

# M.Sc. Physics

# M.Sc. Applied Physics

Info, questions, answers...

Albert-Ludwigs-Universität Freiburg



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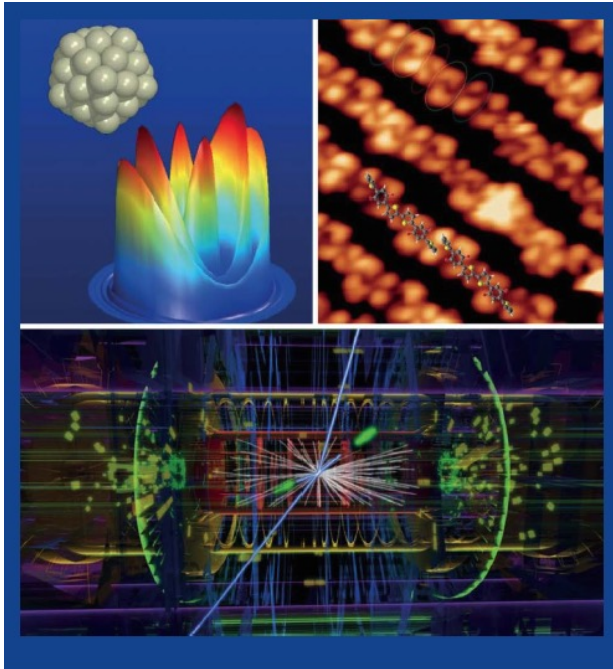
23.10.2023

PD Dr. Markus Walther

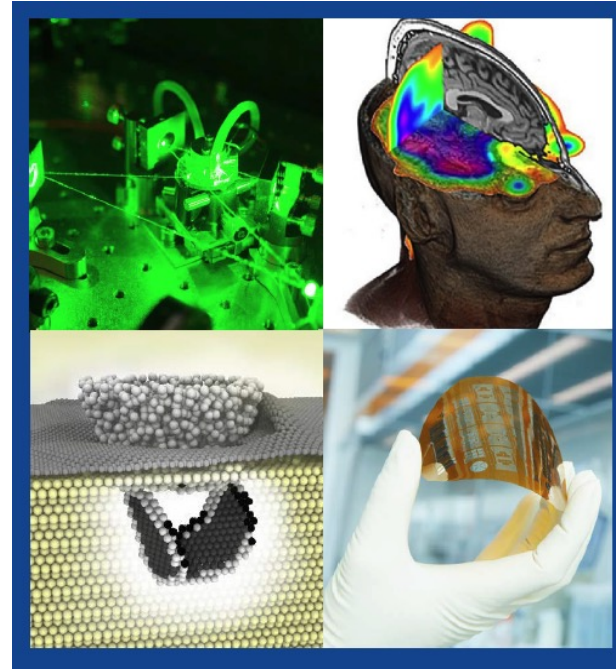
# Master programs in Freiburg



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Master of Science (M.Sc.)  
Physics



Master of Science (M.Sc.)  
Applied Physics

# Program – MSc Physics



Module	Type	Contact hours	EC TS	Compul- sory/ Elective	Recom- mended semester	Assessment
Advanced Quantum Mechanics	L+E	4+3	10	C	1 or 2	PL: written
Advanced Physics 1	L+E	4+2	9	E	1 or 2	PL: written or oral
Advanced Physics 2	L+E	4+2	9	E	1 or 2	PL: written or oral
Advanced Physics 3	L+E	4+2	9	E	1 or 2	SL
Elective Subjects	variable	variable	9	E	1 or 2	SL
Term Paper	S	2	6	E	1 or 2	PL: written or oral
Master Laboratory	Lab	10	8	C	1 or 2	PL: written or oral
Research Traineeship	-	-	30	C	3	SL
Master Thesis	-	-	28 2	C	4	PL: Thesis SL: Presentation

Abbreviations in table:

Type = type of course; L = lecture; E = exercises; S = seminar; Lab = laboratory;

C = compulsory module; E = elective module;

SL = assessed coursework ('Studienleistung'); PL = exam ('Prüfungsleistung')

# Final Exams - PL vs SL



## Prüfungsleistung (PL) / graded exam

- registration required
- **exam with grade**  
(contributes to final grade)
- failed exam must be repeated
- max 2 repetitions (3 tries)  
exception:  
Term Paper, Master Lab, Master Thesis  
(all only 1 repetition!)
- course can not be changed after exam  
registration deadline!

## Studienleistung (SL) / non-graded exam

- registration required
- exam with just **pass** or **fail**
- failed exam can be repeated
- infinite repetitions

# Program – MSc Physics



Module	Type	Contact hours	EC TS	Compul- sory/ Elective	Recom- mended semester	Assessment
Advanced Quantum Mechanics	L+E	4+3	10	C	1 or 2	PL: written
Advanced Physics 1	L+E	4+2	9	E	1 or 2	PL: written or oral
Advanced Physics 2	L+E	4+2	9	E	1 or 2	PL: written or oral
Advanced Physics 3	L+E	4+2	9	E	1 or 2	SL
Elective Subjects	variable	variable	9	E	1 or 2	SL
Term Paper	S	2	6	E	1 or 2	PL: written or oral
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# Program – MSc Physics



Recommendation for start in winter semester:

FS	Module				Σ ECTS	
1	<b>Advanced Quantum Mechanics</b> 10 CP	Advanced Physics 1 9 CP		<b>Term Paper</b> 6 CP	<b>Master Laboratory</b> 8 CP	33
2		Advanced Physics 2 9 CP	<b>Elective Subjects</b> Advanced Physics and/or other discipline by own choice 9 CP			27
		Advanced Physics 3 9 CP				
3	<b>Research Traineeship</b> 30 CP					30
4	<b>Master Thesis (Thesis and Presentation)</b> 30 CP					30

(for start in summer semester change 1st and 2nd semester)

# Program – MSc Applied Physics



Module	Type	Lecture hours	EC TS	Compul- sory/ Elective	Recom- mended semester	Assessment
Advanced Experimental Physics	L + E	4 + 2	9	E	1 or 2	PL written or oral
Advanced Theoretical Physics	L + E	4 + 2	9	E	1 or 2	PL written or oral
Applied Physics	L + E	variable	18	E	1 or 2	PL written or oral
Elective Subjects	variable	variable	10	E	1 or 2	SL
Term Paper	S	2	6	E	1 or 2	PL written and oral
Master Laboratory Applied Physics	Lab	10	8	C	1 or 2	PL written and oral
Research Traineeship	-	-	30	C	3	SL
Master Thesis	-	-	28 2	C	4	PL: Thesis SL: Presentation

Abbreviations in table:

Type = Type of course; L = Lecture; E = Exercises; S = Seminar; Lab = Laboratory;  
 C = Compulsory module; E = Elective module;  
 PL = exam ('Prüfungsleistung'); SL = assessed coursework ('Studienleistung')

# Program – MSc Applied Physics



Recommendation for start in winter semester:

FS	Module				$\Sigma$ ECTS	
1	<b>Advanced Experimental Physics</b> 9 ECTS points	<b>Applied Physics</b> 18 ECTS points		<b>Term Paper</b> 6 ECTS points	<b>Master Laboratory Applied Physics</b> 8 ECTS points	28
2	<b>Advanced Theoretical Physics</b> 9 ECTS points		<b>Elective Subjects</b> 10 ECTS points			32
3	<b>Research Traineeship</b> 30 ECTS points				30	
4	<b>Master Thesis (Thesis and Presentation)</b> 30 ECTS points				30	

(for start in summer semester change 1st and 2nd semester)



- **Lecture Courses**  
(lectures, excercises, final exam)
- **Term Paper Seminar**  
(oral presentation, written report)
- **Master Laboratory**  
MSc Physics:  
block lab course (4 weeks), Feb/March, registration in Nov/Dec  
see website <http://www.physik.uni-freiburg.de/studium/labore/>
- MSc Applied Physics:  
6 experiments distributed over first year  
see website <http://www.physik.uni-freiburg.de/studium/labore/>

# Course Catalog



<https://www.physik.uni-freiburg.de/studium/vorlesungsverzeichnis>

## Master-of-Science (M.Sc.) Physics

### Compulsory Lecture

	SWS	CP	Zeiten	Raum	Dozent	Beginn
<a href="#">Advanced Quantum Mechanics</a>	4	10	Mi, Fr 10-12	HS I	Thoss	18.10.2023
Tutorials	3		n.V.			

### Advanced Physics 1-3 (Theory)

	SWS	CP	Zeiten	Raum	Dozent	Beginn
<a href="#">Classical Complex Systems</a>	4	9	Mo 10-12, Mi 12-14	SR I	Stock	16.10.2023
Tutorials	2		n.V.			
<a href="#">Theoretical Quantum Optics</a>	4	9	Mi, Do 14-16	HS II	Dufour, Buchleitner	18.10.2023
Tutorials	2		n.V.			
<a href="#">Quantum Chromodynamics and Collider Physics</a>	4	9	Di, Do 10-12	HS II	Dittmaier, Pellen	17.10.2023
Tutorials	2		Mo 14-16	SR I		
<a href="#">Dynamical Systems in Biology</a>	4	9	Di 12-14, Do 14-16	Di SR I, Do HS I <a href="#">ILIAS</a>	Timmer	17.10.2023
Übungen dazu	2					

### Advanced Physics 1-3 (Experiment)

	SWS	CP	Zeiten	Raum	Dozent	Beginn
<a href="#">Particle Detectors</a>	4	9	Di 8-10, Mi 12-14	SR GMH	Jakobs, Kuprash	18.10.2023
Tutorials	2		n.V.			
<a href="#">Advanced Atomic and Molecular Physics</a>	4	9	Di, Do 10-12	SR GMH	Sansone	17.10.2023
Tutorials	2		n.V.			
<a href="#">Advanced Particle Physics</a>			Mo, Di	Mo SR		

# Online Registration / HISinOne

<https://campus.uni-freiburg.de>



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Login

[Lost login data?](#)

## Campus Management - HISinOne

Albert-Ludwigs-Universität Freiburg



Application

Studies offered

Organisation

Help

Startpage

Applicants

Students

Guest Auditors

International Incomings

Doctoral Candidates

Lecturers

Employees

### Choose your portal



#### Applicants

You want to study and to apply for a study place.



#### Students

You are already a student and want to register for courses or check your marks.



#### Guest Auditors

You are registered as guest auditor and want to search and/or register for courses offered for you.



#### International Incomings

You are EUCOR, ERASMUS, University of Freiburg Global Exchange or Free Mover Incoming.



#### Doctoral Candidates

You are a doctoral candidate at the University of Freiburg or want to become one.



#### Lecturers

You are a lecturer and want to manage courses or edit grades.



#### Employees

You are an employee and want to manage courses or administrate examinations or participate in a training.

### Quicklinks



Search for courses

Show university course catalog

Show current courses

Courses institution-wide

Show university course catalog

Cancelled und proceeded courses, changes

Search for rooms

Search for persons

Help

Räume suchen und auf dem Stadtplan anzeigen lassen

HISinOne Manual

### Status student application portal



Green: all functions of the application portal are normally available

# Online Registration / HISinOne



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search menu

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Demo - HISinOne  
Albert-Ludwigs-Universität Freiburg

My Studies

Studies offered

Organisation

User information

Help

Bookmarks

You are here: Home > My Studies > Planner Of Studies with module plan

## Planner Of Studies with module plan Master of Science, Physik, Hauptfach, PO 2015

Show module plan → Select another course of study Printview

Help

Semester: winter semester 2019

Hide lectures Hide examinations and non-graded works

Search in course catalog

Expand all Collapse all

Structure of examination regulations - All subject related semesters

Actions

Status

07LE33PO-MSc-2015 - Physik, M.Sc., PO 2015

+ 07LE33M-AQM - Module: Advanced Quantum Mechanics - 10.0 ECTS

- 07LE33K-ADV\_PHYS1 - Module: Advanced Physics 1 - 9.0 ECTS

+ 07LE33M-ADV\_EXP\_AMO - Advanced Atomic and Molecular Physics - 9.0 ECTS

+ 07LE33M-ADV\_EXP\_OL - Advanced Optics and Lasers - 9.0 ECTS

- 07LE33M-ADV\_EXP\_CM1 - Condensed Matter Physics I: Solid State Physics - 9.0 ECTS

+ 07LE33V-ADV\_EXP\_CM1 - Condensed Matter Physics I: Solid State Physics - lecture course - 9.0 ECTS

apply

+ 07LE33Ü-ADV\_EXP\_CM1 - Condensed Matter Physics I: Solid State Physics - exercise course

+ 07LE33SL-ADV\_EXP\_CM1 - Condensed Matter Physics I: Solid State Physics - 9.0 ECTS (1 of 2)

enroll

+ 07LE33PL-ADV\_EXP\_CM1 - Condensed Matter Physics I: Solid State Physics - 9.0 ECTS (1 of 2)

enroll

+ 07LE33M-ADV\_EXP\_CM2 - Condensed Matter Physics II: Interfaces and Nanostructures - 9.0 ECTS

+ 07LE33M-ADV\_EXP\_PP - Advanced Particle Physics - 9.0 ECTS

signing-in for courses  
(available now)

enrolment for exams  
(available later)

# Teaching Platform / ILIAS

https://ilias.uni-freiburg.de



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Zentrale Lernplattform der Universität Freiburg  
Albert-Ludwigs-Universität Freiburg

Navigation icons: Mail, Profile (17), ILIAS (10), Search, Hilfe, User profile

PERSÖNLICHER SCHREIBTISCH ▾ | MAGAZIN ▾ | SUPPORT ▾

## Übersicht

Aktionen ▾

### Ihre Online-Evaluationen

Was bedeutet diese Box?

Keine offenen Onlineumfragen.

### Neuigkeiten - Letzte Woche

(1-5 von 13) weiter

Forum: Fragen zu Ilias  
14 Beiträge hinzugefügt.

Kurs: Humanmedizin 1. Studienabschnitt  
Es wurden 5 Dateien hinzugefügt.

Kurs: Humanmedizin 1. Studienabschnitt  
Lernort mit stabilem w-lan (Zugang über eduroam), auch zum Verfolgen von online-Veranstaltungen

Forum: Forum für Fragen zum digitalen Studienstart // Discussion Forum: Any Questions about your "digital start" at the University?  
16 Beiträge hinzugefügt.

Wiki: Werkzeugkasten "Digitale Lehre"  
BigBlueButton



### Ausgewählte Angebote

3. Advanced Experiment

[Hadron Collider Physics 2020](#)

3. Advanced Experiment

[Master Laboratory Applied Physics - Lab 5 - Measuring the Rotation of the Sun](#)

[Physics of Clusters and Nanoparticles](#)

[Trapping - Cooling - Quantum Control \(Summer 2020\)](#)

5. Elective Subjects

[Physics of Nano-Biosystems SS 2019](#)

5. Elective Subjects

[Quantum Field Theory in Curved Spacetime](#)

[Quantum Magnetism at the Nano Scale SS20](#)

Physisches Praktikum für Studierende der Medizin und Zahnmedizin (WS 2020/2021)

### Kalender

◀ Okt 2020 ▶

Mo	Di	Mi	Do	Fr	Sa	So
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

iCal

### Meine Portfolios

Portfolio hinzufügen

### Notizen

0 Notizen

### Mail

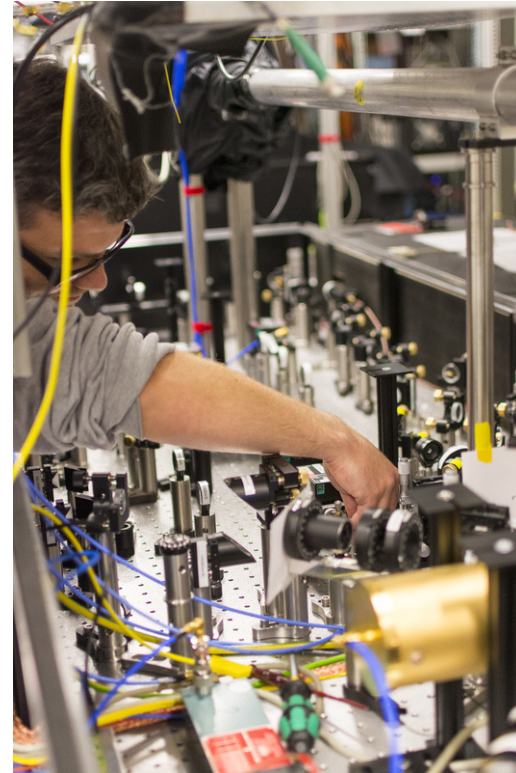
0 Mail(s)

# Research Traineeship & Master Thesis



## One year Research Phase:

- **Research Traineeship (6 months)**
- **Master Thesis (6 months)**  
Thesis and Colloquium (defense)



## Requirements:

- Master Lab
- 3 out of 4 PLs

MSc Physics: AQM, Adv Phys 1 and 2, Term Paper

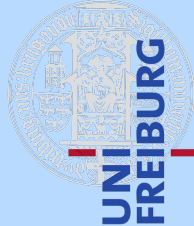
MSc Applied Physics: Adv Exp, Adv Theo, Applied Phys, Term Paper

# Research traineeship & Master Thesis



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## Uni Freiburg (Institutes):



- Mathematics
- Chemistry
- Biology (Neuroscience)
- University Hospital (Medical Physics)
- Technical Faculty (IMTEK)

## Leibniz Institute:

Kiepenheuer Institute  
for Solar Physics



## Physikalisches Institut



## Fraunhofer Institutes:



- ISE (Solar Energy)
- IWM (Materials Research)
- IAF (Solid State Physics)
- IPM (Measurement Techniques )
- EMI (High-Speed Dynamics)

## Research Centers of Uni Freiburg :

- FMF (Materials Research)
- FIT (Interactive / Bioinspired Materials)
- BIOSS (Biological Signalling Studies)
- FDM (Data Analysis)
- FRIAS (Advanced Studies)

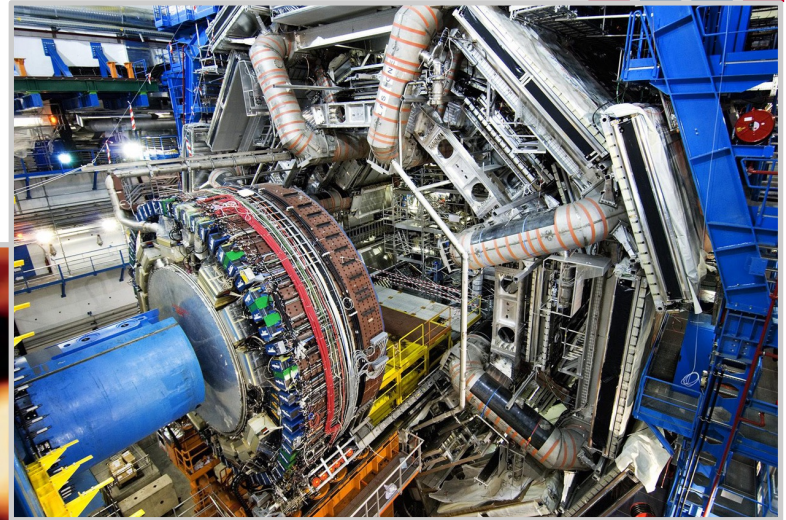
„external“ thesis  
(at other institution)

# Research traineeship & Master Thesis

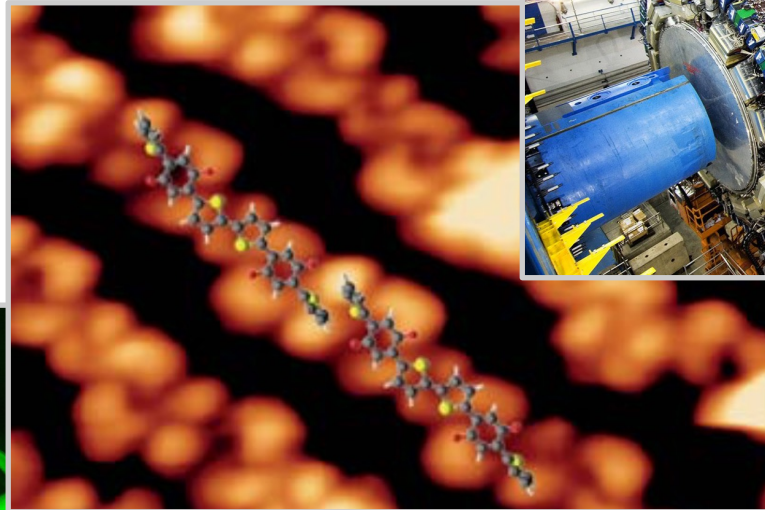


**BURG**

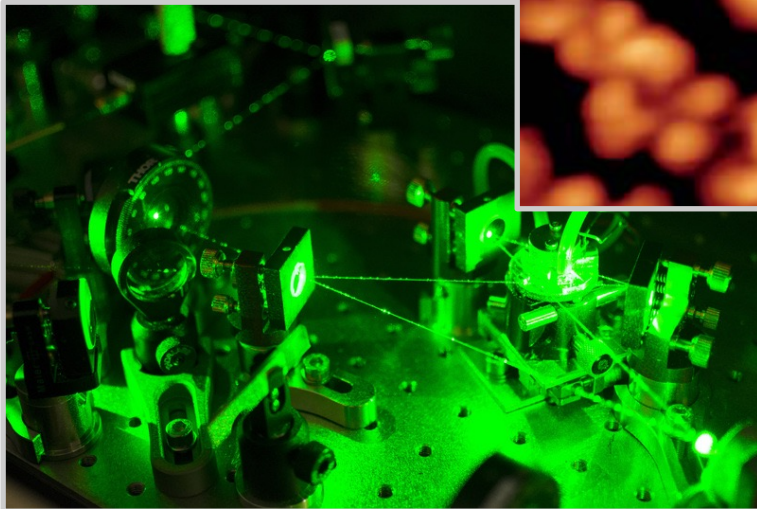
**Condensed Matter and Applied Physics**



**Atomic, Molecular and Optical Physics**



**Particles, Fields, Cosmos**



Poster presentations on research topics and available thesis projects: **end of semester (Jan/Feb)**

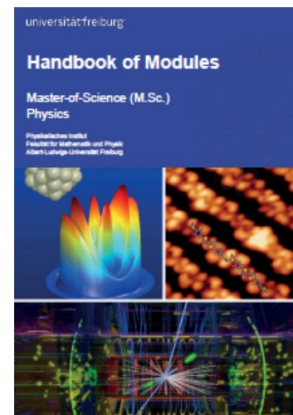


# Optional Specializations

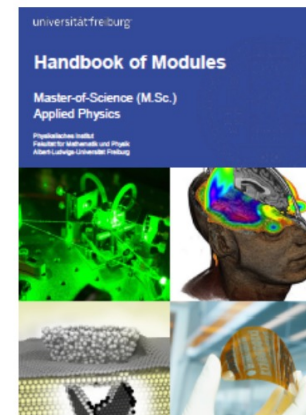


- **M.Sc. Physics**
  - Specialization in “Atomic, Molecular and Optical Physics”
  - Specialization in “Condensed Matter Physics”
  - Specialization in “Particle Physics”
- **M.Sc. Applied Physics**
  - Specialization in “Quantum Science and Technology” (new)
  - Specialization in “Applied Condensed Matter Physics” (new)

For more info  
Check-out Handbook of Modules:



Handbook of Modules  
M.Sc. Physics  
PO 2020



Handbook of Modules  
M.Sc. Applied Physics  
PO 2016



## Verwalten Sie Ihren Uni-Account selbst

## myAccount Login

### Anmelden

Wenn Sie bereits beim Rechenzentrum registriert sind und somit über einen Uni-Account verfügen, können Sie diesen hier verwalten.

Benutzerkennung

Die Benutzerkennung (ein Kürzel von max. 8 Zeichen) wurde Ihnen vom Rechenzentrum zugewiesen.

Passwort

Bitte auf Groß-/Kleinschreibung achten!

### Passwort vergessen?

Klicken Sie bitte hier:

Nur nutzbar, wenn Sie uns eine Mailadresse bekannt gegeben haben. Sie können oben schon Ihre Benutzerkennung eingeben!

### Registrieren

Angestellte der Universität, die noch keinen Uni-Account beim Rechenzentrum besitzen, können ihn sich hier einrichten.

#### Hinweis für Studierende

Studierende erhalten automatisch Benutzerkennung und Initialpasswort per EMail an Ihre bei der Immatrikulation hinterlegte Mail-Adresse zugesandt. Falls Sie die Benutzerkennung nicht (mehr) kennen, wenden sich an den [Nutzerservice](#). Bitte bringen Sie Ihre "UniCard" mit!

Wie ändere ich die [Standard-Sprache](#) in Firefox oder Internet Explorer?

Weiter



Sie sind hier: Startseite

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- Teaching & Studies
- Research
- Staff
- Scientific honesty and the principles of good scientific practice

## Willkommen am Physikalischen Institut



### Aktuelle Nachrichten

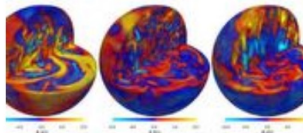
- [Nachruf - Das Physikalische Institut trauert um Prof. Dr. Erwin Rössle](#)
  - [Energie-Effizienz-Wettbewerb 2023](#)
  - [Bronzezeitliche Pfeilspitze von Mörigen wurde aus einem Meteorit gefertigt](#)
- [Weiter...](#)

### Informationen für Studierende

- [Mündliche Prüfungstermine Ex A / Theo A in HISinOne einsehbar](#)
  - [Anlaufstellen für übermäßig belastete Studierende](#)
  - [Arbeitsmarkt für Physikerinnen und Physiker 2021](#)
- [Weiter...](#)

## Neuigkeiten

[weitere Nachrichten](#)



**Physikalisches Kolloquium**  
**23.10.2023, 17:15 Uhr**  
"Stellar magnetism in natura and in silico"  
*Petri Käpylä*  
*Leibniz Institute for Solar Physics (KIS)*



**Informationen und Programm für Erstsemester-Studierende**  
Das Physikalische Institut und die Fachschaft Physik laden alle neuen Physikstudierenden zu den Einführungsveranstaltungen vom 02. bis 16. Oktober ein.



**Physikalisches Institut bei den Science Days**  
Physiker und Mitarbeiter der Werkstätten des Physikalischen Instituts geben bei den "Science Days" im Europapark Rust vom 19.-21. Oktober 2023 Einblicke in die Welt der

### Beliebte Links

- [Vorlesungsverzeichnis](#)
- [Physikalisches Kolloquium](#)
- [Videoportal des Physikalischen Instituts](#)
- [Experiment-Portal des Physikalischen Instituts](#)
- [Pressespiegel](#)
- [Fachschaft Physik](#)

each Monday during semester



# Fachschaft Physik / Student Council



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**get-together/pub crawl** for new master students  
**Tuesday, 24th October at 7 p.m.** at the Brennesel (Eschholzstraße 17)



**Westbau Physics**

[fachschaft@physik.uni-freiburg.de](mailto:fachschaft@physik.uni-freiburg.de)

# Student Advisory

<https://www.physik.uni-freiburg.de/studium-en/studienberatung-en/>



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## Institute of Physics



You are here: Home › Teaching & Studies › **Student Advisory**

### Student Advisory / Course Guidance

In case you have specific questions related to the study programmes or individual need for guidance, please contact the student advisors of physics:

#### Student Advisor B.Sc. and M.Sc.



**PD Dr. Markus Walther**

Westbau 01 024

Tel. +49 (0)761 203 5721

Office hours: Mon, Thu 10:30-12:00

E-Mail: [studienberatung@physik.uni-freiburg.de](mailto:studienberatung@physik.uni-freiburg.de)



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Course Catalog

Master (M.Sc.) Physics

Master-of-Science (M.Sc.)  
Applied Physics

PhD

**Student Advisory**

Examination Office

International / Erasmus

Student Labs / Lab Courses



Dates & Deadlines  
Forms & Applications