Université Paris-Saclay

Partager

Email destinataire :

Vous devez renseigner un email valide

Envoyer

Une erreur est survenue. Merci de réessayer ultérieurement

Le mail de partage a bien été envoyé.

Ajouter au comparateur

# M1 QUAntum Research Master Education Network – ERASMUS MUNDUS QUARMEN

Master
Mention Physique fondamentale et applications
Régime(s) d'inscription
Formation initiale
Formation continue
Langue(s) d'enseignement
Anglais

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.

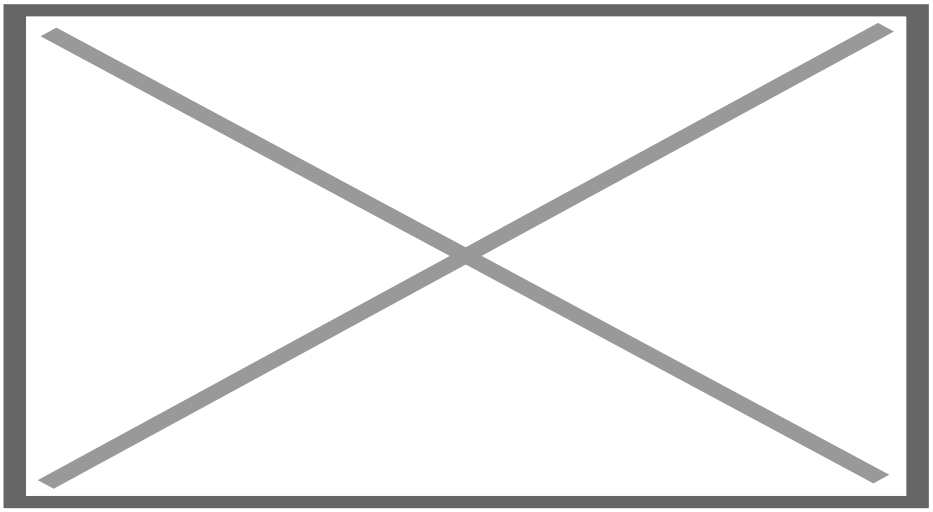
Quantum science and technology in one of the fastest progressing fields of knowledge, and structuring research and development in this field is one of Europe's priorities. In this context, QUARMEN attendees will be ready to develop innovative ideas and will have the opportunity of being directly involved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

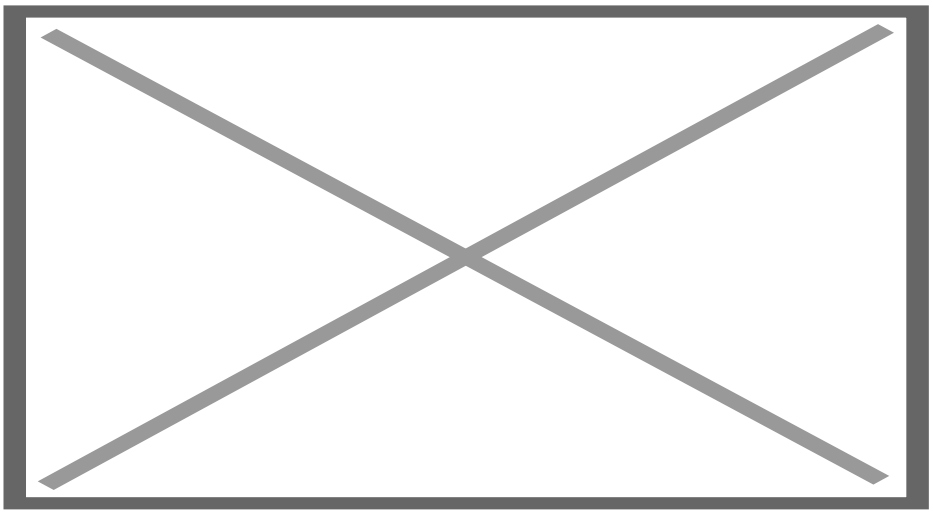
**The medium of instruction is English.**

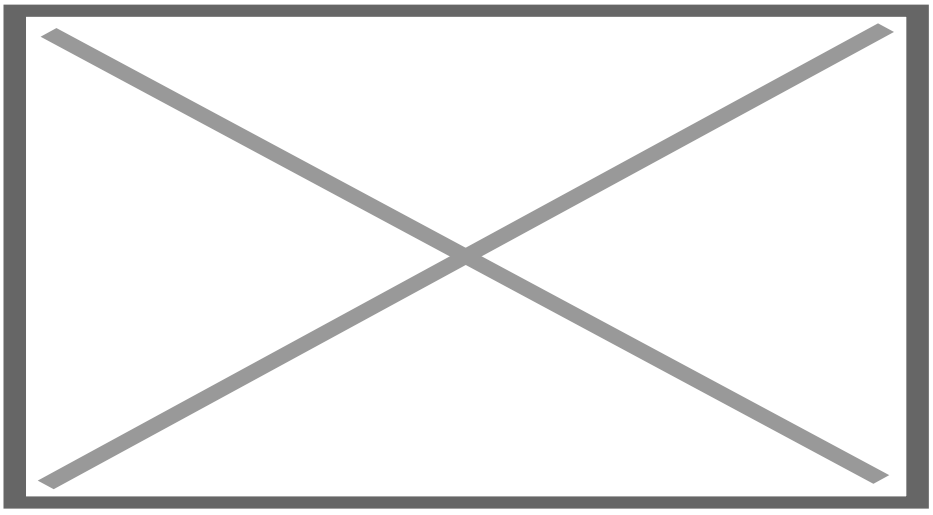
**Scholarships are available.**

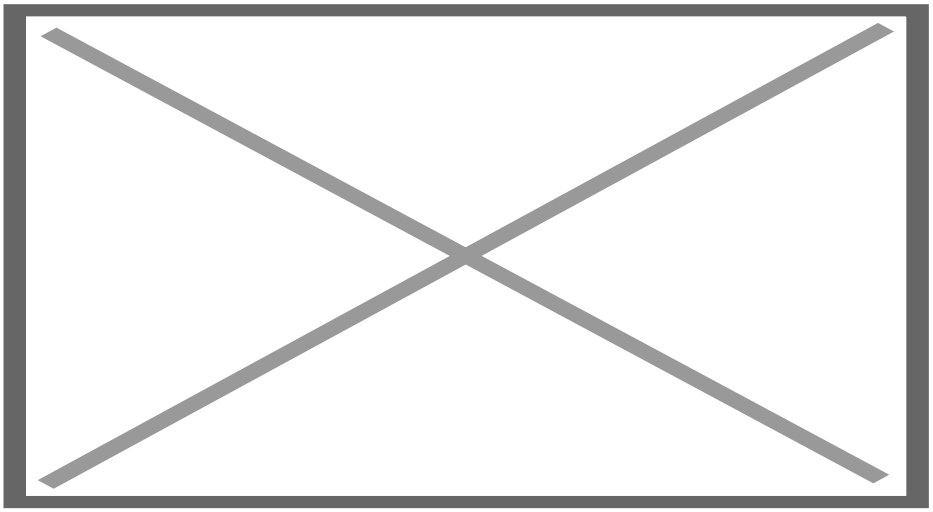
Check the website for more information: **https://www.master-quarmen.eu/**

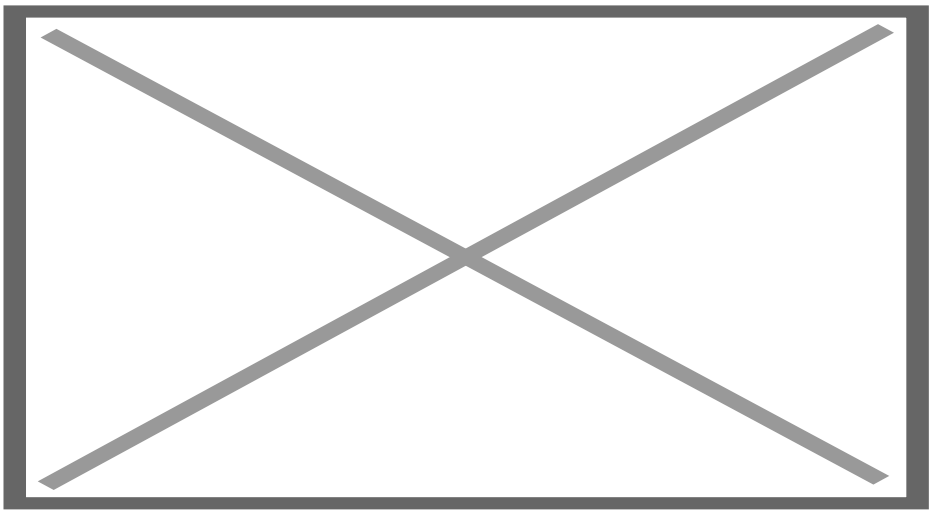
Télécharger la fiche détaillée
Je candidate











# Informations

- Présentation
- Admission
- Programme

Présentation

# Compétences

### 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 !

# Objectifs pédagogiques de la formation

**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

# Voie d'accès

Physique

# Capacité d'accueil

## Places

30

# Public visé et prérequis

**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/**

# Pièces justificatives

## Obligatoires

Copie du passeport.

Lettre de motivation.

Tous les relevés de notes des années/semestres validés depuis le BAC à la date de la candidature.

Attestation de niveau d'anglais.

Curriculum Vitae.

D’éventuelles lettres de recommandation.

Détail des UEs suivies pour les candidats hors M1 Paris Saclay.

## Facultatives

Copie du dernier diplôme.

Dossier VAPP (obligatoire pour toutes les personnes demandant une validation des acquis pour accéder à la formation) https://www.universite-paris-saclay.fr/formation/formation-continue/validation-des-acquis-de-lexperience.

Document justificatif des candidats exilés ayant un statut de réfugié, protection subsidiaire ou protection temporaire en France ou à l’étranger (facultatif mais recommandé, un seul document à fournir) :
- Carte de séjour mention réfugié du pays du premier asile
- OU récépissé mention réfugié du pays du premier asile
- OU document du Haut Commissariat des Nations unies pour les réfugiés reconnaissant le statut de réfugié
- OU récépissé mention réfugié délivré en France
- OU carte de séjour avec mention réfugié délivré en France
- OU document faisant état du statut de bénéficiaire de la protection subsidiaire en France ou à l’étranger.

Programme

| Matières | ECTS | Semestre | Cours | TD | TP | Cours-TD | Cours-TP | TD-TP | A distance | Projet | Tutorat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Condensed matter physics | 6 | Semestre 1 | | | | | | | | | |

| Matières | ECTS | Semestre | Cours | TD | TP | Cours-TD | Cours-TP | TD-TP | A distance | Projet | Tutorat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Charger le détail<br>Introduction to quantum field theory | 6 | Semestre 1 | | | | | | | | | |
| Charger le détail<br>Non-linear and quantum optics | 6 | Semestre 1 | | | | | | | | | |
| Charger le détail<br>Physics Laboratory 1 | 6 | Semestre 1 | | | | | | | | | |
| Charger le détail<br>Computing methods for physics | 6 | Semestre 1 | | | | | | | | | |
| Charger le détail<br>Language course | 0 | Semestre 1 | | | | | | | | | |

Charger le détail

| Matières | ECTS | Semestre | Cours | TD | TP | Cours-TD | Cours-TP | TD-TP | A distance | Projet | Tutorat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Spring School | 0 | Semestre 2 | | | | | | | | | |

Charger le détail

| Matières | ECTS | Semestre | Cours | TD | TP | Cours-TD | Cours-TP | TD-TP | A distance | Projet | Tutorat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Macroscopic Quantum Phenomena | 6 | Semestre 2 | 30 | | 20 | | | | | | |
| Charger le détail<br>Advanced mathematics for physicists | 3 | Semestre 2 | 20 | | 10 | | | | | | |
| Charger le détail<br>Machine learning for Quantum Technology | 3 | Semestre 2 | 20 | | 10 | | | | | | |
| Charger le détail<br>Nanomaterials and Electronic Applications | 3 | Semestre 2 | 16 | | 14 | | | | | | |
| Charger le détail<br>Quantum Hardware | 3 | Semestre 2 | 20 | | 10 | | | | | | |

| Matières | ECTS | Semestre | Cours | TD | TP | Cours-TD | Cours-TP | TD-TP | A distance | Projet | Tutorat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Charger le détail | | | | | | | | | | | |
| Language course | 3 | Semestre 2 | | | | | | | | | |
| Charger le détail | | | | | | | | | | | |
| Internship | 6 | Semestre 2 | | | | | | | | | |
| Charger le détail | | | | | | | | | | | |
| Research project | 3 | Semestre 2 | | | | | | | | | |
| Charger le détail | | | | | | | | | | | |

| Matières | ECTS | Semestre | Cours | TD | TP | Cours-TD | Cours-TP | TD-TP | A distance | Projet | Tutorat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | | | | | | | | | |
| 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 | | | | | | | | | | | |

| Matières | ECTS | Semestre | Cours | TD | TP | Cours-TD | Cours-TP | TD-TP | A distance | Projet | Tutorat |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Topics in theoretical physics | 6 | Semestre 2 | | | | | | | | | |

Charger le détail

# Lieu(x) d'enseignement

ORSAY

# Partenaire(s) académique(s) de la formation

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)

# Campus de la formation

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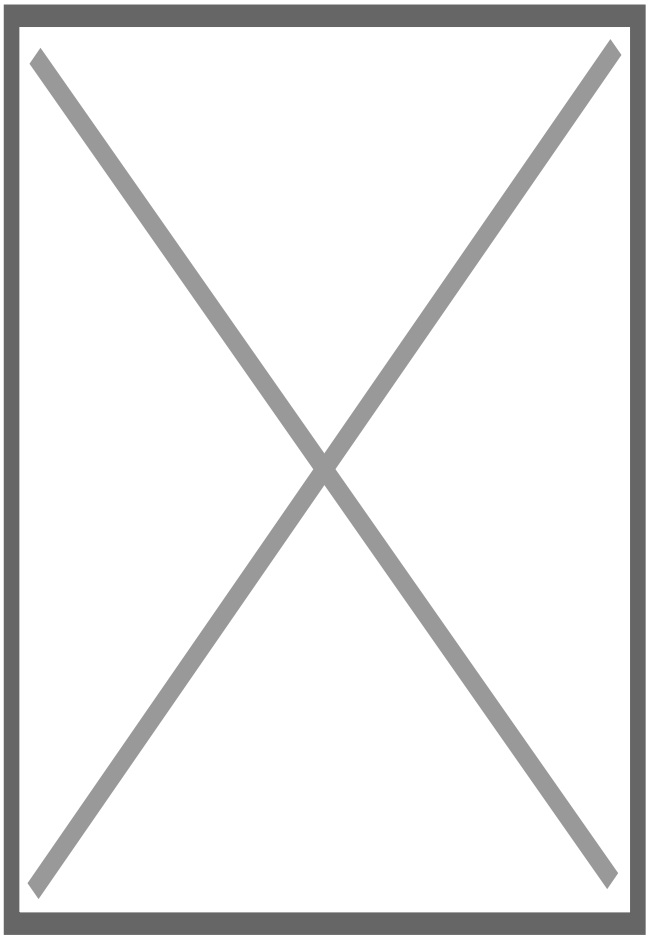
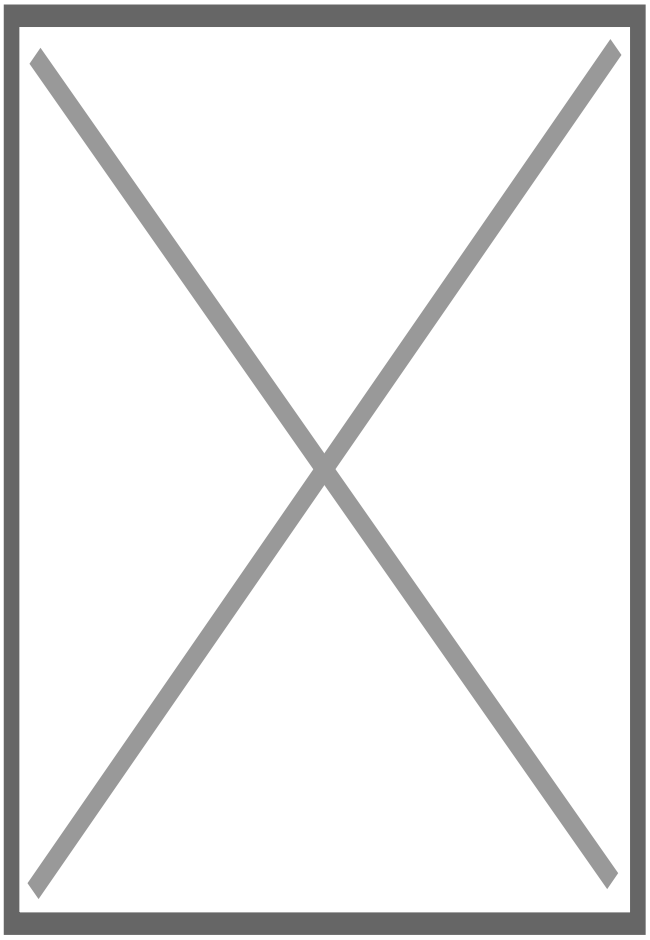


## Orsay Bures

Orsay / Bures-sur-Yvette
Bus 4607, 4626
RER B Orsay ville ou Bures-sur-Yvette
Voir
Bibliothèque
Maison des associations



**Saclay Moulon**

Saclay / Gif-sur-Yvette / Orsay
Bus 4606 / 4609 / 4611 / 5154
RER B Le guichet
Voir
Restaurant CROUS
Bibliothèque
Equipements sportifs
Résidence étudiante

# Contact(s)

- **Marino MARSI**

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