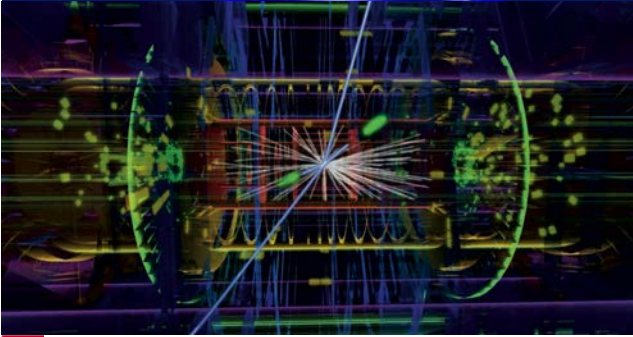
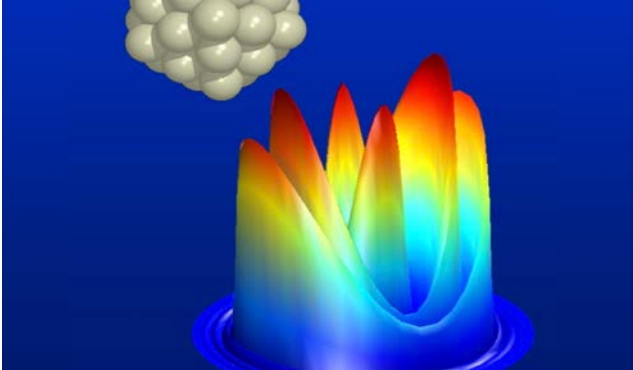
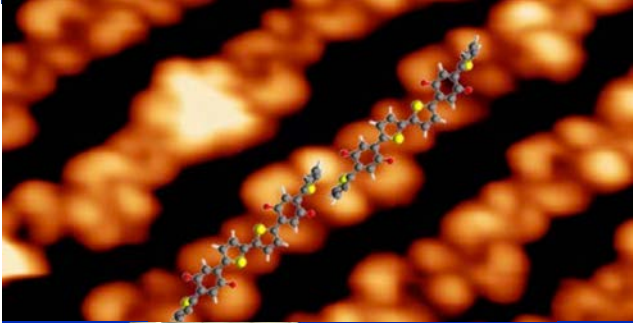
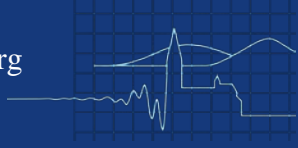


Master of Science

Physics

University of Freiburg
Institute of Physics



**UNI
FREIBURG**

Albert-Ludwigs-Universität Freiburg

The Master Program

The English-taught M.Sc. Physics aims to continue, deepen and broaden studies begun at Bachelor level. It provides a comprehensive scientific education in advanced theoretical and experimental physics, covering state-of-the-art topics in the institute's core research areas *Atomic, Molecular and Optical Physics, Condensed Matter and Applied Physics, and Particles, Fields and Cosmos*.

In the first year of their studies participants extend their knowledge in advanced theoretical and experimental physics. During their final one-year research phase students will specialize in a particular field by participating in a cutting-edge research project at the Institute of Physics or one of the associated research centers and prepare their Master thesis.

Successful students are qualified for independent research in physics and will be prepared for a scientific career in research, academia, or industry.



The Master program in Physics is designed for highly qualified graduate students. Participants will have the opportunity to

- be involved in cutting-edge research on forefront topics in modern physics.
- benefit from supervision by internationally renowned professors.
- participate in one of our international research training groups.
- live in one of Germany's most appealing cities.



Module Overview

Advanced Quantum Mechanics (10 ECTS)

The Advanced Quantum Mechanics lecture is compulsory.

Advanced Physics 1-3 (27 ECTS)

Choose from various lectures on Advanced Experimental or Advanced Theoretical Physics that provide advanced knowledge in the main research topics pursued at the Institute of Physics. Students may specifically select their lectures in order to obtain a specialized knowledge in a particular field of physics. Most lectures are offered regularly each second semester.

Topic A: Atomic and Molecular Physics

- Advanced Atomic and Molecular Physics
- Advanced Optics and Lasers
- Theoretical Quantum Optics

Topic B: Condensed Matter and Applied Physics

- Condensed Matter I: Solid State Physics
- Condensed Matter II: Interfaces and Nanostructures
- Theoretical Condensed Matter Physics
- Classical Complex Systems
- Complex Quantum Systems

Topic C: Particles, Fields & Cosmos

- Advanced Particle Physics
- Hadron Collider Physics
- Particle Detectors
- Astroparticle Physics
- General Relativity
- Quantum Field Theory
- Quantum Chromodynamics

Term Paper - Seminar (6 ECTS)

Choose from a range of seminar topics offered each semester.

Master Laboratory (8 ECTS)

Students perform advanced experiments covering current problems in physics, and learn experimental techniques and methods employed in modern research.

Elective Subjects (9 ECTS)

Your choice of master courses at the Institute of Physics and/or at other master programs at the University of Freiburg.

Research Traineeship (30 ECTS)

By participating in a current research topic students acquire advanced knowledge and prepare for their final Master thesis.

Master Thesis (30 ECTS)

Prepare your master thesis at the Institute of Physics or one of the affiliated research centers.

Total: 120 ECTS

The Institute of Physics

With currently 22 professors and three coopted members, the Institute of Physics is actively involved in a wide range of modern research topics in fundamental and applied physics research. Students benefit from this broad diversity of topics covered in lecture courses and seminars. The diversity and quality of the research and teaching program of the institute, embedded in the rich and interdisciplinary research landscape defined through the University of Freiburg and other institutions committed to research and development in the larger Freiburg area, are key ingredients for the attractiveness of the institute nation-wide, but also on the international level. At present, 330 students are enrolled for Bachelor and Master studies, 160 students work on their PhD, and more than 30 young researchers are at the PostDoc stage of their career. The Institute of Physics succeeded to establish three internationally well-recognized Research Training Groups – focused on atomic, molecular and optical physics, soft matter physics, and particle physics – providing first class graduate and post-graduate training.



Photo credits: M. Herrmann/ Institute of Physics

Freiburg and its University

Freiburg: best known for its high quality of life

The so-called Capital of the Black Forest enjoys more hours of sunshine than any other city in Germany and has a unique and charming atmosphere. Globally, it is also known as the “Green City” because of its high standards in environmental sustainability. Freiburg’s surroundings offer excellent facilities for skiing, hiking, cycling and mountain biking. With a total of 30,000 students in a population of 224,000, Freiburg is clearly a student town.

The University: a venerable and international institution

Founded in 1457, the University of Freiburg is one of the oldest and most renowned higher education institutions in Germany. We have partnerships with top universities, research institutions and businesses around the world and are proud to be a truly international university. With close to 3,500 international students and many internationally acclaimed scholars, the university offers a cosmopolitan and diverse atmosphere.

Facts and Figures:

Diploma:	MSc Physics
Credits:	120 ECTS, 2 years (4 semesters)
Language of instruction:	English
Start:	October (winter semester) or April (summer semester)
Application deadlines:	15 July / 15 January
Requirements:	BSc in Physics, outstanding performance, English proficiency
Study fees:	€ 1.500 per semester for international students from non-EU countries (exceptions apply)
Administrative semester fees:	€ 145 per semester

For information on study fees see:

www.studium.uni-freiburg.de/aktuelle-mitteilungen-en/studiengebuehren-international-en
(monthly living costs in Freiburg are about €800 to €900 total)

How to apply:

Please send the following documents by regular mail (not e-mail):

- Completed application form (online)
- A certified and translated copy of your undergraduate diploma.
- A certified and translated copy of your transcript of marks (Transcript of Records)
- Proof of English proficiency (B2-level), e.g. TOEFL, IELTS
- Curriculum vitae
- Statement of Intent

Contact:

Program coordination:

PD Dr. Markus Walther
Institute of Physics
Herrmann-Herder-Str. 3
D-79104 Freiburg

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