Université Paris-Saclay

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M1 QUAntum Research Master Education Network – ERASMUS MUNDUS QUARMEN

Master's degree

Specialisation Physique fondamentale et applications

Enrolment type

Formation initiale

Formation continue

Language(s) of instruction

English

The **QUARMEN master** (QUAntum Research Master Education Network) is a two-year international **master's programme in physics**, specialized in **Quantum Science and Technology**. It aims at training students in key concepts and technologies for quantum devices and information. It is not possible to enter directly in the second year of the programme.

Quantum science and technology in one of the fastest progressing fields of knowledge, and structuring research and development in this field is one of Europe's priorities. In this context, QUARMEN attendees will be ready to develop innovative ideas and will have the opportunity of being directly involved in the activity of industrial and academic laboratories.

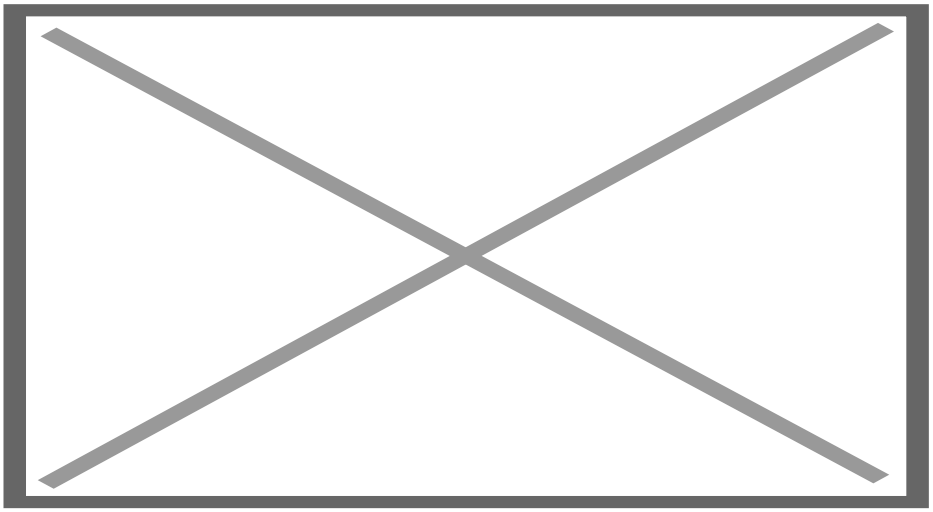
The medium of instruction is English.

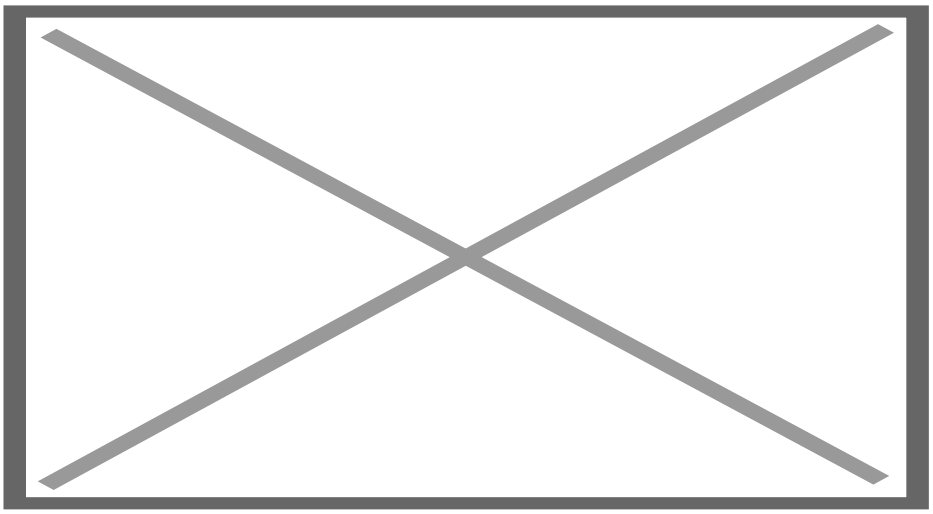
Scholarships are available.

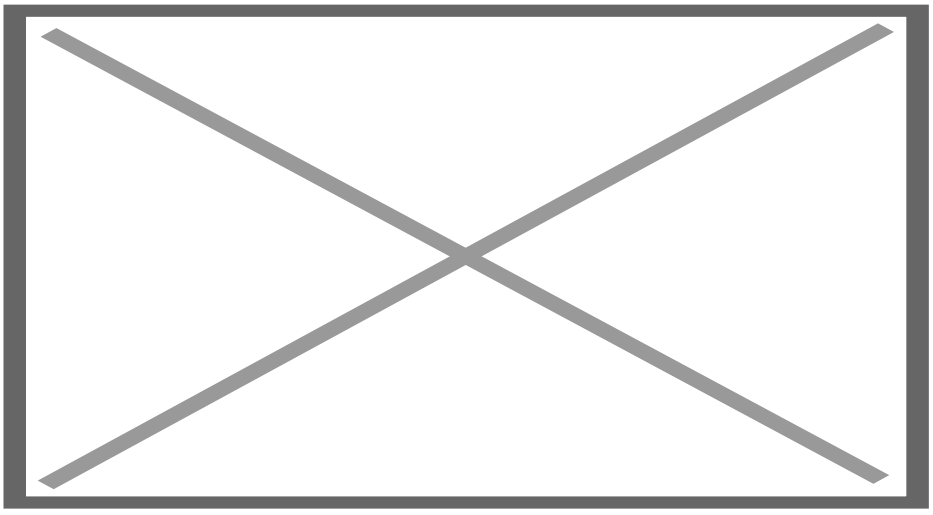
Check the website for more information: **https://www.master-quarmen.eu/**

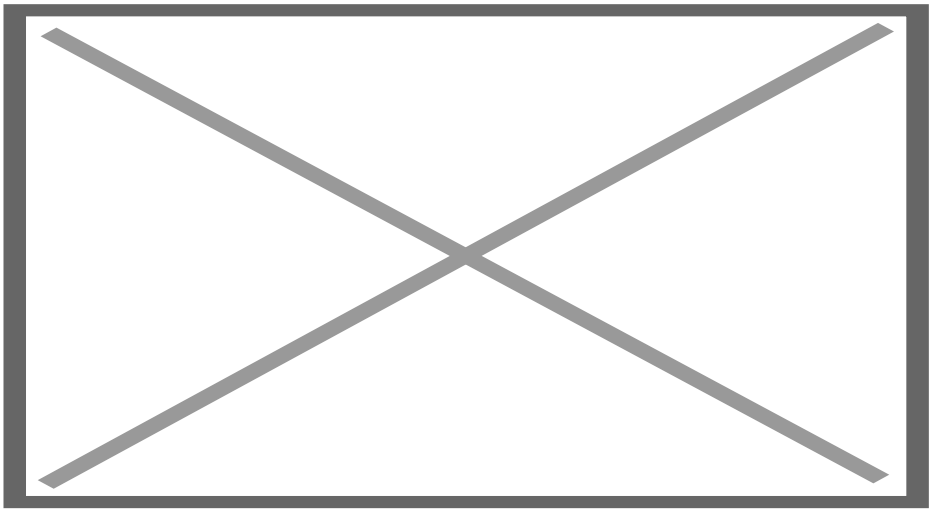
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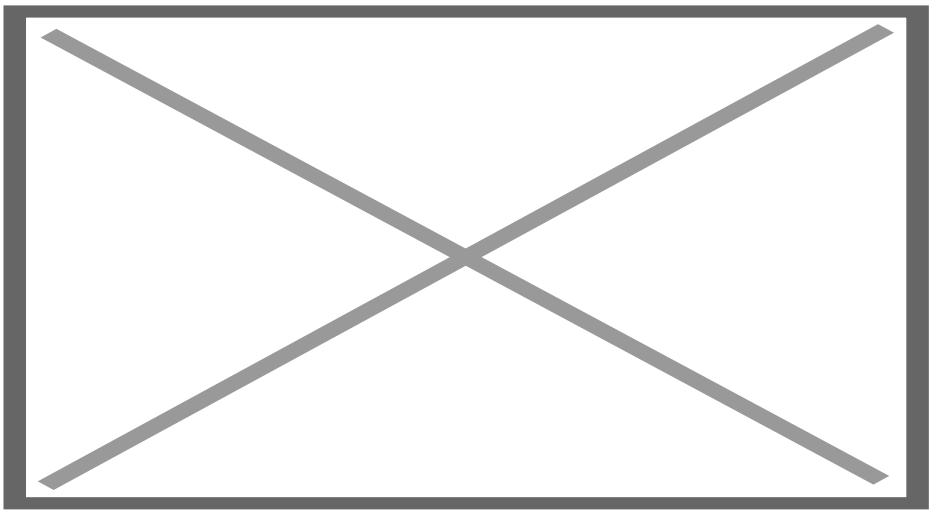
Apply Now











Information

- Overview
- Application requirements
- Schedule

Présentation

Skills

Diploma

At the end of the two years, QUARMEN students will get a **double or multiple diploma** (Master’s in Physics) from the universities they studied at. For example, a student who studied the first semester at Sapienza University of Rome, the second semester at Paris-Saclay University and the third semester at the University of Toronto, will get the three master’s degrees from those universities.

1 academic semester = 1 diploma !

Objectives

Mobility

This master includes compulsory mobility. Students must attend in at least 2 countries (different from their country of residence). They may create their own master's programme by choosing among different options:

- Semester 1: Sapienza University of Rome (Italy)
- Semester 2: University of Porto (Portugal) or Paris-Saclay University (France)
- Semester 3: University of Toronto (Canada) or Paris-Saclay University (France)
- Semester 4: 6-month internship in academia at the partner universities or private companies.

The training also includes a **winter school on science management and entrepreneurship and a Summer school on cutting edge topics of Quantum Science and Technology**.

In the second year, students can choose to further develop their skills in one of the **specialized areas: quantum photonics, quantum materials, nanoscience, cryptography, quantum control, and cold atoms**.

Admission

Admission Route

Physics

Capacity

Available Places

30

Target Audience and Entry Requirements

Please, note that applications must be submitted ONLY on the QUARMEN website: https://www.master-quarmen.eu/

- Applicants should have or should be in process to get a **Bachelor degree** (180 ECTS or equivalent) **in Physics** or related topics (**Engineering, Computer Science, etc**.).
- **English skills** (TOEFL, IELTS or other proof).

Applications must be submitted online. All documents must be in English.

Only certified translations will be accepted. All documents translated to English must come with a copy of the original document.

Original transcripts of records and degree certificates in French, Italian and Portuguese can be accepted.

Indicative calendar:

- November: opening of the applications
- Mid-March: deadline for admission and scholarships
- End of April: communication of the results (by email)
- Lectures start : beginning of september

Check the website for precise dates: **https://www.master-quarmen.eu/**

Supporting documents

Compulsory supporting documents

Copy of passport.

Motivation letter.

All transcripts of the years / semesters validated since the high school diploma at the date of application.

Certificate of English level.

Curriculum Vitae.

Recommendation letters.

Details of the UEs taken for candidates outside the M1 Paris Saclay.

Additional supporting documents

Copy of the last diploma.

VAP file (obligatory for all persons requesting a valuation of the assets to enter the diploma).

Supporting documents :
- Residence permit stating the country of residence of the first country
- Or receipt of request stating the country of first asylum
- Or document from the UNHCR granting refugee status
- Or receipt of refugee status request delivered in France
- Or residence permit stating the refugee status delivered in France
- Or document stating subsidiary protection in France or abroad
- Or document stating temporary protection in France or abroad.

Programme

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	dist lea co
Condensed matter physics	6	Semestre 1							

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	dist lea co
Charger le détail									
Introduction to quantum field theory	6	Semestre 1							
Charger le détail									
Non-linear and quantum optics	6	Semestre 1							
Charger le détail									
Physics Laboratory 1	6	Semestre 1							
Charger le détail									
Computing methods for physics	6	Semestre 1							
Charger le détail									
Language course	0	Semestre 1							
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	distan learni cours
Spring School	0	Semestre 2							
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	d l
Macroscopic Quantum Phenomena	6	Semester 2	30	20					
Charger le détail									
Advanced mathematics for physicists	3	Semester 2	20	10					
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	d l
Machine learning for Quantum Technology	3	Semestre 2	20	10					
Charger le détail									
Nanomaterials and Electronic Applications	3	Semester 2	16	14					
Charger le détail									
Quantum Hardware	3	Semestre 2	20	10					
Charger le détail									
Language course	3	Semestre 2							
Charger le détail									
Internship	6	Semester 2							
Charger le détail									
Research project	3	Semester 2							
Charger le détail									

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed study	Lecture/practical class	directed study/practical class	d l
Compulsory courses M1 QUARMEN Porto									
Introduction to quantum information	6	Semestre 2							
Charger le détail									
Quantum materials	6	Semestre 2							
Charger le détail									
High-performance computing	6	Semestre 2							
Charger le détail									
Language Course	3	Semestre 2							

Subjects	ECTS	Semester	Lecture	directed study	practical class	Lecture/directed	Lecture/practical	directed study/practical class	d l
Charger le détail									
Intership M1 QUARMEN Porto	3	Semestre 2							
Charger le détail									
Options M1 QUARMEN Porto									
Computational complexity	6	Semestre 2							
Charger le détail									
Sensing and signal analysis	6	Semestre 2							
Charger le détail									
Topics in theoretical physics	6	Semestre 2							
Charger le détail									

Teaching Location(s)

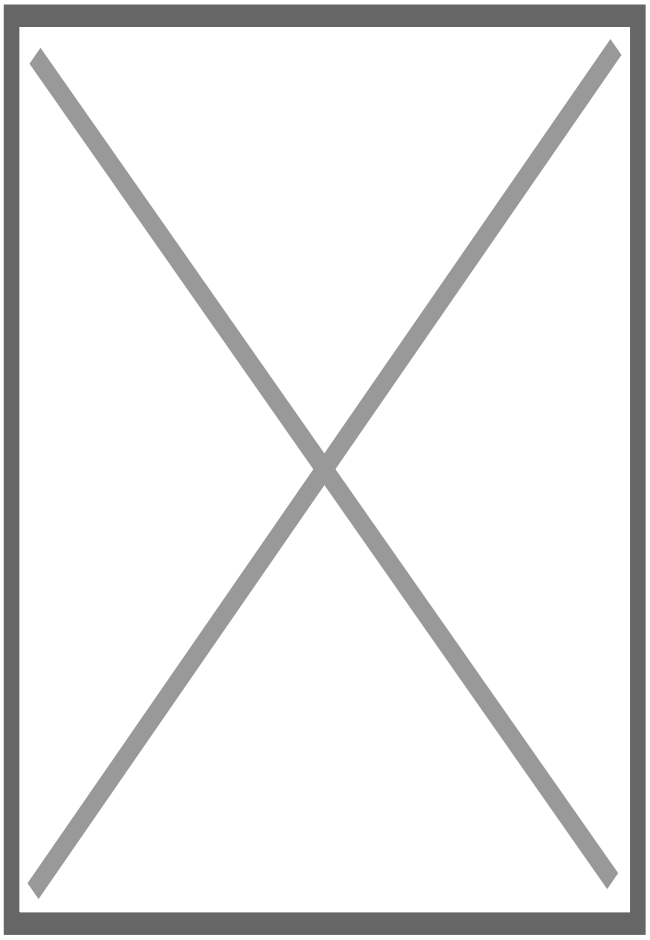
ORSAY

Academic Partner(s)

Semester 1: Sapienza University of Rome (Italy) - Semester 2: University of Porto (Portugal); Université Paris-Saclay (France) - Semester 3: University of Toronto (Canada); Université Paris-Saclay (France)

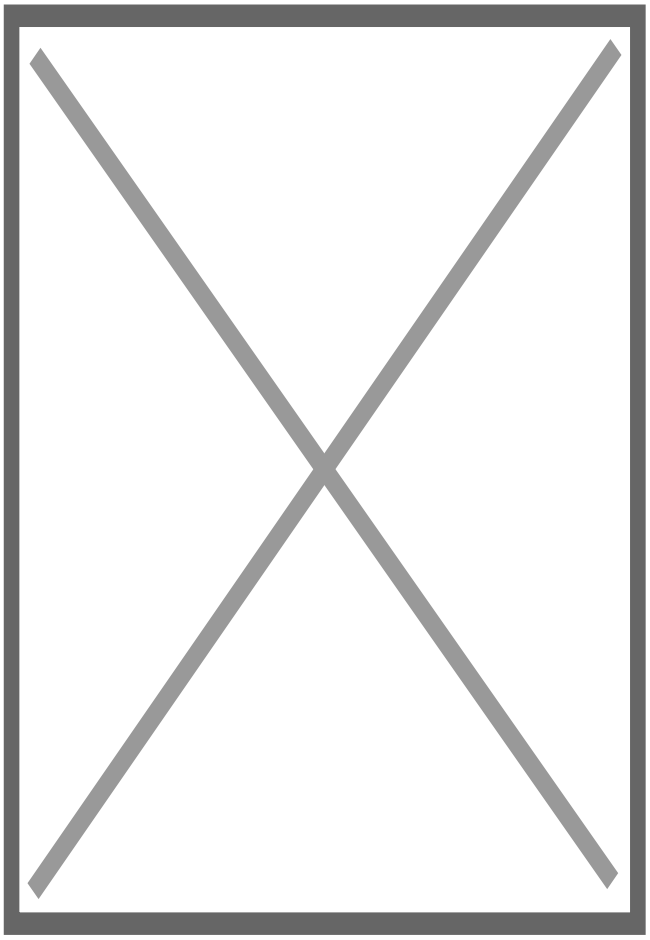
Training campus

Javascript est requis pour visualiser cette carte.



Orsay Bures

Orsay / Bures-sur-Yvette
Bus 4607, 4626
RER B Orsay ville ou Bures-sur-Yvette
Voir
Library
Community center



Saclay Moulon

Saclay / Gif-sur-Yvette / Orsay
Bus 4606 / 4609 / 4611 / 5154
RER B Le guichet
Voir
Student restaurant (CROUS)
Library
Sports facilities
Student residence

Contact

- **Marino MARSI**

http://www.universite-paris-saclay.fr/formation/master/physique-fondamentale-et-applications/m1-quantum-research-master-education-network-erasmus-mundus-quarmen