		Module offered by		
chairpe	erson o	f examination comm	ittee	Faculty of Physics a	and Astronomy	
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)		
6	nume	rical grade				
Duratio	on	Module level	Other prerequisites	Other prerequisites		
1 seme	ster	graduate	Approval from exan	Approval from examination committee required.		
Conten	its					
	•	s in experimental or tl study abroad.	neoretical physics. Credi	ted academic achiev	ements, e.g. in case of change of	
Intend	ed lear	ning outcomes				
The student posseses advanced knowledge meeting the requirements of a module in theoretical or experimental physics on Master's level in the study programme Quantum Technology. He/She commands knowledge in a current field in physics and insight into the measuring and calculating methods which are necessary to acquire this knowledge. He/She is able to classify and to link the learnt. He/She knows about fields of application.						
Courses (type, number of weekly contact hours, language — if other than German)						
_	(1) Odule 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

Language of assessment: German and/or English
Allocation of places
Additional information

#### Workload

180 h

#### **Teaching cycle**

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 $\textbf{Referred to in LPO I} \ \ (\text{examination regulations for teaching-degree programmes})$ 

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	_	184981		00 8/4/			
Modul	e title				Abbreviation		
Advan	ced Top	ics in Solid State Physic	s		11-CSFM-161-m01		
Modul	e coord	inator		Module offered by			
_	ing Dire	ector of the Institute of Th	neoretical Physics	Faculty of Physics a	and Astronomy		
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)			
6	nume	rical grade					
Duration	on	Module level	Other prerequisites	i			
1 seme	ester	graduate	Approval from exam	nination committee r	equired.		
Conter	ıts						
vered i	n any o			-	anced courses on topics not co- arch developments or to subjects		
Intend	ed lear	ning outcomes					
		advance their knowledge nsights into the connection			of Condensed Matter Physics		
Course	<b>es</b> (type, r	number of weekly contact hours,	language — if other than Ge	rman)			
V (3) +	R (1)						
			age — if other than German,	examination offered — if no	ot every semester, information on whether		
nutes) prox. 8 If a wri stead t of asse nation	a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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						
	tion of <sub> </sub>						
Additio	onal inf	ormation	-				
Worklo	Workload						
180 h							
Teachi	Teaching cycle						

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



Modul	Module title Abbreviation							
Advand	ced Top	oics in Physics			11-CSPM-161-m01			
Modul	e coord	inator		Module offered by	l			
chairpe	erson o	f examination committe	e	Faculty of Physics a	and Astronomy			
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)				
6	nume	rical grade						
Duratio	on	Module level	Other prerequisites	Other prerequisites				
1 seme	ster	graduate	Approval from examination committee required.					
Conter	ıts							
modul		se topics may relate eith	-	-	es not covered in any of the other subjects not included in the regu			
Intend	ed lear	ning outcomes						
		advance their knowledg nts into the connections	_	-	of nanostructure technology and			
Course	S (type, i	number of weekly contact hours,	language — if other than Ge	rman)				
V (3) +	R (1)							
		<b>sessment</b> (type, scope, langual ole for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether			
written	exami	examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes)						

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

AΙ	location	ot n	laces

#### **Additional information**

#### Workload

180 h

#### **Teaching cycle**



		1,109:11 -		V, X, F. 7	
Module title Abbreviation					Abbreviation
Advanced Topics in Quantum Technology					11-CSNM-212-m01
Modul	e coord	inator		Module offered by	
_	ging Dire	ector of the Institute of Th	neoretical Physics	Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites	i .	
1 seme	ester	graduate	Approval from exam	nination committee r	equired.
Conter	nts				
that ca	ın not b		odule. These lecture	s may either reflect r	ve lectures on advanced topics new developments in research or
Intend	ed lear	ning outcomes			
		deepen their knowledge ts into the interface betw			in quantum technology, thereby
Course	<b>es</b> (type, r	number of weekly contact hours, I	anguage — if other than Ge	rman)	
V (3) + Modul		t in: German or English			
		<b>sessment</b> (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
or oral pages) If a wri stead t of asse nation	examin or pres tten exa take the essmen date at	ation in groups (groups of sentation/talk (approx. 30 amination was chosen as a form of an oral examina	of 2, approx. 30 minutes).  method of assessmation of one candidate must inform student	ites per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-
Allocat	tion of p	olaces			
Additio	onal inf	ormation			
	-1				
Worklo	oad				
180 h	-ti				
Teachi	ng cycl	e			



# **Summer Term 2023**

(o ECTS credits)



Module	e title	'			Abbreviation
Selected Topics in Energy and Material Science				11-CSEM6-152-m01	
Module	e coord	inator		Module offered by	
chairpe	erson o	f examination committee		Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. con	ıpl. of module(s)	
6	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	undergraduate	Approval from exam	ination committee re	equired.
Conten	ts				
Selecte	ed topic	s of energy and material	s research.		
Intend	ed lear	ning outcomes			
tion me	ethods				stand the measuring and evalua- subject-specific contexts and
Course	<b>S</b> (type, r	number of weekly contact hours,	anguage — if other than Ger	rman)	
V (3) +	R (1)				
		sessment (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
or oral pages) If a write stead to fasse nation	examin or pres tten exa ake the essmen date at	ation in groups (groups sentation/talk (approx. 3 amination was chosen as form of an oral examina	of 2, approx. 30 minu o minutes). o method of assessmo tion of one candidate o must inform student	tes per candidate) o ent, this may be char e each or an oral exa	didate each (approx. 30 minutes) r project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-
Allocat	ion of p	olaces			
Additio	nal inf	ormation	•		
	_		•		
Worklo	ad				
180 h					
Teachi	ng cycl	e			
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	mmes)	



Module title Abbreviation					
Selected Topics in Solid State Physics				11-CSF6-152-m01	
Module	coordir	nator		Module offered by	
chairpe	rson of	examination committee		Faculty of Physics a	nd Astronomy
ECTS	Method	d of grading	Only after succ. con	npl. of module(s)	
6	numeri	cal grade	-		
Duratio	n /	Module level	Other prerequisites		
1 semes	ster (	undergraduate	Approval from exam	ination committee r	equired.
Content	ts		,		
Selecte	d topics	of Solid-State Physics.			
Intende	d learni	ing outcomes			
and eva	aluation		•	•	nd understand the measuring classify the subject-specific con-
Courses	<b>5</b> (type, nu	mber of weekly contact hours, l	anguage — if other than Ger	rman)	
V (3) + F	R (1)				
		essment (type, scope, langua for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
or oral e pages) If a write stead ta of asses nation o	examina or prese ten exar ake the f ssment i date at t	ation in groups (groups of entation/talk (approx. 30 mination was chosen as form of an oral examina	of 2, approx. 30 minu o minutes). method of assessmo tion of one candidate must inform student	tes per candidate) o ent, this may be char e each or an oral exa	didate each (approx. 30 minutes) r project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-
Allocati	ion of pl	aces			
Additio	nal info	rmation			
Worklo	ad				
180 h					
Teachin	ng cycle				
					_
Referre	d to in L	PO I (examination regulations	s for teaching-degree progra	mmes)	



	_		CO MENOVERNO		
Modul	e title			Abbreviation	
Advan	Advanced Topics in Solid State Physics				11-CSFM-161-m01
Modul	e coord	inator		Module offered by	
_	ging Dire	ector of the Institute of T sics	heoretical Physics	Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. cor	npl. of module(s)	
6	nume	rical grade			
Durati	on	Module level	Other prerequisites	<b>i</b>	
1 seme	ester	graduate	Approval from exan	nination committee r	equired.
Conter	nts				
vered i	in any o		ese topics may relate		anced courses on topics not co- arch developments or to subjects
Intend	ed lear	ning outcomes			
		advance their knowledgonsights into the connecti			of Condensed Matter Physics
Course	<b>es</b> (type, r	number of weekly contact hours,	language — if other than Ge	rman)	
V (3) +	R (1)				
		<b>sessment</b> (type, scope, langu le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether
nutes) prox. 8 If a wri stead to of asse nation	or c) or 3 to 10 p tten exa take the essmen date at	al examination in group pages) or e) presentation amination was chosen a e form of an oral examina	s (groups of 2, approx /talk (approx. 30 mir s method of assessm ation of one candidat r must inform studen	k. 30 minutes per car nutes). ent, this may be cha e each or an oral exa	e candidate each (approx. 30 mindidate) or d) project report (apnged and assessment may inmination in groups. If the method weeks prior to the original exami-
Alloca	tion of <sub> </sub>	olaces			
Additio	onal inf	ormation			
Worklo	oad				
180 h					
Teachi	ng cycl	e			

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



Modul	e title			Abbreviation	
Advan	Advanced Topics in Quantum Technology				11-CSNM-212-m01
Modul	e coord	inator		Module offered by	
_	ging Dire	ector of the Institute of T sics	neoretical Physics	Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. co	mpl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites	S	
1 seme	ester	graduate	Approval from exan	nination committee r	equired.
Conter	nts				
that ca	ın not b		nodule. These lecture	es may either reflect r	ve lectures on advanced topics new developments in research or
Intend	ed lear	ning outcomes			
		deepen their knowledge ts into the interface betw			in quantum technology, thereby
Course	<b>es</b> (type, r	number of weekly contact hours,	language — if other than Ge	erman)	
V (3) + Modul		t in: German or English			
		<b>sessment</b> (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether
or oral pages) If a wri stead t of asse nation	examir or pres tten exa take the essmen date at	nation in groups (groups sentation/talk (approx. 3 amination was chosen as a form of an oral examina	of 2, approx. 30 minutes). s method of assessmation of one candidater must inform studen	utes per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 mged and assessment may inmination in groups. If the method weeks prior to the original exami-
Alloca	tion of p	olaces			
Additio	onal inf	ormation			
Worklo	oad				
180 h			-		
Teachi	ng cycl	e			



Module	e title			Α	bbreviation	
Advanced Topics in Physics			1:	1-CSPM-161-m01		
Module coordinator				Module offered by		
chairperson of examination committee Faculty of P			Faculty of Physics and	Physics and Astronomy		
ECTS	TS Method of grading Only after succ. co			npl. of module(s)		
6	nume	rical grade				
Duration Module level Other prere		Other prerequisites	5			
1 semester graduate Approval from exam		nination committee req	uired.			
Conten	ıts					

This module will enable lecturers of Physics to teach advanced courses on topics not covered in any of the other modules. These topics may relate either to recent research developments or to subjects not included in the regular curriculum.

#### Intended learning outcomes

The students advance their knowledge and understanding of an advanced topic of nanostructure technology and acquire insights into the connections between research and teaching.

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

V(3) + R(1)

**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**

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#### **Additional information**

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#### Workload

180 h

### Teaching cycle

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

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Module title Abbreviation					Abbreviation
Current Topics in Quantum Technology			gy		11-EXN5-212-m01
Module coordinator				Module offered by	
chairp	erson o	f examination committ	ee	Faculty of Physics	and Astronomy
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
5	nume	rical grade			
Durati	on	Module level	Other prerequisites	1	
1 seme	ester	graduate	Approval from exam	nination committee i	required.
Conte	nts				
		in experimental or the tudy abroad.	oretical physics. Credit	ed academic achiev	vements, e.g. in case of change of
Intend	ed lear	ning outcomes			
physic rent fie knowle	s on Ma eld in pl edge. H	aster's level in the stud nysics and insight into e/She is able to classif	y programme Quantum the measuring and calo y and to link the learnt	Technology. He/Sh culating methods wh . He/She knows abo	dule in theoretical or experimental e commands knowledge in a curnich are necessary to acquire this but fields of application.
	_	number of weekly contact hour	s, language — if other than Ge	rman)	
V (2) + Modul		t in: German or English	<u> </u>		
		sessment (type, scope, lang le for bonus)	guage — if other than German,	examination offered — if n	ot every semester, information on whether
or oral pages) If a wri stead to of assenation	examir or pres tten exa take the essmen date at	nation in groups (group sentation/talk (approx. amination was chosen e form of an oral exami	s of 2, approx. 30 minu 30 minutes). as method of assessm nation of one candidate rer must inform student	ites per candidate) of ent, this may be cha e each or an oral exa	ndidate each (approx. 30 minutes) or project report (approx. 8 to 10 anged and assessment may inamination in groups. If the method weeks prior to the original exami-
Alloca	tion of p	olaces			
Additio	onal inf	ormation			
Worklo	oad				
150 h		<u> </u>			
Teachi	ing cycl	e			



Module	Module title Abbreviation					
Current Topics in Quantum Technology 11-EXN			11-EXN6-212-m01			
Module	coord	inator		Module offered by		
chairpe	erson o	f examination committee	<u> </u>	Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con		•	
6	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	graduate	Approval from exam	ination committee r	equired.	
Conten	ts					
		in experimental or theor tudy abroad.	retical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
Intende	ed lear	ning outcomes				
physics rent fie	s on Ma ld in pl	ster's level in the study	programme Quantum e measuring and cald	Technology. He/She culating methods wh	ule in theoretical or experimental e commands knowledge in a cur- ich are necessary to acquire this ut fields of application.	
Course	<b>S</b> (type, r	number of weekly contact hours,	language — if other than Ger	man)		
V (3) + Module		t in: German or English				
		<b>sessment</b> (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
or oral pages) If a writ stead t of asse nation	examir or pres tten exa ake the essmen date at	ation in groups (groups sentation/talk (approx. 3 amination was chosen as form of an oral examina	of 2, approx. 30 minu o minutes). s method of assessmo tion of one candidate r must inform student	tes per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) r project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-	
Allocat	ion of p	olaces				
	,					
Additio	nal inf	ormation				
Worklo	ad					
180 h						
Teachi	ng cycl	e				



Module	e title				Abbreviation
Curren	t Topic	s in Quantum Technol	ogy		11-EXN6A-212-m01
Module	e coord	linator		Module offered by	
chairpe	erson o	of examination commit	tee	Faculty of Physics a	and Astronomy
ECTS	Meth	od of grading	Only after succ. co	ompl. of module(s)	
6	nume	erical grade			
Duratio	on	Module level	Other prerequisite	es	
1 seme	ster	graduate	Approval from exa	mination committee r	equired.
Conten	ts				
univers	ity or s	study abroad.	eoretical physics. Crec	lited academic achiev	ements, e.g. in case of change o
		ning outcomes			
physics rent fie	s on Ma ld in p	aster's level in the stud hysics and insight into	dy programme Quantu the measuring and ca	m Technology. He/Shalculating methods wh	lule in theoretical or experimenta e commands knowledge in a cur- nich are necessary to acquire this ut fields of application.
Course	<b>S</b> (type, i	number of weekly contact hou	ırs, language — if other than G	German)	
V (3) + Module		nt in: German or Englis	h		
		<b>sessment</b> (type, scope, lar ole for bonus)	nguage — if other than German	n, examination offered — if no	ot every semester, information on whether
or oral	examir		ps of 2, approx. 30 mir		didate each (approx. 30 minutes or project report (approx. 8 to 10

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

ΛІ	Incati.	an at	ni	200
AI	locatio	.,,, .,,	1116	11.65

#### **Additional information**

#### Workload

180 h

#### Teaching cycle



Module title Abbreviation				
Current Topics in Quantum Technology				11-EXN7-212-m01
Module coord	inator		Module offered by	
:hairperson o	f examination committee	e	Faculty of Physics	and Astronomy
ECTS Metho	od of grading	Only after succ. con	ıpl. of module(s)	
7 nume	rical grade			
Duration	Module level	Other prerequisites		
semester	graduate	Approval from exam	ination committee	required.
Contents				
Current topics university or s		retical physics. Credit	ed academic achiev	vements, e.g. in case of change of
ntended lear	ning outcomes			
rent field in pl knowledge. H		ne measuring and calc and to link the learnt.	ulating methods wl He/She knows abo	ne commands knowledge in a cur- hich are necessary to acquire this out fields of application.
/ (3) + R (1) Module taugh	t in: German or English			
<b>Method of ass</b> module is creditab		age — if other than German, o	examination offered — if n	ot every semester, information on whether
or oral examino ages) or presof a written exactead take the of assessmen ation date at	nation in groups (groups sentation/talk (approx. 3 amination was chosen a e form of an oral examina t is changed, the lecture	of 2, approx. 30 minugo minutes). s method of assessmeation of one candidate r must inform student	tes per candidate) ( ent, this may be cha e each or an oral exa	ndidate each (approx. 30 minutes) or project report (approx. 8 to 10 anged and assessment may inamination in groups. If the method weeks prior to the original exami-
Allocation of p				
<del>-</del>				
Additional inf	ormation			
-				
<b>N</b> orkload				
210 h		,		



Modul	o titlo	,			Abbreviation		
Module title  Current Topics in Quantum Technology					11-EXN8-212-mo1		
Current Topics in Quantum Technology			nogy	_	11-EAN8-212-III01		
Modul	e coord	linator		Module offered by			
chairp	erson o	f examination comm	ttee	Faculty of Physics a	and Astronomy		
ECTS	Meth	od of grading	Only after succ. co	mpl. of module(s)			
8	nume	rical grade					
Durati	on	Module level	Other prerequisites	5			
1 seme	ester	graduate	Approval from exan	nination committee r	required.		
Conte	nts						
	•	s in experimental or tl study abroad.	neoretical physics. Credi	ted academic achiev	rements, e.g. in case of change of		
Intend	led lear	ning outcomes					
Knowle	edge. H	e/She is able to class	o the measuring and cal sify and to link the learnt ours, language — if other than Ge	. He/She knows abo	nich are necessary to acquire this out fields of application.		
V (4) + Modul	. ,	it in: German or Engli	sh				
		sessment (type, scope, la	anguage — if other than German,	examination offered — if n	ot every semester, information on whether		
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						
Additio	onal inf	ormation					

#### Workload

240 h

#### **Teaching cycle**



Curron	Module title				Abbreviation	
Current Topics in Physik					11-EXP5-161-m01	
Modul	e coord	linator		Module offered by		
chairp	erson o	f examination committ	tee	Faculty of Physics	and Astronomy	
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites	;		
1 seme	ester	graduate	Approval from exan	nination committee i	required.	
Conter	nts					
		s in Experimental or The study abroad.	eoretical Physics. Credi	ted academic achiev	vements, e.g. in case of change of	
Intend	ed lear	ning outcomes				
Theoretical Physics of the Master's programme of Nanostructure Technology. They have knowledge of a current subdiscipline of Physics and understand the measuring and/or calculation methods necessary to acquire this knowledge. They are able to classify the subject-specific contexts and know the application areas.						
			·		e application areas.	
Course	S (type,		rs, language — if other than Ge		e application areas.	
Course V (2) + Metho	R (2)  d of ass	number of weekly contact hou	rs, language — if other than Ge	rman)	e application areas.  ot every semester, information on whether	
V (2) +  Metho module i written or oral pages) If a wri stead t of asse nation	R (2)  d of assisted a examination or presentation examination exa	number of weekly contact hour  sessment (type, scope, langular foliation)  nation (approx. 90 to 1 nation in groups (group sentation/talk (approx. amination was chosen to form of an oral exami	guage — if other than German,  20 minutes) or oral exacts of 2, approx. 30 minutes).  30 minutes).  as method of assessm nation of one candidat rer must inform studen	examination offered — if n umination of one can utes per candidate) o ent, this may be cha e each or an oral exa		

#### **Additional information**

#### Workload

150 h

#### **Teaching cycle**



			A11 !-a!			
Module title			Abbreviation			
Current Topics in Physik			11-EXP6-161-m01			
Module coordinator		Module offered by				
chairperson of examination committee	_	Faculty of Physics a	and Astronomy			
ECTS Method of grading	Only after succ. com	pl. of module(s)				
6 numerical grade						
Duration Module level	Other prerequisites					
ı semester graduate	Approval from exam	ination committee r	equired.			
Contents						
Current topics in experimental or theor university or study abroad.	etical physics. Credit	ed academic achiev	ements, e.g. in case of change of			
Intended learning outcomes						
knowledge. They are able to classify th  Courses (type, number of weekly contact hours, l	•		application areas.			
V (3) + R (1)						
<b>Method of assessment</b> (type, scope, langua module is creditable for bonus)	ge — if other than German, e	examination offered — if no	ot every semester, information on whether			
a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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						
Workload						

180 h

## **Teaching cycle**



		18678	5 (6) (2) (3) (5)	55 8, -1.9	
Module title Abbreviation					
Curren	t Topic	s in Physik			11-EXP8-161-m01
Modul	e coord	inator		Module offered by	
chairpe	erson o	f examination committee		Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. con	pl. of module(s)	
8	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	graduate	Approval from exam	ination committee r	equired.
Conter	its				
		of Experimental and The versity or study abroad.	eoretical Physics. Acc	redited academic ac	hievements, e.g. in case of
Intend	ed learı	ning outcomes			
Theore subdis	tical Ph cipline	ysics of the Master's pro	gramme of Nanostructure and the measuring and	cture Technology. Th I/or calculation metl	of a module of Experimental or new have knowledge of a current hods necessary to acquire this application areas.
Course	<b>S</b> (type, r	number of weekly contact hours,	anguage — if other than Ger	man)	
V (4) +	R (2)				
		<b>sessment</b> (type, scope, langua le for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether
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** 

Workload

240 h

**Teaching cycle** 



# Winter Term 2022

(o ECTS credits)



Module title Abbreviation						
Current	t Topic	s in Physik			11-EXP6-161-m01	
Module	e coord	linator		Module offered b	y	
chairpe	erson o	f examination commi	ttee	Faculty of Physics	s and Astronomy	
ECTS	Meth	od of grading	Only after succ. co	mpl. of module(s)		
6	nume	rical grade				
Duratio	n	Module level	Other prerequisite	S		
1 seme	ster	graduate	Approval from exar	mination committee	e required.	
Conten	ts					
		s in experimental or th study abroad.	eoretical physics. Cred	ited academic achi	evements, e.g. in case of change o	
Intende	ed lear	ning outcomes				
Theore subdis	tical Pł cipline	nysics of the Master's of Physics and under	programme of Nanostri	ucture Technology. nd/or calculation m	s of a module of Experimental or They have knowledge of a current ethods necessary to acquire this ne application areas.	
Course	<b>S</b> (type, i	number of weekly contact ho	urs, language — if other than G	erman)		
V (3) +	R (1)					
		<b>sessment</b> (type, scope, la	nguage — if other than German	, examination offered $-$ if	not every semester, information on whether	
nutes) prox. 8	or c) 01 to 10 p	ral examination in gro pages) or e) presentat	ups (groups of 2, appro ion/talk (approx. 30 mi	x. 30 minutes per c nutes).	one candidate each (approx. 30 m andidate) or d) project report (ap- nanged and assessment may in-	

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	

#### Workload

180 h

#### **Teaching cycle**



Module title					Abbreviation	
Current Topics in Physik					11-EXP5-161-m01	
Modul	e coord	inator		Module offered by		
chairp	erson o	f examination comm	ittee	Faculty of Physics and Astronomy		
ECTS	Metho	od of grading	Only after succ. co	mpl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites	Other prerequisites		
1 seme	ster	graduate	Approval from exar	Approval from examination committee required.		
Contents						
Current topics in Experimental or Theoretical Physics. Credited academic achievements, e.g. in case of change of university or study abroad.						
Intended learning outcomes						

The students have advanced competencies corresponding to the requirements of a module of Experimental or Theoretical Physics of the Master's programme of Nanostructure Technology. They have knowledge of a current subdiscipline of Physics and understand the measuring and/or calculation methods necessary to acquire this knowledge. They are able to classify the subject-specific contexts and know the application areas.

Courses (type, number of weekly contact hours, language - if other than German)

V(2) + R(2)

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

Allocati	on	of	pl	laces	

## **Additional information**

150 h

Workload

## **Teaching cycle**

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



Module title					Abbreviation
Current Topics in Physik					11-EXP8-161-m01
Module	e coord	inator		Module offered by	
chairpe	erson o	f examination committee	2	Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
8	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	graduate	Approval from exam	ination committee r	equired.
Conten	its				
		of Experimental and The versity or study abroad.	eoretical Physics. Acc	redited academic ac	hievements, e.g. in case of
Intend	ed lear	ning outcomes			
subdis knowle	cipline dge. Th		nd the measuring and ne subject-specific co	d/or calculation met ntexts and know the	ney have knowledge of a current hods necessary to acquire this application areas.
V (4) +	R (2)				
		sessment (type, scope, langua ole for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether
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					

#### Additional information

#### Workload

240 h

#### **Teaching cycle**



Modul	e title	,		Abbreviation	
Current Topics in Quantum Technology					11-EXN5-212-m01
Module coordinator				Module offered by	
chairpe	erson o	f examination committee	!	Faculty of Physics a	and Astronomy
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
5	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	graduate	Approval from exam	ination committee r	equired.
Conter	its				
	•	in experimental or theor tudy abroad.	retical physics. Credit	ed academic achiev	ements, e.g. in case of change of
Intend	ed learı	ning outcomes			
rent fie knowle	ld in pl		e measuring and cald and to link the learnt.	culating methods wh . He/She knows abo	e commands knowledge in a cur- iich are necessary to acquire this ut fields of application.
V (2) +	R (2)	t in: German or English		.,	
Metho	d of ass	sessment (type, scope, langua	ge — if other than German,	examination offered — if no	ot every semester, information on whether
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					
Worklo	ad				
150 h					
	ng cycl	 e			



Module title					Abbreviation	
Current Topics in Quantum Technology					11-EXN6-212-m01	
Module	e coordinator			Module offered by		
chairpe	erson of examinatior	n committee		Faculty of Physics a	and Astronomy	
ECTS	Method of grading		Only after succ. com	pl. of module(s)		
6	numerical grade					
Duratio	on Module leve	el	Other prerequisites			
1 seme	ster graduate		Approval from exam	ination committee r	equired.	
Conten	nts					
	t topics in experimer sity or study abroad.		etical physics. Credit	ed academic achiev	rements, e.g. in case of change of	
Intend	ed learning outcome	es				
Knowle Course V (3) +	edge. He/She is able  (type, number of weekly  R (1)	to classify a		He/She knows abo	nich are necessary to acquire this ut fields of application.	
	e taught in: German					
	d of assessment (type s creditable for bonus)	e, scope, langua	ge — if other than German, e	examination offered — if no	ot every semester, information on whether	
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						
	•					
Additio	Additional information					

#### Workload

180 h

#### **Teaching cycle**



Module title					Abbreviation	
Current Topics in Quantum Technology					11-EXN7-212-m01	
Module coordinator				Module offered by		
chairpe	erson o	f examination committee	2	Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
7	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	graduate	Approval from exam	ination committee r	equired.	
Conten	its					
	•	in experimental or theoretudy abroad.	retical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
Intend	ed learı	ning outcomes				
rent fie knowle	ld in pl edge. H	nysics and insight into the e/She is able to classify	e measuring and cald and to link the learnt.	culating methods wh He/She knows abo	e commands knowledge in a cur- ich are necessary to acquire this ut fields of application.	
		number of weekly contact hours,	language — if other than Gei	man)		
V (3) + Modul		t in: German or English				
		<b>sessment</b> (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether	
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						
Allocat	ion of p	olaces				
Additional information						
Workload						
210 h						
Teachi	ng cycl	e				

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



Module title		Abbreviation				
Current Topics in Quantum Technology 11-EXN8-212-mo1						
Module coordinator		Module offered by				
chairperson of examination committee	!	Faculty of Physics and Astronomy				
ECTS Method of grading	Only after succ. com	ompl. of module(s)				
8 numerical grade						
Duration Module level	Other prerequisites					
ı semester graduate	Approval from examination committee required.		equired.			
Contents						
Current topics in experimental or theoretical physics. Credited academic achievements, e.g. in case of change of university or study abroad.						
Intended learning outcomes						
rent field in physics and insight into th knowledge. He/She is able to classify a Courses (type, number of weekly contact hours, V (4) + R (2) Module taught in: German or English	and to link the learnt.	He/She knows abo				
Method of assessment (type, scope, langua module is creditable for bonus)	nge — if other than German, o	examination offered — if no	ot every semester, information on whether			
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						

240 h

**Teaching cycle** 



Module title					Abbreviation		
Current Topics in Quantum Technology					11-EXN6A-212-m01		
Module	e coord	inator		Module offered by			
chairpe	chairperson of examination committee			Faculty of Physics and Astronomy			
ECTS	- '		Only after succ. con	cc. compl. of module(s)			
6	nume	rical grade					
Duratio	on	Module level	Other prerequisites	Other prerequisites			
1 semester		graduate	Approval from exam	Approval from examination committee required.			
Conten	its		,				
	Current topics in experimental or theoretical physics. Credited academic achievements, e.g. in case of change of university or study abroad.						
Intend	ed lear	ning outcomes					
The student posseses advanced knowledge meeting the requirements of a module in theoretical or experimental physics on Master's level in the study programme Quantum Technology. He/She commands knowledge in a current field in physics and insight into the measuring and calculating methods which are necessary to acquire this knowledge. He/She is able to classify and to link the learnt. He/She knows about fields of application.							
Course	<b>S</b> (type, r	number of weekly contact h	ours, language — if other than Ge	rman)			
V (3) + R (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)							
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							
Workload							
180 h							
Teaching cycle							



Modul	e title	,	Abbreviation				
Selected Topics in Energy and Material Science					11-CSEM6-152-m01		
Modul	e coord	inator		Module offered by			
chairperson of examination committee			!	Faculty of Physics and Astronomy			
ECTS	· 1		Only after succ. con	ompl. of module(s)			
6	nume	rical grade					
Duratio	Duration Module level Other prerequisites						
1 semester undergraduate Approval from examin			Approval from exam	nation committee required.			
Conter	nts						
Selecte	ed topio	cs of energy and material	s research.				
Intend	ed lear	ning outcomes					
The students have basic knowledge of energy and material research and understand the measuring and evaluation methods necessary to acquire this knowledge. They are able to classify the subject-specific contexts and know the application areas.							
Course	es (type, r	number of weekly contact hours,	anguage — if other than Ger	man)			
V (3) +	R (1)						
<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)							
or oral pages) If a wri stead to of assenation	examir or pres tten exa take the essmen date at	nation in groups (groups sentation/talk (approx. 3 amination was chosen as a form of an oral examina	of 2, approx. 30 minu o minutes). s method of assessmo tion of one candidate r must inform student	tes per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 mged and assessment may inmination in groups. If the method weeks prior to the original exami-		
Allocation of places							
Additional information							
Workload							
180 h							
Teaching cycle							
Referred to in LPO I (examination regulations for teaching-degree programmes)							



Module	Module title Abbreviation				
Selecte	ed Topi	cs in Solid State Physics	3		11-CSF6-152-m01
Module	e coord	inator		Module offered by	
chairperson of examination committee			Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ster	undergraduate	Approval from exam	ination committee r	equired.
Conten	its				
Selecte	ed topio	cs of Solid-State Physics.			
Intend	ed lear	ning outcomes			
The students have basic knowledge of a specialist field of Solid-State Physics and understand the measuring and evaluation methods necessary to acquire this knowledge. They are able to classify the subject-specific contexts and know the application areas.					
Course	<b>S</b> (type, r	number of weekly contact hours,	language — if other than Ger	rman)	
V (3) +	R (1)				
		sessment (type, scope, langua ble for bonus)	age — if other than German, o	examination offered — if no	ot every semester, information on whether
or oral pages) If a write stead to fasse nation	examir or pres tten exa ake the essmen date at	nation in groups (groups sentation/talk (approx. 3 amination was chosen as e form of an oral examina	of 2, approx. 30 minu o minutes). s method of assessmention of one candidate r must inform student	tes per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) r project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-
Allocat	ion of p	olaces			
Additio	nal inf	ormation	_		
Workload					
180 h					
Teachi	ng cycl	е			
Referre	ed to in	LPO I (examination regulation	s for teaching-degree progra	ımmes)	



Modul	e title			Abbreviation	
Advan	ced Top	ics in Solid State Physic		11-CSFM-161-mo1	
Modul	Module coordinator			Module offered by	
Managing Director of the Institute of The and Astrophysics		eoretical Physics	Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	graduate	Approval from exam	nination committee r	equired.
Conter	nts				
vered i	in any o				anced courses on topics not co- arch developments or to subjects
Intend	ed lear	ning outcomes			
		advance their knowledge sights into the connection			of Condensed Matter Physics
Course	<b>es</b> (type, r	number of weekly contact hours, l	anguage — if other than Ge	rman)	
V (3) +	R (1)				
		<b>sessment</b> (type, scope, langua le for bonus)	ge — if other than German,	examination offered — if no	ot every semester, information on whether
nutes) prox. 8 If a wri stead t of asse nation	or c) or 3 to 10 p tten exa take the essmen date at	al examination in groups pages) or e) presentation, amination was chosen as e form of an oral examina	(groups of 2, approx/talk (approx. 30 min method of assessmation of one candidate must inform student	a. 30 minutes per can utes). ent, this may be cha e each or an oral exa	e candidate each (approx. 30 mindidate) or d) project report (apnged and assessment may inmination in groups. If the method weeks prior to the original exami-
Alloca	tion of p	olaces			
Additio	onal inf	ormation			
Worklo	oad				
180 h					
Teachi	ng cycl	e			



Module	e title				Abbreviation	
Advanced Topics in Physics					11-CSPM-161-m01	
Module coordinator Mo				Module offered by	Į.	
chairpe	erson o	f examination comm	ittee	Faculty of Physics a	and Astronomy	
ECTS	Meth	od of grading	Only after succ. co	mpl. of module(s)		
6	nume	rical grade				
Duratio	on	Module level	Other prerequisite	prerequisites		
1 semester graduate Approval from examination committee required.		equired.				
Conten	ts					
This module will enable lecturers of Physics to teach advanced courses on topics not covered in any of the other modules. These topics may relate either to recent research developments or to subjects not included in the regular curriculum.						
Intend	ed lear	ning outcomes				
			edge and understanding ons between research an		of nanostructure technology an	
Course	<b>S</b> (type, 1	number of weekly contact ho	ours, language — if other than Ge	erman)		
V (3) +	R (1)					
		<b>sessment</b> (type, scope, la ble for bonus)	anguage — if other than German,	examination offered — if no	ot every semester, information on whether	
			120 minutes) or oral ex		didate each (approx. 30 minut	

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	Allocatio	ı ot p	laces
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## **Additional information**

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#### Workload

180 h

# **Teaching cycle**

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

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			NEO (ENGIN)	<i>V</i>		
Modul	e title				Abbreviation	
Advand	ced Top	ics in Quantum Technolo	ogy		11-CSNM-212-m01	
Modul	Module coordinator			Module offered by		
Managing Director of the Institute of The		neoretical Physics	Faculty of Physics a	and Astronomy		
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
6	nume	rical grade				
Duratio	on	Module level	Other prerequisites	i		
1 seme	ester	graduate	Approval from exam	ination committee r	equired.	
Conten	nts					
that ca	This module allows lecturers of the quantum technology study programme to give lectures on advanced topics that can not be covered by any other module. These lectures may either reflect new developments in research or deal with topics that are not included in the regular teaching cycle.					
Intend	ed lear	ning outcomes				
		deepen their knowledge Its into the interface betv			in quantum technology, thereby	
Course	<b>es</b> (type, r	number of weekly contact hours,	anguage — if other than Ge	rman)		
V (3) + Module		t in: German or English				
		<b>Sessment</b> (type, scope, langua	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
or oral pages) If a wri stead t of asse nation	examir or pres tten exa take the essmen date at	nation in groups (groups sentation/talk (approx. 3 amination was chosen as a form of an oral examina	of 2, approx. 30 minuto o minutes). s method of assessmition of one candidate r must inform student	ites per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 nged and assessment may inmination in groups. If the method weeks prior to the original exami-	
Allocat	tion of p	olaces				
Additio	onal inf	ormation				
Worklo	oad					
180 h	180 h					

Teaching cycle



# **Summer Term 2024**

(o ECTS credits)



		1300.41			
Modul	e title				Abbreviation
Curren	t Topics	s in Physik			11-EXP6-161-m01
Module coordinator				Module offered by	
chairperson of examination committee		9	Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)	
6	nume	rical grade			
Duratio	on	Module level	Other prerequisites		
1 seme	ester	graduate	Approval from exam	ination committee r	equired.
Conter	ıts				
	•	in experimental or theor tudy abroad.	retical physics. Credit	ed academic achiev	rements, e.g. in case of change of
Intend	ed learı	ning outcomes			
knowle Course	edge. Th	or Physics and understance are able to classify the number of weekly contact hours,	e subject-specific co	ntexts and know the	hods necessary to acquire this application areas.
V (3) +	R (1)		_		
		sessment (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether
nutes) prox. 8 If a wri stead t of asse nation	or c) or 3 to 10 p tten exa take the essmen date at	al examination in groups pages) or e) presentation amination was chosen as e form of an oral examina	s (groups of 2, approx /talk (approx. 30 min s method of assessm tion of one candidate r must inform student	30 minutes per car utes). ent, this may be cha e each or an oral exa	e candidate each (approx. 30 mindidate) or d) project report (apnged and assessment may institution in groups. If the method weeks prior to the original examination
Allocat	tion of p	olaces			
Additio	onal inf	ormation			
Worklo	oad				
					· · · · · · · · · · · · · · · · · · ·

180 h

**Teaching cycle** 



Module	title				Abbreviation	
Current	Topic	s in Physik			11-EXP5-161-m01	
Module	Module coordinator			Module offered by		
chairpe	rson o	f examination committee		Faculty of Physics a	and Astronomy	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	graduate	Approval from exam	ination committee r	equired.	
Conten	Contents					
		in Experimental or Theo tudy abroad.	retical Physics. Credit	ted academic achiev	rements, e.g. in case of change of	
Intende	ed lear	ning outcomes				
subdise knowle	cipline dge. Th		nd the measuring and e subject-specific co	d/or calculation met ntexts and know the	ney have knowledge of a current hods necessary to acquire this application areas.	
V (2) +		· · · · · · · · · · · · · · · · · · ·				
		sessment (type, scope, langua	ge — if other than German,	examination offered — if no	ot every semester, information on whether	
or oral pages) If a writ stead to of asse	examir or pres ten exa ake the ssmen date at	nation in groups (groups sentation/talk (approx. 3 amination was chosen as e form of an oral examina	of 2, approx. 30 minu o minutes). s method of assessmo tion of one candidate r must inform student	tes per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 mged and assessment may inmination in groups. If the method weeks prior to the original exami-	
Allocation of places						
Additio	nal inf	ormation				
Worklo	ad		-			
150 h						
Teachi	ng cycl	e				



Module title  Current Topics in Physik  11-EXP8-161-mo1				
Mandada a sandinata a				
Module coordinator Module offered by				
chairperson of examination committee Faculty of Physics and Astronomy				
ECTS Method of grading Only after succ. compl. of module(s)				
8 numerical grade				
Duration Module level Other prerequisites				
1 semester graduate Approval from examination committee required.				
Contents				
Current topics of Experimental and Theoretical Physics. Accredited academic achievements, e.g. in case of change of university or study abroad.				
Intended learning outcomes				
Theoretical Physics of the Master's programme of Nanostructure Technology. They have knowledge of a cu subdiscipline of Physics and understand the measuring and/or calculation methods necessary to acquire knowledge. They are able to classify the subject-specific contexts and know the application areas. <b>Courses</b> (type, number of weekly contact hours, language — if other than German)				
V (4) + R (2)				
<b>Method of assessment</b> (type, scope, language — if other than German, examination offered — if not every semester, information on who module is creditable for bonus)				
written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 mi or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to pages) or presentation/talk (approx. 30 minutes). If a written examination was chosen as method of assessment, this may be changed and assessment may stead take the form of an oral examination of one candidate each or an oral examination in groups. If the not assessment is changed, the lecturer must inform students about this by four weeks prior to the original nation date at the latest.  Language of assessment: German and/or English				
Allocation of places				
<del></del>				
Additional information				
Workload				
240 h				

**Teaching cycle** 



Module title Abbreviation					
Current Topic	s in Quantum Technolog	sy		11-EXN5-212-m01	
Module coord	inator		Module offered by	I.	
chairperson o	f examination committe	e	Faculty of Physics a	and Astronomy	
ECTS Metho	od of grading	Only after succ. con	npl. of module(s)		
5 nume	rical grade				
Duration	Module level	Other prerequisites			
ı semester	graduate	Approval from exam	ination committee r	equired.	
Contents					
Current topics university or s	•	retical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
Intended lear	ning outcomes				
physics on Ma rent field in pl	aster's level in the study	programme Quantum ne measuring and cald	Technology. He/Shoculating methods wh	ule in theoretical or experimental e commands knowledge in a cur- iich are necessary to acquire this ut fields of application.	
Courses (type, r	number of weekly contact hours,	language — if other than Ger	rman)		
V (2) + R (2) Module taugh	t in: German or English				
Method of ass		age — if other than German, o	examination offered — if no	ot every semester, information on whether	
or oral examir pages) or pres If a written exa stead take the of assessmen nation date at	nation in groups (groups sentation/talk (approx. g amination was chosen a e form of an oral examina t is changed, the lecture	of 2, approx. 30 minugo minutes). s method of assessmention of one candidate or must inform student	tes per candidate) o ent, this may be cha e each or an oral exa	didate each (approx. 30 minutes) or project report (approx. 8 to 10 mged and assessment may inmination in groups. If the method weeks prior to the original exami-	
Allocation of places					
Additional inf	ormation				
Workload					
WUIKIUAU					
150 h					



Module	e title				Abbreviation
Curren	Current Topics in Quantum Technology				11-EXN6-212-m01
Module coordinator				Module offered b	py
chairpe	erson o	f examination committee	2	Faculty of Physic	s and Astronomy
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
6	nume	rical grade			
Duration Module level Other prerequisites					
1 semester graduate Approval from examination committee required.			e required.		
Conten	its	,			
		s in experimental or theor study abroad.	retical physics. Credit	ed academic achi	evements, e.g. in case of change o
Intend	ed lear	ning outcomes			
physics rent fie	s on Ma ld in pl	aster's level in the study hysics and insight into th	programme Quantum ie measuring and cald	Technology. He/Sculating methods	odule in theoretical or experimenta She commands knowledge in a cur which are necessary to acquire this bout fields of application.
Course	S (type, i	number of weekly contact hours,	language — if other than Ge	rman)	
V (3) + R (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)					
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

## Workload

180 h

## Teaching cycle

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



Module title	Module title Abbreviation					
Current Topic:	s in Quantum Technolog	ry		11-EXN7-212-m01		
Module coord	inator		Module offered by			
:hairperson o	f examination committee	e	Faculty of Physics	and Astronomy		
ECTS Metho	od of grading	Only after succ. con	ıpl. of module(s)			
7 nume	rical grade					
Duration Module level Other prerequisites						
semester	graduate	Approval from exam	ination committee	required.		
Contents						
Current topics university or s		retical physics. Credit	ed academic achiev	vements, e.g. in case of change of		
ntended lear	ning outcomes					
rent field in pl knowledge. H		ne measuring and calc and to link the learnt.	ulating methods wl He/She knows abo	ne commands knowledge in a cur- hich are necessary to acquire this out fields of application.		
/ (3) + R (1) Module taugh	t in: German or English					
<b>Method of ass</b> module is creditab		age — if other than German, o	examination offered — if n	ot every semester, information on whether		
or oral examino ages) or presof a written exactead take the of assessmen ation date at	nation in groups (groups sentation/talk (approx. 3 amination was chosen a e form of an oral examina t is changed, the lecture	of 2, approx. 30 minugo minutes). s method of assessmeation of one candidate r must inform student	tes per candidate) ( ent, this may be cha e each or an oral exa	ndidate each (approx. 30 minutes) or project report (approx. 8 to 10 anged and assessment may inamination in groups. If the method weeks prior to the original exami-		
Allocation of p						
Additional inf	ormation					
-						
<b>N</b> orkload						
210 h		,				



Module title					Abbreviation	
Curren	t Topic	s in Quantum Technology	1		11-EXN8-212-m01	
Module coordinator				Module offered by		
chairpe	erson o	f examination committee		Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
8	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster	graduate	Approval from exam	ination committee r	required.	
Conten	its					
		in experimental or theor tudy abroad.	etical physics. Credit	ed academic achiev	rements, e.g. in case of change of	
Intend	ed lear	ning outcomes				
rent fie knowle	ld in pl dge. H		e measuring and cald and to link the learnt.	culating methods wh He/She knows abo	e commands knowledge in a curnich are necessary to acquire this out fields of application.	
V (4) +	R (2)	t in: German or English				
		<b>Sessment</b> (type, scope, langua	ge — if other than German,	examination offered — if n	ot every semester, information on whether	
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						
Workload						
240 h						
Teachi	Teaching cycle					



Modul	Module title Abbreviation					
Curren	Current Topics in Quantum Technology 11-EXN6A-212-mo1					
Modul	e coord	inator		Module offered by		
chairp	erson o	f examination committee		Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	ipl. of module(s)		
6	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ester	graduate	Approval from exam	ination committee r	equired.	
Conter	nts					
	•	in experimental or theor tudy abroad.	etical physics. Credit	ed academic achiev	ements, e.g. in case of change of	
Intend	ed lear	ning outcomes				
V (3) +	R (1)	e/She is able to classify and tip: German or English		· · · · · · · · · · · · · · · · · · ·	ut fields of application.	
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						

## Workload

180 h

# **Teaching cycle**



Module title					Abbreviation	
Selecte	Selected Topics in Energy and Material Science				11-CSEM6-152-m01	
Module	Module coordinator			Module offered by		
chairperson of examination committee		Faculty of Physics a	and Astronomy			
ECTS	Metho	od of grading	Only after succ. con	npl. of module(s)		
6	nume	rical grade				
Duratio	n	Module level	Other prerequisites			
1 seme	ster	undergraduate	Approval from exam	ination committee r	equired.	
Conten	ts					
Selecte	d topic	s of energy and material	s research.			
Intende	ed lear	ning outcomes				
tion me	ethods				stand the measuring and evalua- subject-specific contexts and	
Course	<b>S</b> (type, r	number of weekly contact hours,	language — if other than Ger	rman)		
V (3) +	R (1)					
	<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)					
or oral pages) If a writ stead to of asse nation	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					
Allocat	ion of p	olaces				
Additio	nal inf	ormation	•			
Workload						
180 h	180 h					
Teaching cycle						
Referre	d to in	LPO I (examination regulation	s for teaching-degree progra	ımmes)		



Module title Abbreviation					
Selected Topics in Solid State Physics				11-CSF6-152-m01	
Module coordinator			Module offered by		
chairperson of examination committee			Faculty of Physics a	nd Astronomy	
ECTS M	ethod of grading	Only after succ. con	npl. of module(s)		
6 nu	umerical grade				
Duration	Module level	Other prerequisites	5		
1 semeste	r undergraduate	Approval from exam	ination committee re	equired.	
Contents					
Selected t	opics of Solid-State Physics.				
Intended l	learning outcomes				
and evalua		•	•	nd understand the measuring classify the subject-specific con-	
Courses (ty	ype, number of weekly contact hours, l	anguage — if other than Ger	rman)		
V (3) + R (1	1)				
	f <b>assessment</b> (type, scope, langua ditable for bonus)	ge — if other than German, o	examination offered — if no	ot every semester, information on whether	
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					
Workload					
180 h					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					



Module title					Abbreviation	
Advanced Topics in Solid State Physics 11-CSFM-161-mo1					11-CSFM-161-m01	
Modul	e coord	inator		Module offered by		
Managing Director of the Institute of Theoretical Physics and Astrophysics			neoretical Physics	Faculty of Physics a	and Astronomy	
ECTS	Metho	od of grading	Only after succ. con	ıpl. of module(s)		
6	nume	rical grade				
Duration	on	Module level	Other prerequisites			
1 seme	ester	graduate	Approval from exam	ination committee r	equired.	
Conter	nts					
vered i	n any o		se topics may relate		anced courses on topics not co- arch developments or to subjects	
Intend	ed lear	ning outcomes				
		advance their knowledgensights into the connection			of Condensed Matter Physics	
Course	S (type, r	number of weekly contact hours,	language — if other than Ge	rman)		
V (3) +	R (1)					
		<b>sessment</b> (type, scope, langua le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether	
a) written examination (approx. 90 to 120 minutes) or b) oral examination of one candidate each (approx. 30 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes per candidate) or d) project report (approx. 8 to 10 pages) or e) 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						
Workload						
180 h						
Teaching cycle						

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



Module	Module title Abbreviation					
Advanced Topics in Physics 11-CSPM-161-mo1					11-CSPM-161-m01	
Module	e coord	inator		Module offered by		
chairperson of examination committee				Faculty of Physics and Astronomy		
ECTS	Metho	Method of grading Only after succ. compl. of module(s)				
6	nume	rical grade				
Duratio	on	Module level	Other prerequisite	5		
1 seme	ster	graduate	Approval from exar	proval from examination committee required.		
Contents						
This module will enable lecturers of Physics to teach advanced courses on topics not covered in any of the other modules. These topics may relate either to recent research developments or to subjects not included in the regular curriculum.						

## **Intended learning outcomes**

The students advance their knowledge and understanding of an advanced topic of nanostructure technology and acquire insights into the connections between research and teaching.

Courses (type, number of weekly contact hours, language - if other than German)

V(3) + R(1)

**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

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ΑII	ocai	tion	OT D	laces

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### **Additional information**

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#### Workload

180 h

## Teaching cycle

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

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Modul	le title		Abbreviation				
Advan	ced Top	ics in Quantum Technol		11-CSNM-212-m01			
Modul	Module coordinator			Module offered by	•		
	Managing Director of the Institute of Theoretical Physics and Astrophysics			Faculty of Physics a	and Astronomy		
ECTS	Meth	od of grading	Only after succ. cor	mpl. of module(s)			
6	nume	rical grade					
Durati	on	Module level	Other prerequisites	;			
1 seme	ester	graduate	Approval from exan	nination committee r	equired.		
Conte	nts		,				
that ca	an not b		nodule. These lecture	s may either reflect r	ve lectures on advanced topics new developments in research or		
Intend	led lear	ning outcomes					
		deepen their knowledge Its into the interface bet			in quantum technology, thereby		
Course	<b>es</b> (type, r	number of weekly contact hours,	language — if other than Ge	rman)			
V (3) +		t in: German or English					
		<b>sessment</b> (type, scope, langu le for bonus)	age — if other than German,	examination offered — if no	ot every semester, information on whether		
or oral pages) If a wri stead of asso nation	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							
<u>r</u>							
Additi	Additional information						
	<u></u>						
Workle	Workload						
180 h	180 h						
	- 1.						

Teaching cycle