

COORDINATORS AND DIRECTORS

For the master APPLIED AND FUNDAMENTAL PHYSICS :

Geraud Bouwmans
geraud.bouwmans@univ-lille.fr

For the master 1 PHYSICS OF THE XXIST CENTURY :

Céline TOUBIN
celine.toubin@univ-lille.fr
Bât P5. Bureau 67
03 20 43 43 80

For more information: <https://master-physique.univ-lille.fr/parcours-m1/physics-for-the-21st-century>

SCHOLARSHIPS

Scholarships awarded by the Graduate Programmes «Science for a Changing Planet » or «Information and Knowledge Society» are available to M1 and M2 students to support their studies, to facilitate their settling in Lille and to make an internship in a foreign country.

Check out the calendar for ongoing calls and find out the type of grants you can apply to.
<https://international.univ-lille.fr/en/graduate-programmes/grant-application/>

INTERNATIONAL RELATIONSHIP

The University of Lille has a policy of supporting international access to its courses. That's why it has introduced special procedures to make international students feel welcome and form collaborations.

<https://international.univ-lille.fr>
Practical information for your stay at the University of Lille
<https://international.univ-lille.fr/en/toolbox/>

APPLICATIONS

A Bachelor's degree in physics, chemical physics and fluency in English. No knowledge of French is required.

Application calendar :

This step depends on the country of origin of the applicant; all information may be found on the website of Campus France (<https://www.campusfrance.org/en/procedure-studying-in-France>).

If you are not concerned, you may apply on mon master platform (<https://www.monmaster.gouv.fr>).

Responsable de la rédaction : Vice-présidence Formation- Coordination : SUAIO - Maquette et réalisation : Service Communication - Impression : Imprimerie Université de Lille - Document non contractuel - Imprimé en décembre 2023



Master

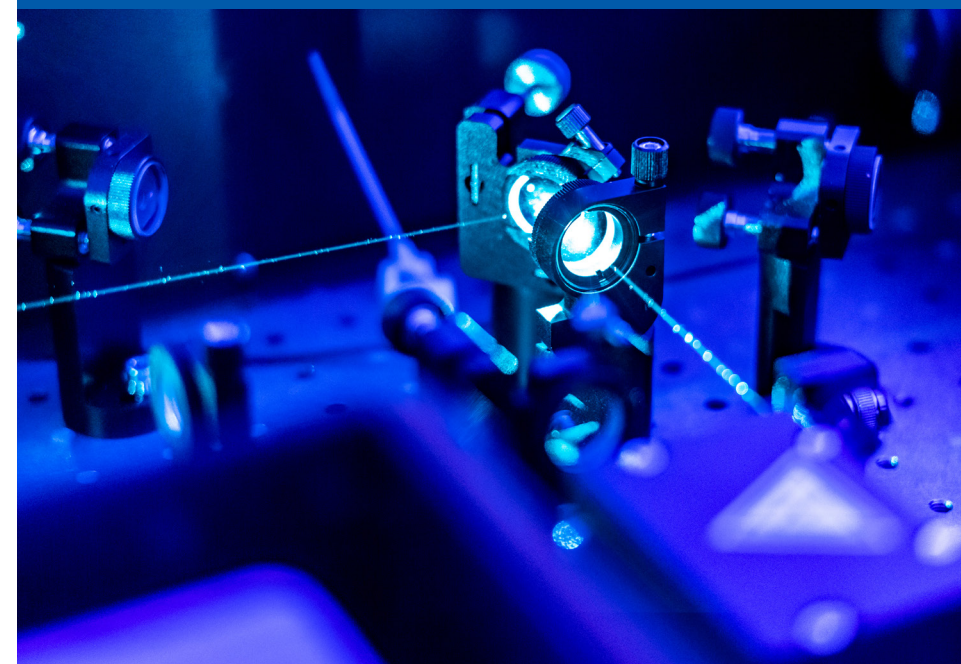
MASTER 1

Mention

Applied and Fundamental Physics

Parcours

Physics of the
XXIst century



OBJECTIVES

The aim of the Master 1 Physics of the XXIst century is to provide students with a high-level theoretical and experimental scientific training, based on the broad spectrum of the outstanding research carried out in Physics at University of Lille and in relation to the challenges of our time (photonics, quantum information, environment, materials...).

The Master 1 Physics of the XXIst century is open to all national and international students, French or English speaking. It offers basic general physics training which allow students to choose their M2 specialization at the end of the M1 year. A pre-specialized track focused on Atmospheric Sciences is also available.

TARGETED SKILLS

Analyze a scientific problem and relate it to known results of physics within the framework of a model.

Apply logic, and knowledge of orders of magnitudes to question the relevance of a proposed model.

Conduct an argument and know how to identify the required hypothesis underlying it and develop the evidence for it, using either mathematical or computational tools.

Analyze results with a critical, inquisitive and innovative mind.

Communicate in writing and orally in a rigorous and appropriate manner.

Be familiar with the extensive disciplinary knowledge of fundamental physics.

TRAINING'S ORGANISATION

The master 1 Physics of the XXIst century is a 1 year course (60 ECTS credits) composed of 2 semesters (30 credits each) of integrated courses delivered in english.

The training consists of a broad and demanding set of courses in advanced fundamental, experimental, and numerical physics, with a focus possible on either Photonics or Atmospheric Sciences.

First semester courses (30 ECTS):

- Fundamentals in optics, quantum and statistical physics
- Advanced optics I
- Numerical tools and lab training
- Mechanical properties of Matter and Electromagnetism in matter OR Physics & Chemistry of the atmosphere
- French foreign language
- Project management

Second semester courses (30 ECTS):

- Molecular and atomic physics
- Light-matter interaction
- Advanced optics II
- Solid State Physics & Thermod. and Statistical Physics OR Applied molecular spectroscopy & Thermod. of the atmosphere
- one discovery unit: Matter Molecules and their Environment (MME) OR Photonics, Complex and Quantum Systems, (PhoCQS)
- Laboratory or Industry internship (April to June) – possibility to get funding to support internships abroad

THIS MASTER DEGREE PROGRAMME IS PART OF THE GRADUATE PROGRAMMES «SCIENCE FOR A CHANGING PLANET» and «INFORMATION & KNOWLEDGE SOCIETY»

GRADUATE PROGRAMMES of the University of Lille offer to master students and PhD's a training environment through research-driven approach in an international, stimulating, competitive and innovative context as well as professional networking for successful career planning.

Key figures :

Graduate Programme SCP:

- 9 master tracks in Physics, Chemistry, Biology and Earth Sciences
- 1 Graduate School

Graduate Programme IKS:

- 10 master tracks in Mathematics, Physics, Nanosciences, Biotechnology, Philosophy and Psychology
- 3 Graduate Schools

Scholarship : The Graduate Programmes offer fellowships ranging between 4500 and 8500 euros per year to attract bright students in their master tracks, as well as outgoing mobility grants (max 3000 euros) to its registered students



MASTER 1 PHYSICS OF THE XXIst CENTURY

MASTER 2 - APPLIED AND FUNDAMENTAL PHYSICS - MATTER MOLECULES AND THEIR ENVIRONMENT (MME) :
-Dilute Matter (DM)
-Atmospheric Sciences (AS)
-Condensed Matter (CM)

MASTER 2 - APPLIED AND FUNDAMENTAL PHYSICS - PHOTONICS, COMPLEX AND QUANTUM SYSTEMS (PHOCQS)

Master 2 Erasmus Mundus - Bio & Pharmaceutical materials science (BIOPHAM)

A reorientation to more applied physics is also possible

JOB OPPORTUNITIES & FURTHER STUDIES

- PhD thesis in a research laboratory
- Engineer in research and development, teaching, programming and data analysis...

This master program is research oriented. Most of the students continue with a PhD thesis after the M2. A wide range of offers is available each year in the various laboratories of our university

