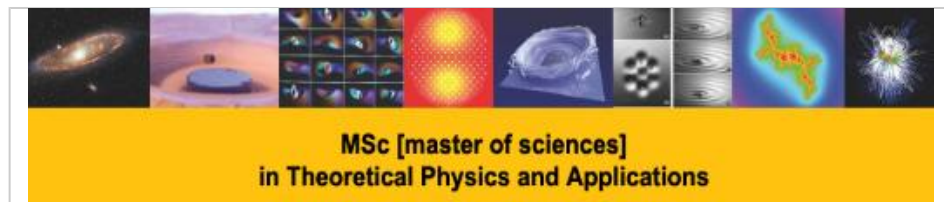


Master Physique : M1 option Physique Théorique / Master of Physics option Theoretical Physics



This is the first year of a two year Master program in Theoretical Physics, entirely taught in English in an international setting, it is the natural preparation for the second year of Master in Theoretical Physics and Applications (M2 TPA) .

Présentation

This is the first year of a [two year Master program in Theoretical Physics](#), entirely taught in English in an international setting, it is the natural preparation for [the second year of Master in Theoretical Physics and Applications](#) (M2 TPA), offering specializations with a strong focus on Simulation of Quantum Systems or Physics of Complex Living Systems, but also the possibility for each student to construct its own profile in theoretical physics.

It is one of three possible paths of the [first year \(M1\) of the CYU 's Master of Physics](#).

For French speaking students a larger spectrum of second year specialties are available in [numerical physics](#) or even [experimental physics](#). More generally, this program prepares students for a large number of master's degrees in physics, in France, in Europe or in the world.

This first year of Master aims at offering to students coming from different horizons a common general background and the powerful tools required to start working in Theoretical Physics, as well as opening to them a broad spectrum of domains. Its role is two-fold; on the one hand, it insures the harmonization of a heterogeneous population of students coming from all over the world and give them a solid background needed to continue in any Master 2 program of physics (fundamental or applied); on the other hand, it provides students with a first contact with research subjects through a choice of options and/or projects helping them building their personal project and choosing their M2 specialization.

Enjeux

It is important to note that this first year of Master has been built to insure to students the possibility to start their specialization in theoretical physics, nevertheless it has been

Durée de la formation

- 1 année

Lieu(x) de la formation

- Site de Saint-Martin

Public

Niveau(x) de recrutement

- Bac+3

Stage(s)

Oui, obligatoires (, à l'étranger), optionnels (multiples,)

Langues d'enseignement

- Anglais

Rythme

- Temps plein
- Temps aménagé

Modalités

- Présentiel

Renseignements

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done in such a way, that reorientation to more applied physics is not difficult. The choice of a national French degree fully taught in English has the double advantage of an international open up:

It makes this training accessible to students from all over the world and allows world specialists to participate in the teaching and supervision of students, thus guaranteeing excellence in the discipline.

It also allows French-speaking students to receive disciplinary training in a familiar environment, while being exposed to international realities and improving their practical and professional English.

At the European level, the absence of language barriers facilitates exchanges of both students and professors between universities and possible double degrees.

Admission

Pré-requis

Formation(s) requise(s)

180 ECTS or equivalent (3/4 years BSc) in an academic program in Physics (or in some case knowledge of Electromagnetism, Quantum Mechanics, Statistical Mechanics, and Linear Algebra). English is essential to follow the lectures. Some knowledge in coding is a plus (python for example).

Candidates finishing their degree by September can apply conditionally, they should provide the partial marks obtained during the current academic year. Although no particular certificate of proficiency is taken into consideration.

Candidature

Modalités de candidature

[There are three ways to apply:](#)

- e-candidat (for students in France)
- Campus France (from abroad)
- Direct application to the program (when a direct contact with [the master academic committee](#) is needed)

Modalités de candidature spécifiques

Non-EU students have to apply via their local Campus France agency (through a new procedure called "Etudes en France").

Candidates can in addition, if they have special issues to discuss (like fees exemption or grant application), apply by sending an email to one of the [academic directors of the program](#) (they should in any case contact their local Campus France agency).

Conditions d'admission / Modalités de sélection

- Admission is based on academic records, taking into account grades earned, the syllabus, and the recommendation of professors. The study of the file may be completed by an interview.

Et après ?

Niveau de sortie

Année post-bac de sortie

- Bac +4

Niveau de sortie

- BAC +4

Activités visées / compétences attestées

Analyze a given problem and link it to general and well known results of physics within the framework of a fixed model.

Apply abstraction, logic and knowledge of orders of magnitude to question the relevance of a suggested model.

Carry out a reasoning, knowing how to identify the required hypothesis that underlie it and to elaborate the proofs to establish it, with the help of either mathematical or computational tools.

Analyze results with a critical, curious and innovative mind.

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

Be familiar with the large disciplinary knowledge of fundamental physics.

Poursuites d'études

This master program is definitely research oriented. Most students will continue in the second year of master and finally join a PhD program.

Programme

This program is the first year of the theoretical part of the two-years Master of Physics of CYU. It is fully taught in English. It is supported by the research teams of the Laboratoire de Physique Théorique et Modélisation (LPTM CNRS UMR 8089).

This first year of Master is devoted to the study of the main general theories of physics (with a special attention given to Quantum Mechanics and Condensed Matter Physics) and the relevant mathematical and computational methods constituting the basis of an education in fundamental Physics.