

Department of

PHYSICS

物理系

The Chinese University of Hong Kong
香港中文大學

JOIN US!

Master of Science (MSc) in Physics

Aim and Scope

With the longest history in Hong Kong (since 1994), our MSc in Physics programme has been nurturing students who seek to deepen and broaden their understanding of physics through taught courses. Through a series of learning activities that combine lectures, laboratories, guided studies, projects and dissertation, the programme provides students with advanced knowledge of physics in different branches, spanning from classical to quantum and from theory to experiment. At the same time, it strengthens students on different skills such as critical analysis, problem solving, communication, and research. It has been preparing students for different job prospects in education, research, industry and commerce, and further study. The MSc programme complements the mission of the Department to advance knowledge, to serve the community in Hong Kong and the proximal region, and to transfer scientific knowledge to the public.

About the Department

The Department of Physics is a vibrant team consisting of 234 undergraduate students, 198 postgraduate students, 26 professorial staff, 1 research assistant professor, 5 lecturers, and 19 technical/supporting staff. The Department is among the top in South East Asia and has been attracting the best physics students in the proximal region. Faculty staffs in the Department are active in research and have established research collaboration with scientists in world-class institutions. At the same time, the Department has a long tradition in providing high quality education at both undergraduate and graduate levels.

Programme Information

This is a coursework-based master degree programme. Students may also enroll in credit bearing Guided Study and Project courses to acquire knowledge and hands-on research experience in fundamental and applied physics. Students may also opt to work on a dissertation.

School Start Date

1 September 2024

Study Modes and Duration

Full-time: 1 year

Part-time: 2 years

Medium of Instruction

English

Tuition Fee (2024-25)

Full-time: HK\$120,000 per annum

Part-time: HK\$60,000 per annum

Non-local fresh graduates may apply to stay in Hong Kong for 12 months after graduation to seek jobs under the Immigration Arrangement for Non-local Graduates (IANG) scheme.



Website: <https://www.phy.cuhk.edu.hk/postgraduate-admissions/msc-in-physics>

E-mail: msc-adm@phy.cuhk.edu.hk

Phone: 852-3943-6302



Programme Requirements

Coursework Requirement

There is no compulsory course requirement and students are free to select courses to suit their interest and own study plan. Students are required to complete a minimum of 24 units of physics courses at 5000-level for graduation. With the permission of the Division, up to 3 units of physics (PHYS) courses at 4000-level and/or 6 units of materials science and engineering (MSEG) courses at 5000-level may be substituted.

Other Requirements

Students must achieve a cumulative grade point average (GPA) of at least 2.0 in order to fulfill the graduation requirement, unless special approval is granted.

Course List

PHYS 5110 Fundamentals of Classical Mechanics and Special Relativity
PHYS 5120 Fundamentals of Modern Quantum Mechanics
PHYS 5130 Principles of Thermal and Statistical Physics
PHYS 5140 Classical Electromagnetic Theory
PHYS 5320 Photonics: Materials and Devices
PHYS 5330 Instrumentation I
PHYS 5350 Techniques in Materials Characterization
PHYS 5410 Advanced Quantum Mechanics
PHYS 5420 Classical Electrodynamics
PHYS 5430 Solid State Theory
PHYS 5450 Introduction to Soft Matter Physics
PHYS 5460 Instrumentation II
PHYS 5510 Advanced Statistical Mechanics
PHYS 5520 Introduction to Many-body Theory
PHYS 5530 Introduction to Particle Physics
PHYS 5540 Advanced Computational Physics
PHYS 5550 Quantum Optics
PHYS 5560 Topics in the Frontiers of Physics
PHYS 5562 Astrophysics
PHYS 5580 Physics of Quantum Information and Quantum Computation
PHYS 5590 Modern Atomic Physics
PHYS 5610 Introduction to Biophysics
PHYS 5620 Thin Film Physics and Technology
PHYS 5660 Semiconductor Physics and Devices
PHYS 5710/5720/5730 Guided Study
PHYS 5990 Project III
PHYS 5991 MSc Dissertation
MSEG 5020 Frontiers in Material Science
MSEG 5040 Electron Microscopy
MSEG 5080 Surface Science

(Not all courses will be offered in an academic year)

Entry Requirements

Degree Requirement

Applicants should hold, or expect to hold by the time of admission, a Bachelor's degree in Science or Engineering, or have sufficient preparation in Physics if the first degree is in other disciplines, normally with Second Class Honours or overall average result of B or above.

English Language Requirement

Applicants must fulfill the University's minimum English language requirement, e.g., provide TOEFL (iBT: 79) or IELTS (Academic: 6.5) score report by the time of admission.

[Note: It is not necessary to submit proof of documentary at the time of application.]

How to Apply

1. Submit application form on Internet
<http://www.gs.cuhk.edu.hk/apply>
2. E-mail will be sent to applicants within 1 week after submission of application. Follow the instructions in the e-mail and submit required documents (e.g. copy of official transcript, CV, recommendations, etc.) to our Division by the deadline.
3. Admission notification will be sent to successful applicants via e-mail.

Application Deadline:

15 May 2024

[Applications will be considered as early as end of December 2023.]

What Our Graduates Say

“Over the year I spent there in Hong Kong as a Physics MSc student, every staff member and every professor I interacted with was amazing..., every professor was willing to work with me where I was, showing patience and dedication to their students.

At CUHK I chose to take many classes that were geared around applying physics to other fields because I figured many students will want to know all the different places they can apply the material they learn. I also took some guided studies in subjects that greatly interested me, and are of great interest in the world today. I can definitely say that the CUHK MSc in Physics prepared me well to be a teacher.”

K. S. Maxwell '17

High school math teacher, USA

“When I was graduated from CUHK in 2014, I did not have the answers for two questions: 1. Should I keep studying physics and related subjects in the future? 2. Which university/company would be the most suitable for me? To find the answers, I decided to join the MSc program provided by our department, as the environment is familiar to me and the teaching quality is at the top level in China.

Later, I found the requirement of MSc program was very flexible. One could focus on theoretical or experimental physics according to his own will. Also, great opportunities for approaching research life was provided. I had taken 8 courses, including 2 experimental courses, in one year. This experience had really changed my life. I found my aim, to become a qualified researcher in experimental physics.”

Y. H. Lai '14

Senior Engineer at ASTRI

“The diverse MSc courses (physics and material sciences) are high demanding and useful, the teachers are well prepared and rigorous on teaching. In addition, my English proficiency as well as research capability are improved. Because of the courses and project experience, I was luckily to be enrolled as an MPhil student in Professor J. F. Wang’s group. The MSc courses have lasting effects in my MPhil period, even in my Ph.D. research in Sweden. I sincerely appreciated the chance of MSc program in CUHK, the cozy environment in the department, the friends I made in Hong Kong and the beautiful campus leaved a wonderful memory to me.”

J. X. Wang '11

Postdoc researcher at University of Cambridge, UK

“To sum up, all courses were not only matched my interest but also useful for my future career in physics. They provided standard-graduate level physics knowledge and training...

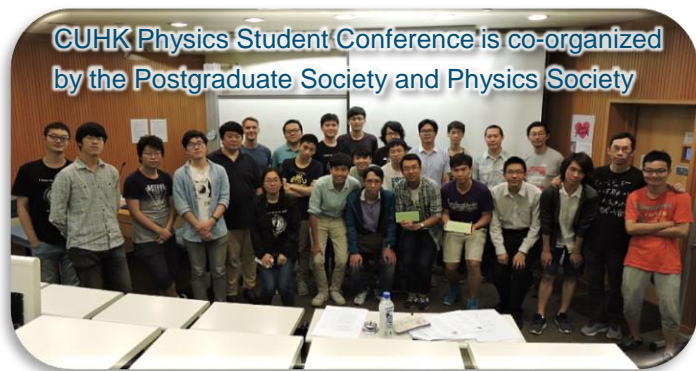
I realized what physics really was after the program. I learned the knowledge, skills and the way of thinking for solving physics problems. Although there were difficulties during the time, it was a valuable experience for me and for my future career.”

T. W. Choi '18

Research Assistant at City University of Hong Kong

Campus Facilities and Services

- ★ **Academic Advisory System** ★ assigns every student an academic advisor, who provides guidance on course selection, career planning and further studies.
- ★ **University Library** ★ has a significant bilingual collection of resources and award-winning study spaces, striving to provide the best support to students.
- ★ **Healthcare Facilities** ★ provide primary medical care to full-time students.
- ★ **Sports Facilities** ★ include sports fields for track and field, gymnasia, an Olympic-sized swimming pool, tennis and squash courts, weight training rooms and a water sports centre.
- ★ **Independent Learning Centre** ★ provides students with an immersive language environment to improve their Chinese and English proficiency.
- ★ **Postgraduate Society** ★ organizes and promotes academic and recreational activities (such as student conferences, movie nights, hiking trips, etc.).



Prof. Yang Chen Ning, Physics Nobel Laureate and Distinguished Professor-at-Large of the CUHK, sharing his teaching and research experience with staff and students in the Department.



Why Hong Kong

The universities adopt international standards in curriculum design and quality assurance – the qualifications awarded are internationally recognised

A high efficiency, modern and vibrant metropolis – offering super global, regional and local connectivity

Enrich your study life in Hong Kong, a place full of opportunities. This will be an unforgettable experience!

A melting pot of Eastern and Western cultures – Chinese and international cuisine, brands and integrated entertainment.

World-class conditions in finance, trade, innovation and transportation – serving as a pilot city in the Guangdong - Hong Kong - Macao Greater Bay Area.

