Master in Physics
Master in Applied Physics
2021-2022
Physics
120 ECTS
2 years

Courses (19)
- group I
  - Physics Project 1 (8)
  - SHS (3)

Courses (19)
- group I
  - Physics Project 2 (8)
  - SHS (3)

Year 1
- MA1
  - Courses (19)
- MA2
  - Courses (19)

Year 2
- MA3
  - Courses (30)
- MA4
  - Master Project (30)
- Minor (30)
- Physics Research Training Semester (30)
  - Semestre de spécialisation

Minor (30)
- Courses (PH+EDPY)
Applied Physics
120 ECTS
2 years

Courses (19)
- group I
  - MA1
  - MA2
  - Engineering courses (≥19/38)

Physics Project 1 (8)
SHS (3)

Year 1

Courses (19)
- group I

Physics Project 2 (8)
SHS (3)

Year 2

Courses (30)
- group IIb
  - MA3
  - Minor (30)

Internship in industry (30)

Master Project (30)
in industry (compulsory)

Master Project (30)
Master in Physics and Applied Physics

Optional Courses

- options SPH : in the study plan :
- options FSB : in mathématiques (SMA), Chemistry and Chemical Engineering (SCGC) schools + list of courses approved out of FSB
- options other faculties : schools of the other faculties of EPFL.

max 6 credits among bachelor optional courses
max 12 credits among FSB + list of approved courses out of FSB
max 6 credits among options in other faculties, submitted to Physics school director approval

Master Cycle in Physics and Applied Physics

- 38 credits obtained in option courses
- 22 credits obtained in lab courses (16) et projects SHS (6)

+ Intership in INDUSTRY (Applied Physics) or Specialty Project (Physics) 30 credits

or Minor (Applied Physics and Physics) 30 credits
or 3rd study semester (Applied Physics and Physics) 30 credits

+ Master Project 30 credits

The choice of the TP4 lab and Master Project must be announced to the School secretariat
About the Specialisation Work

Under the supervision of a Professor or Senior Scientist (MER) of the PH School

No grade but success with 30 ECTS or fail

- It can be performed internally (Physics lab) or outside EPFL (lab or research institute)
- The Professor responsible for such work can require that the student takes some courses relevant for the specialisation
About the 3rd study semester

Aimed at student who would like to take additional specialty courses

- For Engineers: other courses in Applied Physics + courses of Engineering School (according to list)
- For Physicists: other courses in Physics + master courses of Engineering School + doctoral courses (max. 2)
Master Project and TP4

• Art. 10 - Laboratoires de Physique IV
  Le choix du laboratoire pour les Laboratoires de Physique IVa et IVb ainsi que le Projet de master doit être annoncé à la Section de Physique et validé par celle-ci.

In principle, TP4 are performed in a lab of the Physics School

Art. 2 – Étapes de formation
• Le master en physique est composé de deux étapes successives de formation : le cycle master d’une durée de trois semestres ..... 
• 3... le projet de master d’une durée de 17 semaines à l’EPFL ou de 25 semaines hors EPFL, et dont la réussite implique l’acquisition de 30 crédits. Il est placé sous la responsabilité d'un Professeur ou d’un MER affilié à la section de Physique.

The Master Project is under the supervision of a Professor or Senior Scientist (MER) of the Physics School
Plasma Physics, fusion and fission

- Prof. Ambrogio Fasoli
- Prof. Paolo Ricci
- Prof. Laurent Villard
- Prof. Christian Theiler
- Prof. Ivo Furno
- Prof. Andreas Pautz
- Dr. Jean-Marc Moret
- Dr. Basil Duval
- Dr. Stefano Coda
- Dr. Stefano Alberti
- Dr. Jonathan Graves
- Dr. Jean Philippe Hogge
- Dr. Stephan Brunner
- Dr. Olivier Sauter
- Dr. Henri Weisen
Astrophysics and Particle Physics

Particle physics:
• Prof. Olivier Schneider
• Prof. Riccardo Rattazzi
• Prof. Tatsuya Nakada
• Prof. Lesya Shchutska
• Prof. Mike Seidel

Astrophysics:
• Prof. Jean-Paul Richard Kneib
• Prof. Pascale Jablonka
• Prof. Frédéric Courbin
• Prof. João Miguel Penedones
• Dr. Yves Revaz
• Dr. Pierre North
Condensed Matter Physics

Nanostructures with well defined size, shape and composition
- Prof. Jean-Philippe Ansermet (spintronics)
- Prof. Harald Brune (nanostructures)
- Dr. Wolfgang Harbich
- Dr. Stefano Rusponi
- Prof. Cécile Hébert (electron microscopy)
- Prof. Hugo Dil

Novel materials including superconductors, soft matter and high-pressure phases

Prof. Henrik Ronnow
Dr. Daniele Mari
Dr. Arnaud Magrez
Condensed Matter Physics

Quantum devices and quantum photonics

- Prof. Fabrizio Carbone
- Prof. Gabriel Aeppli
- Prof. Mitali Banerjee
- Dr. Marcia Portella
- Dr. Marc-André Dupertuis

Theory and simulation

- Prof. Frédéric Mila
- Prof. Alfredo Pasquarello
- Prof. Oleg Yazief
Physics of Biological and Complex Systems

function, structure and properties of biological systems

- Prof. Hennig Stahlberg
- Prof. Paolo De Los Rios
- Prof. Suliana Manley
- Dr. Alexander Verkhovsky
- Prof. Rolf Gruetter (LIFMET)
- Prof. Sahand Jamal Rahi
- Prof. Florent Krzakala
- Prof. Lenka Zdeborová
- Prof. Mathieu Wyart
Quantum Science and Technology

Photonics, quantum computing, quantum matter

- Prof. Jean Philippe Brantut
- Prof. Vincenzo Savona
- Prof. Giuseppe Carleo
- Prof. Anna Fontcuberta
- Prof. Christophe Galland
- Prof. Romuald Houdré
- Prof. Tobias Kippenberg
- Prof. Pasquale Scarlino
- Prof. Nicolas Grandjean
- Dr. Raphael Butté
SHS program
Need of SHS competences! ?

• Any engineering project is related to society, worldwide.

• Many are involving cutting edge science.

• Thus, acting as engineer, scientist or manager requires SHS competences,

  probably more than ever!
Competences: OK, but of which kind?

- Understanding practices, norms, values and history of social environnements (*cultural*)
- Knowing the rules and habits in which one works (*practical*)
- Learning other ways of reasoning (*intellectual*)
- Developing the hability to perceive and express emotions (*emotional*)
Basic informations & rules

SHS Project

- Group work introduced by courses/seminars
- Planned on an annual basis
- (semestrial project? Ask your professor)

Credits

- 6 ECTS given at the end of the academic year

Language of courses/seminars

- French, or english.

Language of interaction/redaction

- French, english (other commonly agreed)

Evaluation

- Usually a mix of project process, final report and presentation.
Inscription: 1 option via IS ACADEMIA

CDH web site: www.epfl.ch/cdh

Office: CM 1 222 (Centre Midi)

Opening hours: Tuesday and Thursday 14h – 17h30
What is harassment?

Psychological harassment or mobbing, a definition

Psychological harassment or mobbing is an unethical or destructive way of reacting to a situation or behaving towards a person.

Sexual harassment, a definition

Sexual harassment refers to all comments or actions of a sexual nature or other behavior related to a person’s gender that are unwanted by the person to whom they are directed, and which adversely affect their well-being.
EPFL’s position about harassment

Zero tolerance!
- For all types of harassment (sexual, psychological, mobbing, etc.)
- In all situations:
  – student - student
  – student assistant (SA) - student
  – member of the academic staff - student
  – member of the administrative and technical staff - student
  – ... and vice versa

Possible consequences
- Disciplinary investigation (students) and/or administrative investigation (EPFL staff)
- Sanctions if misconduct is proven
What to do in those situations?

- If you witness inappropriate behavior, show your disapproval! Inform your class delegate or section.
- If you are a victim, if possible, clarify the situation and tell the person concerned what behavior is making you feel harassed.
- Speak quickly to someone you trust or to our counselors go.epfl.ch/individual-support.
- Find out about the support network: go.epfl.ch/respect.