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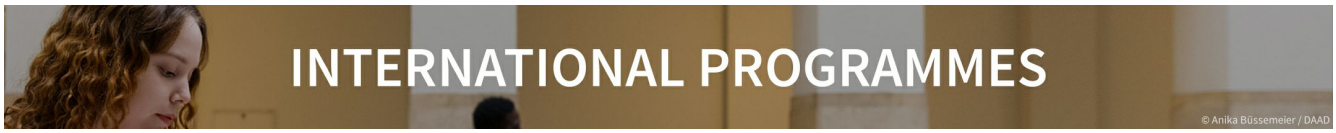

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Master's degree

Physics

RWTH Aachen University • Aachen





Overview

Degree	Master of Science (RWTH Aachen University)
Teaching language	• English
Languages	Courses are taught entirely in English.
Full-time / part-time	• full-time
Programme duration	4 semesters
Beginning	Winter and summer semester
Additional information on beginning, duration and mode of study	Beginning: Start in winter semester strongly recommended due to curriculum
Application deadline	Non-EU applicants: 1 March for the following winter semester and 1 September for the following summer semester EU applicants: 15 July for the following winter semester and 15 January for the following summer semester Apply here.
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	The worldwide renowned department of Physics of RWTH Aachen University, comprising of eleven institutes, offers an **international Master's programme in physics** held in English.

The programme provides the following:

- a rich variety of basic and specialised Master's courses
- participation in **top-quality research at one of the top technical universities in Germany**
- the opportunity to flexibly choose a desired course of study, either in the research of **particle and astroparticle physics or condensed matter physics**, with an experimental or a theoretical focus

RWTH Aachen University is a **world renowned institution** in the international community of particle physicists, both in **theoretical and experimental fields.** For instance, our institutes are involved in the CMS experiment at the Large Hadron Collider at CERN in Geneva, at which the last sought-after elementary particle of the standard model was discovered, the Higgs-Boson. Questions from astroparticle physics and cosmology are also answered through involvement in the AMS experiment on the International Space Station.

Research focuses in experimental solid-state physics are placed on quantum systems and the development of new materials. Here, we particularly profit from the **collaboration with research groups** at the nearby Forschungszentrum Jülich as part of the Jülich Aachen Research Alliance or JARA. Topics in the theory of condensed matter range from the study of electron systems to the research on quantum information.

The research groups in the Department of Physics have **strong international networks**. For this reason, the international experience of our graduates is very important to us. We happily support stays abroad. However, work with international research groups during Master's thesis also offers diverse opportunities for international experiences.

As a technical university, RWTH Aachen University offers many possibilities to get to know **interdisciplinary topics in engineering**. This is illustrated in the Master's specialisation field nanoelectronics, which is offered together with the Faculty of Electrical Engineering. The Fraunhofer Institute for Laser Technology or the Helmholtz Institute for Biomedical Technology are also collaborators.

Overall, the MSc Physics programme in Aachen offers graduates a great deal which prepares them outstandingly for later professional challenges in basic research or in industry.

Please find more information on our website.

Course Details

Course organisation

The international Master's programme in Physics at RWTH Aachen University is an **English-taught two-year programme**. In the first year, students join lectures, seminars and lab courses. In the second year, students can do individual research projects.

The international Master's **course structure** is organised along seven different tracks:
1) Experimental Particle Physics
2) Astroparticle Physics and Cosmology
3) Quantum Field Theory and Gauge Theories
4) Experimental Condensed Matter Physics
5) Nanoelectronics
6) Quantum Technology
7) Condensed Matter Theory

Each track implies several mandatory courses as well as elective courses. The elective courses can be chosen from various specialisation courses offered by the physics faculty and researchers at the research centre in Jülich as well as elective courses from other related Master's programmes. An overview of these courses is available in the course module catalogue (see here).

Subsidiary subjects
Courses from other Master's degree programmes can be selected to broaden your study profile. Examples include aerospace technology, astronomy, biomedical engineering, biophysics, chemistry, computer science, geophysics, laser technology, mathematics, patent law, philosophy, technical acoustics, and material physics.

	Laboratory courses and research projects The laboratory courses take place in special laboratories of the Department of Physics, which offer excellent, **up-to-date equipment**. The courses in the first year of study provide the qualification for the research project in the second year. The results of this research project are presented in the Master's thesis. The research project can be chosen from one of the current research fields of the Department of Physics, the Forschungszentrum Jülich, or of another institute of RWTH Aachen University. Please find an overview of the department's research activities here. » PDF Download
A Diploma supplement will be issued	Yes
International elements	• Projects with partners in Germany and abroad • International guest lecturers • Integrated/optional study abroad unit(s)
Integrated/optional study abroad unit(s)	RWTH Aachen University offers manyexchange programmes with other universities.
Diverse intercultural background of students	About one third of the students in the programme are international students.
Integrated internships	Mandatory internship in one of the research groups of the department as preparation for the Master's thesis
Course-specific, integrated German language courses	No
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	The RWTH Aachen University's semester fee of approx. 300 EUR is a student body and social contribution fee that every student must pay each semester in order to stay enrolled as an active student. It includes, among other benefits, a "semester ticket" covering free access to local public transportation within Germany ("Deutschlandticket").
Costs of living	The average cost of living, including food, accommodation, personal and social expenses, and study-related costs, is estimated to be at least 1,000 EUR per month. A detailed calculation can be found here.
Funding opportunities within the university	Yes
Description of the above-mentioned funding	Informations regarding financial matters and funding opportunitiesare listed here.

opportunities within the university	

Requirements / Registration

Academic admission requirements	• Bachelor's degree in Physics (or equivalent)
	• GRE subject test physics or GRE general test
	• Applicants for the programme must show their professional qualification by having acquired the following:
	  ◦ at least 17 ECTS credits in the field of Experimental Physics (Atoms, Molecules and Nuclei, Solid State Physics, Particles and Astrophysics)
	  ◦ at least 16 ECTS credits in the field of Theoretical Physics (Quantum Theory, Statistical Physics and Thermodynamics)
	  ◦ at least 9 ECTS credits of an Advanced Laboratory Course.
	
	These must be equivalent to the courses in the Bachelor's programme in Physics at RWTH Aachen University. If your submitted documents do not prove sufficient qualification in these fields, your application may be refused or you may be admitted to the Master's degree programme with the condition of having to take courses from the Bachelor's programme in Physics at RWTH Aachen University.

Language requirements	The English-taught Master's programme in Physics requires proficiency in English (oral and written) in order to understand lectures, textbooks, and manuals. English is also necessary for participation in laboratory projects, industrial internships, and examinations. Proficiency in English must be proven by one of the following certificates that can be found here.
Application deadline	Non-EU applicants: 1 March for the following winter semester and 1 September for the following summer semester EU applicants: 15 July for the following winter semester and 15 January for the following summer semester Apply here.
Submit application to	Please use the official online application portal of RWTH Aachen University and submit your electronic application.

Services

Career advisory service	Career for graduates
Support for international students and doctoral candidates	• Specialist counselling
General services and support for international students and doctoral candidates	Info Service Center – International Office

Course of Study: MSc Physics

The international Master's programme in Physics is a two-year programme. The first year consists of lectures, seminars, and lab courses. The second year is dedicated to an individual research project.

» more: https://www.youtube.com/watch?v=gSBCKv6sAwE

RWTH Aachen University

Main building RWTH Aachen University

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With 260 institutes, nine faculties and three Clusters of Excellence, RWTH Aachen University is one of Europe's leading institutions for science and research. Currently, more than 45,000 students are enrolled in 174 courses of study. Of these students, more than 14,000 are international students. RWTH Aachen is well-known for its state-of-the-art education that tackles some of the world's most pressing global challenges. Our graduates are highly sought after by businesses and industry as trainees and for executive positions.

University location

The student city of Aachen is a vibrant and historic place located at the border triangle of Germany, Belgium and the Netherlands. Aachen was a favoured residence of Charlemagne. After the departure of the Romans from this region, Charlemagne finally managed to forge the lion’s share of Europe into something that resembled an administrative unity, with Aachen as the beating heart of the empire. The "Rathaus" (city hall) and "Dom" (cathedral) bear witness to this earliest Carolingian building history. During your time in Aachen, you will have the opportunity to discover the city, its history and its most important sights. Moreover, you will experience student life at one of Europe's leading technical universities and become part of the international student community. There is no better place to encounter European culture while challenging yourself in our programmes.

Contact

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