

Welcome to the Master Physics at TU Dortmund University

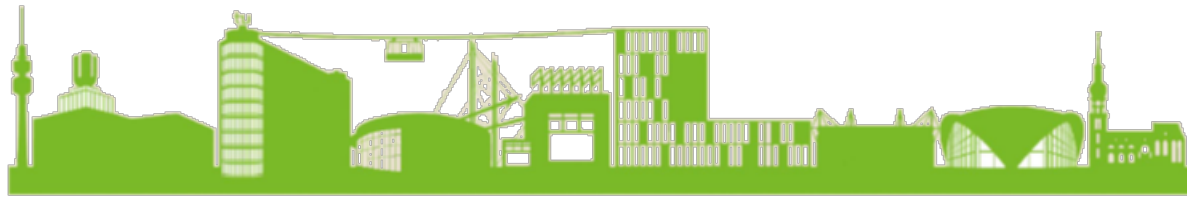


Jan Kierfeld (Dean of Studies)

Jörg Bünemann (Academic Advisor)

Caroline Wortmann (Study Coordination)

Chris Delitzsch (Erasmus, “International affairs”)



TU Dortmund University at a Glance



TU Dortmund University

Spectrum of disciplines

17 departments in the area of

- Science and engineering
- Humanities and social sciences

Key statistics at a glance

- Founded in 1968
- 6,598 employees, including 325 professors
- **Around 27.000 students (2025/26)**
- Approx. €422 million total expenditures (2022), including €98 million third-party funding



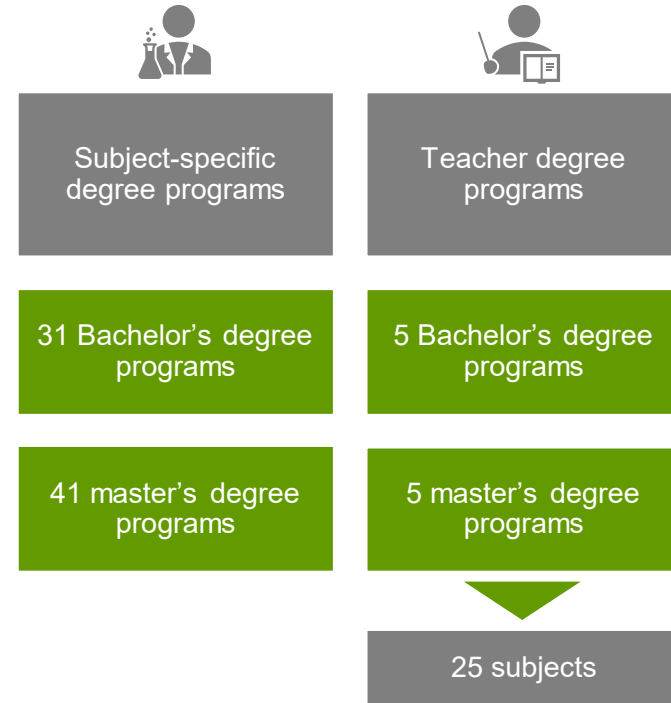


Studies and Teaching

Wide Range of Degree Programs

Broad selection

- Approx. 80 degree programs
- Teacher degree programs for all five types of schools, with around 25 subjects and six subjects in the area of special educational needs
- **60% of students are enrolled on natural science and engineering degree programs**
- 40% of students are enrolled on degree programs in the humanities and social sciences



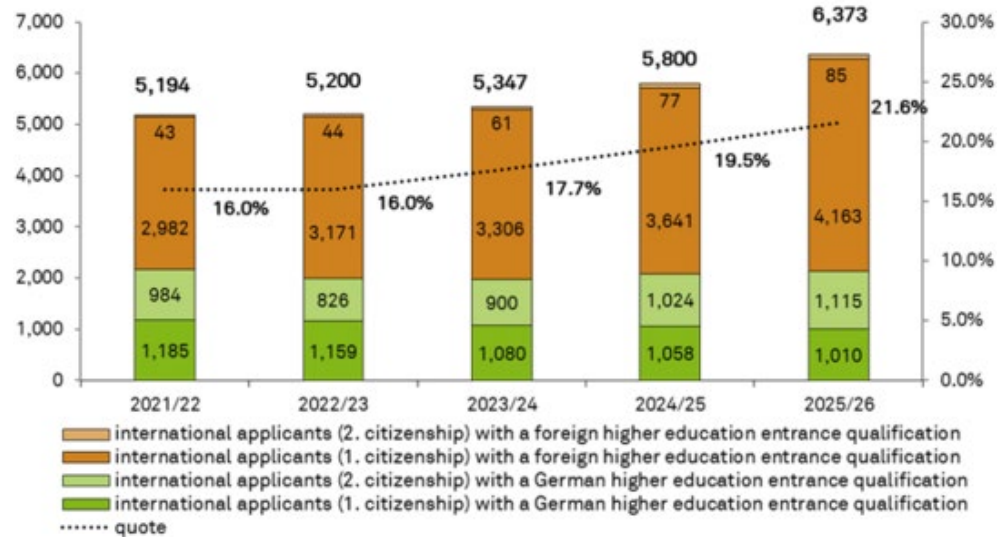
International: Students from All Continents

Cultural diversity on campus

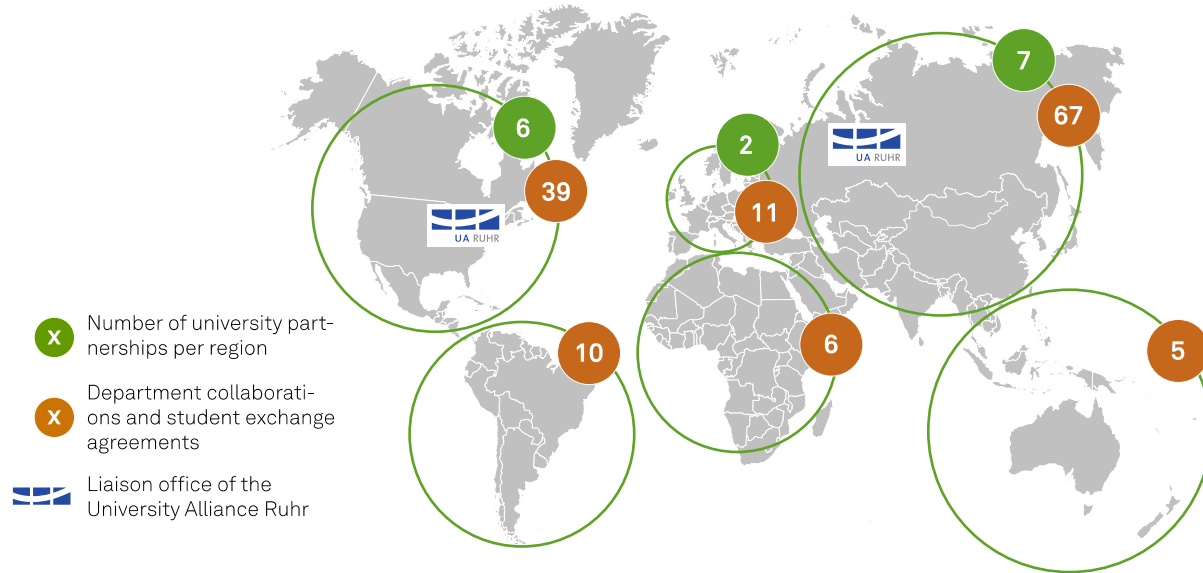
- 21.6% students with international background from around 120 different countries
- Comprehensive advisory and support program
- International Meeting Center

International study programs extended

- 15 English-language Master's degree programs



University Partnerships Throughout the World



- ▶ Around 380 cooperation agreements with universities worldwide, including 15 partnerships at university level and around 140 department collaborations and student exchange programs

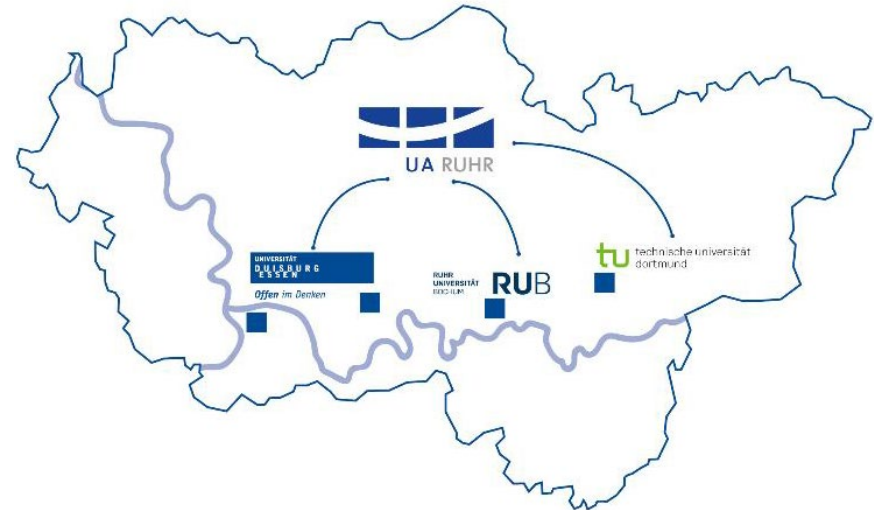
University Alliance Ruhr



University Alliance Ruhr: Better Together

Strategic cooperation since 2007

- TU Dortmund University, Ruhr University Bochum, University of Duisburg-Essen
- Around 1,300 professors
- Around 120,000 students
- More than 16,000 graduates per year
- Around €1.6 billion total budget, including around €390 million third-party funds
- Two UA Ruhr liaison offices: New York, Eastern Europe/Central Asia

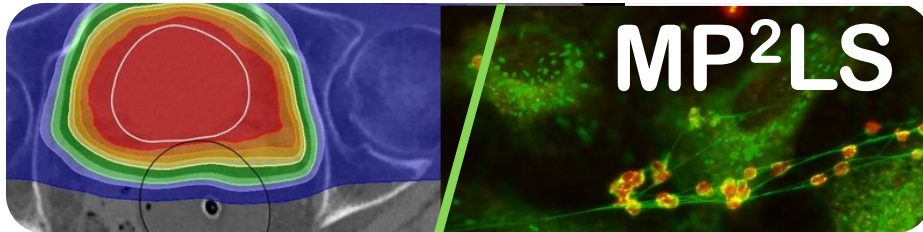


The physics department

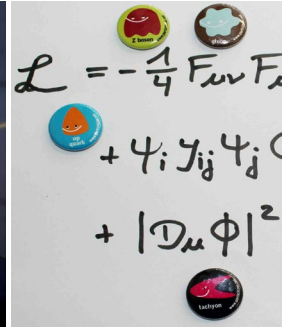
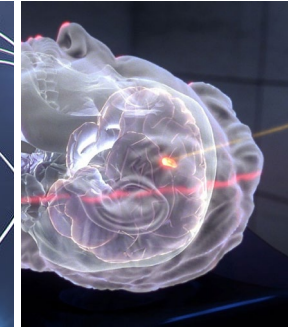
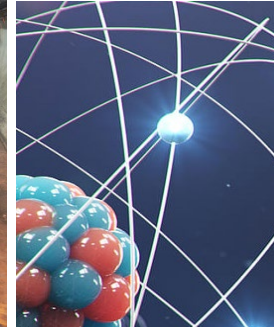
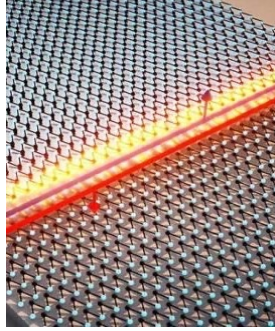
- 24 professors
- 800 students (bachelor, master, PhD)
- 3 international

Master programs:

Master Physics (English),
International **MA**ster in **P**article **P**hysics,
MAster **M**edical **P**hysics and **P**hysics of **L**iving **S**ystems



The physics department



Condensed
Matter

Particle

Atoms &
Molecules

Medical
Physics
&
Living
Systems

Teaching

- Main research areas:
 - solid-state physics (theory/experiment)
 - elementary particle physics (theory/experiment)
 - medical physics
 - atomic and molecular optics

Contact Infos

- Study advisor: Dr. Jörg Bünemann, joerg.buenemann@tu-dortmund.de
- Dean of Studies: Prof. Jan Kierfeld, jan.kierfeld@tu-dortmund.de
- Administrative contact within the department: Caroline Wortmann, studiendekanat.physik@tu-dortmund.de
- Administrative contact concerning exams/grades:
(central examinations office)
Team 3: Christian Burgsmüller, Birgit Kienitz, Susanne Will
pruefungsverwaltung-physik@tu-dortmund.de



Landing pages for international students:

- TU Dortmund:
<https://www.tu-dortmund.de/en/international/studying-at-tu-dortmund-university/>
- Physics Department:
<https://physik.tu-dortmund.de/en/international/international-students/>
- international students in Master Physics:
<https://physik.tu-dortmund.de/en/study/courses-and-qualification/master-physics/information-for-incoming-international-students/>



study plans, module handbook,
link to Isf (incl. translation), events.....

Welcome event for international students in M.Sc. Physics

When?
Thursday, 16th April 2026, 13:00 to 15:00 h

Where? Hybrid:

- Room CP-01-186; CPⁿ is the abbreviation for the new Physics building (address: Otto-Hahn-Straße 4, 44227 Dortmund); "01" is the first floor; "186" is the room number
- via [Zoom](#)

> Prospective Students

> Information for New Students

▼ Courses and Qualification

> Bachelor of Physics

▼ Master Physics

Admission

Course Structure

Module Handbook

Examination Regulations

Master Thesis

Information for incoming international students

> Bachelor of Medical Physics

The Master of Physics program

Description of the study programme

- Four semesters (can be started in any semester)
 - First year: deepen the students' knowledge of the subject
 - Second year: research phase that is completed with the writing of a Master's thesis
- A total of 120 credit points according to ECTS must be successfully completed

The study program is divided into modules, which comprise one or more courses. The grades of the module examinations are included in the final grade (weighted according to the credit points of the module). There is no final examination for the entire degree programme. The type of examination (oral, written) is specified in the module descriptions or announced at the beginning of the module.

Course information

The main areas of focus in our research, and thus also the possible areas of specialization for our M.Sc. Physics students, are in the fields of

The Master Physics

Entry Dates: October 1st (preferred), **April 1st is also possible**

Fees: no tuition fees, administrative fees of ~300 €/term

Duration: two years (four semesters)

2 phases:

1st year: course program (60 CP)

2nd year: research phase (60 CP), joining a research group, „master thesis“

The Master Physics

1st year (60CP):
2 semesters course program

mandatory: theory specialization module
theoretical particle physics
OR theoretical solid-state physics (12 CP)

mandatory:
Advanced lab course (6 CP)

2 seminars (6CP)
Elective modules (36 CP)
→ very flexible

2nd year (60CP):
2 semesters research phase
→ “master thesis”

formal substructure:

Research internship (15CP)
Methods and project planning (15CP)
Master thesis (30CP)

Students join one research group and
have one year for research-oriented
studies

The Master Physics

1st year: course program (60CP)

- **mandatory: theory specialization module (12CP, winter term)**
theoretical particle physics OR theoretical solid-state physics
lecture + exercises
advanced theory course!
choose your specialization: condensed matter or particle physics
- **mandatory: advanced lab course (6CP, winter term)**
lab work, experiments, take data, analyze data,
- **2 seminars (6CP)**
choose 2 seminars, study your topic, presentation skills
- **Elective modules (36CP)**
very flexible: choose from many electives,
deepen in your specialization, broaden your studies

The Master Physics

2nd year: strong research phase

“master thesis year“

Students join one research group and have one year for research-oriented studies in your specialization field

Formal substructure:

- Research internship (15 CP)
- Methods and project planning (15 CP)
- Master thesis (30 CP)

About 40% of graduates continue with PhD program

How to find information?

LSF:

<https://www.lsf.tu-dortmund.de/qisserver/rds?state=wtree&search=1&trex=step&root120252=195978|191518|192001&P.vx=kurz>

list of modules (lectures, seminars) offered by semester

module handbook:

<https://physik.tu-dortmund.de/en/study/courses-and-qualification/master-physics/module-handbook/>

list of/information on ALL modules (not by semester)

moodle:

<https://moodle.tu-dortmund.de>

course material, detailed information during semester

How to find information? LSF

LSF:

<https://www.lsf.tu-dortmund.de/qisserver/rds?state=wtree&search=1&trex=step&root120252=195978|191518|192001&P.vx=kurz>

list of modules (lectures, seminars) offered by semester

tu technische universität dortmund | lehrer studium forschung

Home | Logout | Your last login 14.04. | Mr. Jan Kierfeld | You are logged in as: mjankier | acting as: Department for Physik |

My Functions | **Lectures** | Faculties and Departments | Facilities | Members

You are here: Home

- Course Overview
- Search for Lectures
- Curricula Timetable
- Curricula Timetable (List)
- Edit Lecture
- Edit Lectures
- Copy Lectures
- Release Lectures
- Edit Header Structure for Lectures
- Lectures today
- Lectures today (with Search)
- Lectures (in specified times with search)
- Lectures cancelled today
- Hide menu

Course Overview (WiSe 2025/26)

View: > short > medium > long

Course Catalog

Physics

2) Courses Master Physics

Lect.-No.	Lecture	Type	Activity
020201	Introduction to Theoretical Solid State Physics - Anders	Vorlesung	
020202	Excercises to Theoretical Solid State Physics - Anders	Übung	Handle applications
020203	Introduction to Theoretical Elementary Particle Physics - Päs	Vorlesung	Handle applications
020204	Excercises to Theoretical Elementary Particle Physics - Päs	Übung	Handle applications
020207	Theory of Magnetism in Solids - Bünemann	Vorlesung mit Übung	Handle applications
020217	Modern Quantum Computing and Quantum Simulation - Fauseweh	Vorlesung mit Übung	Handle applications
020115	Beschleunigerphysik I/Accelerator Physics I - Schmidt, Helmi, Mai	Vorlesung mit Übung	Handle applications
020117	Detektorsysteme in der Teilchen- und Medizinphysik - Block, Weingarten, Wiedner, Hammi	Seminar	Handle

How to find information? Module Handbook

module handbook:

<https://physik.tu-dortmund.de/en/study/courses-and-qualification/master-physics/module-handbook/>
list of ALL modules plus informations (not by semester)

Module ID	Module Name	Level	Elective	Credits	Department	Semester	Other
PHY635	Advanced Solid State Physics I: Semiconductors and Light-Matter Interaction	L	elective	6	Department of Physics	SS	
PHY712	Accelerator Physics I	L+T	elective	6	Dean of the Department of Physics	WS	yes
PHY7238	Ethics of the Natural Sciences	S	elective	3	Rhode	WS	
PHY713	Soft Matter and Biophysics: Experiment and Theory	S	elective	3	Kierfeld	WS	
PHY714	Molecular Simulation of Soft Matter and Biological Materials	L+T	elective	6	Risselada	WS	
PHY722	Current Problems in the Field of Synchrotron Radiation Utilization and Tunneling Microscopy	S	elective	3	Dean of the Department of Physics	WS/SS	
PHY723	Key Experiments in Particle Physics	S	elective	4	Dean of the Department of Physics	annual	
PHY724	Measurement Methods in Surface Physics	L+T	elective	6	Westphal	WS	
PHY726	Accelerator Physics and Synchrotron Radiation: Applications in Solid State Physics	S	elective	3	Dean of the Department of Physics	WS/SS	
PHY727	Atomically Resolved Surface and Interface Analysis	L	elective	3	Dean of the Department of Physics	SS	
PHY728	Solid State Spectroscopy	S	elective	3	Dean of the Department of Physics	WS/SS	

Module: Advanced Laboratory Course for Master Students I (PHY742)				
Degree program: Physics (M.Sc.)				
Frequency:	Duration:	Semester:	Credits:	Work load:
in WS	1 semester	1st semester	6	180h
1 Module structure				
4 contact hours per week, laboratory course; experiments are performed in small groups, and supervised by experienced scientists.				
2 Language: English				
3 Content				
Physical experiments and measurement methods: The knowledge and skills acquired by the students from the laboratory courses of the Bachelor's program are deepened and extended with regard to current techniques. Advanced experiments on elementary particle, nuclear, atomic and solid state physics are carried out. The respective experimental instructions contain only a brief outline of the theoretical and experimental basics, so that the required knowledge must be acquired through self-study and the handling of (English) journals is learned.				
Literature: A script will be provided. Additional literature required for understanding e.g.: Bergmann, Schäfer, Textbook of Experimental Physics 1-6 (Walter de Gruyter 1990) Leo, Techniques for Nuclear and Particle Physics Experiments (Springer 1994). Thorne, Litzen, Johansson, Spectrophysics (Springer 1999).				
Trade journal articles				
4 Learning outcome				
The students are able to independently understand, perform and analyze complex experiments and to present the facts scientifically. They have learned to familiarize themselves independently with a topic (with English-language literature), as well as to select and apply a suitable method from various measurement techniques or analysis methods. Students have learned to look for errors and to correct them if necessary. The students are able to formulate a scientific work process linguistically, to document it and to discuss its results critically. They have learned to work in a team and to communicate scientifically with each other.				
5 Examination				
Course credits: Preparation, experimental performance and tested experimental protocols. Module examination: Graded oral examination (30 min).				
6 Participation requirements				
7 Module type				
Mandatory module				
8 Responsible			Faculty in charge	
Dean of the Department of Physics			Department of Physics	

How to find information? Moodle

moodle:

<https://moodle.tu-dortmund.de>

specific information on EACH module from the lecturers

- one moodle for each module
- get there (i) from the LSF
(ii) search in moodle
- eventually you need passwd to enroll from lecturer
- **material, specific information for each course**
- get your 2 factor authentication working!

Expected no. of participants		max. partici
Frequency	jedes Semester	Study Year
Credits	6CP	Assignment
Hyperlink		

E-Learning

[moodle](#) Diese Veranstaltung verfügt über einen Moodle-Arbeitsraum

The screenshot shows a Moodle course page for 'Theory of Soft and Biological Matter, SS26'. The page is titled 'Theorie von Soft and Biological Matter, SS26' and is managed by 'Allen Establoom'. It lists lecturers (Benedikt Saha, Jan Knebel, Václav Kabanča, Evangelos Koutsakis) and teaching assistants. The course includes dates for lectures (Tue 10-12, Wed 9-10) and exercises (Wed 9-10). A section titled '1. Dilute Systems, Fluids' contains a PDF file '1_Fluids.pdf' with a list of topics: 1. Kinetic Statistical physics of particles, 2. Brown Motion, Basic Concepts for simple and complex fluids, 3. Chaotic, Libratory, Principles of Condensed Matter Physics, 4. H. H. Lissakowski and B. Tassin: Colloids and the Dispersion Interaction, 5. H. Löwen, Fun with Hard Spheres. The page also lists 'Tutorials and exercise sheets', 'Literature', and 'Exam'.

Welcome Get Together

Save the date!

Networking Event for all Master Students in the Department of Physics

Get-to-know each other event for all Master students in the Department of Physics. Faculty members will also be on site, and there will be plenty of opportunities to ask questions.

When? Monday 27.04.26, 18:00h

Where? Physik – AV-room (P2-E0-414)