Université de Lille

Quantum and Photonic Technologies (M1-M2)

Master Physique fondamentale et applications

Durée
2 ans

Composante
Faculté des sciences et technologies

Langue(s) d'enseignement
Anglais

Présentation

The cursus **Quantum and Photonic Technologies (QPT)** offers advanced training in the fields of lasers, photonics, complex systems and quantum systems. As a QPT graduate you will have a deep knowledge of how to generate, manipulate and guide various types of light of how do design laser sources. You will have also a deep knowledge of how nonlinear systems can generate complex behaviors in space and time, with potential disruptive applications and of the cutting edge development in the fields of quantum optics, cold atoms or polaritons. The cursus is taught in english. The cursus is composed of 2 options : Complex and Quantum Systems (research cursus) and Lasers and Photonic Engineering (engineering cursus). The first option is a research option that prepares to a PhD and a career in the research and academic sector. The second option prepares to work as engineer in the field of laser and photonics in the industrial sector. However, it is also possible to start a PhD after the engineering option. Depending of the chosen option the academic training is completed by an internship either in a research lab or in a company specialized in photonics or lasers.

Savoir-faire et compétences

The graduate master's basic concepts of physics in optics and lasers, and advanced skills link to the chosen option. He/she is able to conceptualize scientific theoretical and experimental problems, to position a problematic in a context, to localize scientific challenges and to propose a methodology for solving the problem. Lab works, projects, internship train to researcher or engineering jobs: Bibliography; Experimental and numerical skills training; Research and Engineering methodology; Scientific writings; Oral presentation. The graduate is also able to monitor technological developments and can act as a go-between between actors of fundamental research and technological development. He/she is trained to research fundings, intellectual property, commercialization and knowledge diffusion. He/she is trained to project management and business creation. He/she masters scientific english (european B2 level).

Les + de la formation

The cursus is part of the Information and Knowledge Society graduate programme, which gathers expertises needed to build a digital world suitable for Humans.
It is also supported by the Excellence center Labex CEMPI, which fosters fundamental and applied research in mathematics and physics, as well as their interactions.
Scholarships are available for students with excellent academic records both from IKS graduate programme and CEMPI Labex, as well as relocation grants from IKS graduate programme for foreign students to help them settle in Lille.
The PhoCQS Master cursus builds on the scientific excellence of the following teams of the Laboratoire de Physique des Lasers, Atomes, Molécules (PhLAM), where in particular research internships are offered: Dynamics of complex systems, Photonics and Cold atom physics.

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Organisation

Organisation

The master's programme is organised into different knowledge and skills blocks (BCC):

BCC - Implement fundamental physics tools and approaches to produce highly specialised knowledge;

BCC - Produce and communicate highly specialised knowledge, including in a professional context related to the field of physics;

BCC - Solving complex problems by applying fundamental physics concepts

Stages

Optionnel en M1, Obligatoire au S4 (M2).

Admission

Conditions d'admission

For European students and no EEF students:
Application: Submit your application by following this link: https://monmaster.gouv.fr

For EEF students: Etudes en France

Et après

Poursuite d'études

After completing this master's degree, the student can continue his studies with a PhD.

Insertion professionnelle

Option Laser Engineering: R&D engineer, Project manager, Sales engineer, Continuation with a PhD
Research options: Engineer, Researcher, Lecturer, research engineer after PhD

Job opportunities concern the academic research and higher education (University, CNRS, ...), public companies (CEA, ONERA, ...), private sector (major groups, consulting, R&D companies, etc). Graduates is generally able to pursue with a PhD in physics in the following fields: laser and optics, photonics, complex systems, cold atoms...

Infos pratiques

Autres contacts

Contact administratif :
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Contact pédagogique :
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Lieu(x)

Villeneuve d'Ascq - FST

Campus

Campus Cité scientifique

Université de Lille

En savoir plus

Faculté des Sciences et Technologies - FST
https://sciences-technologies.univ-lille.fr/