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Master of Science Programme in Physics (International Programme)

หลักสูตร วิทยาศาสตร์มหาบัณฑิต

สาขาวิชา ฟิสิกส์ (หลักสูตรนานาชาติ) (ภาคปกติ)

Faculty of Science

Department of Physics

คณะวิทยาศาสตร์

ภาควิชา ฟิสิกส์

Expected number of students to be accepted all year round : 15 Students**Admission Requirements****A candidate must:**

1. hold a Bachelor's degree in Physics, Mathematics, Chemistry, Geology, Materials Science or General Science, or a Bachelor degree in Engineering from an institution that is approved by Office of the Higher Education Commission
2. have a grade point average of at least 3.00
3. have a TOEFL score of at least 480, TOEFL computer-based score of 157, TOEFL Internet-based score of 54, or IELTS score of 4.5 or pass the English Proficiency Examination arranged by the Faculty of Graduate Studies. For those who already hold a valid English score, please submit its certificate along with all application documents.

Curriculum Structure

	Credit
Required Courses	17
Elective Courses no less than	9
Thesis	12

	Credit
Required Courses	
SCPY 502 Classical Mechanics	3(3-0-6)
SCPY 503 Quantum Mechanics	3(3-0-6)
SCPY 504 Thermodynamics and Statistical Physics	3(3-0-6)
SCPY 505 Mathematical Methods for Physicists	3(3-0-6)
SCPY 507 Classical Electrodynamics	3(3-0-6)
SCPY 591 Seminar I	1(1-0-2)
SCPY 592 Seminar II	1(1-0-2)
Elective Courses	
SCPY 511 Atomic and Molecular Physics	3(3-0-6)
SCPY 512 Celestial Mechanics	3(3-0-6)
SCPY 513 Computational Physics	3(3-0-6)
SCPY 515 Electrical Materials	3(3-0-6)
SCPY 516 Electronic Devices and Circuits	3(3-0-6)

SCPY 517	Fluid Mechanics	3(3-0-6)
SCPY 518	Numerical Analysis	3(3-0-6)
SCPY 519	Nuclear Physics	3(3-0-6)
SCPY 521	Physics of Semiconductor	3(3-0-6)
SCPY 522	Advanced Quantum Mechanics	3(3-0-6)
SCPY 523	Classical Field Theory	3(3-0-6)
SCPY 524	Fourier Optics	3(3-0-6)
SCPY 531	Cosmic Rays	3(3-0-6)
SCPY 543	Surface and Interface Physics	3(3-0-6)
SCPY 561	Fundamentals of Biophysics	3(3-0-6)
SCPY 562	Modeling and Simulation in Biophysics	3(3-0-6)
SCPY 570	Signal and Image Processing	3(3-0-6)
SCPY 571	Parallel Programming	3(3-0-6)
SCPY 572	Geophysical Prospecting: Theory and Applications	3(3-0-6)
SCPY 573	Geophysical Prospecting: Data Acquisition and Interpretation	3(3-0-6)
SCPY 619	Quantum Theory	3(3-0-6)
SCPY 620	Non-Perturbative Methods in Quantum Field Theory	3(3-0-6)
SCPY 621	Supersymmetry in Field Theory and String	3(3-0-6)
SCPY 622	Quantum Optics	3(3-0-6)
SCPY 623	Quantum Information and Calculations	3(3-0-6)
SCPY 624	Quantum Keys and Communication	3(3-0-6)
SCPY 625	Quantum Theory and Applied Quantum Information for Economy	3(3-0-6)
SCPY 626	Physics Education	3(3-0-6)
SCPY 627	Data Analysis in Physics Education	3(3-0-6)
SCPY 629	Special Topics in Physics Education	3(3-0-6)
SCPY 630	Physics of the Solid Earth	3(3-0-6)
SCPY 635	Geology for Physicists	3(3-0-6)
SCPY 636	Optoelectronics	3(3-0-6)
SCPY 637	Molecular Simulation	3(3-0-6)
SCPY 638	Molecular Quantum Mechanics	3(3-0-6)
SCPY 639	Quantum Field Theory	3(3-0-6)
SCPY 640	Theory of Many-Particle Systems	3(3-0-6)
SCPY 641	Astrophysics	3(3-0-6)
SCPY 642	Diffraction Techniques	3(3-0-6)
SCPY 643	Thin Film Physics and Technology	3(3-0-6)
SCPY 644	Selected Topics in Thin Film and Surface Physics	3(3-0-6)
SCPY 645	Laser Theory	3(3-0-6)
SCPY 649	Plasma Physics	3(3-0-6)
SCPY 650	Plasma Technologies and Applications	3(3-0-6)
SCPY 651	Semiconductor Devices	3(3-0-6)

SCPY 652	Superconductivity	3(3-0-6)
SCPY 653	Special Methods in Theoretical Superconductivity	3(3-0-6)
SCPY 656	Selected Topics in Condensed Matter Physics	3(3-0-6)
SCPY 660	Special Topics in Laser Applications	3(3-0-6)
SCPY 661	Special Topics in Applied Physics I	3(3-0-6)
SCPY 662	Special Topics in Applied Physics II	3(3-0-6)
SCPY 663	Special Topics in Physics I	3(3-0-6)
SCPY 664	Special Topics in Physics II	3(3-0-6)
SCPY 665	Special Topics in Physics III	3(3-0-6)
SCPY 668	Contemporary Biophysics	3(3-0-6)
SCPY 670	Inverse Theory and Applications	3(3-0-6)
SCPY 671	Exploration Seismology	3(3-0-6)
SCPY 672	Geophysical Forward Modeling and Inversion	3(3-0-6)
SCPY 684	Selected Topics in Geophysics	3(3-0-6)
Thesis		
SCPY 698	Thesis	12(0-48-0)
* These may change in cases where there are suggestions for the improvement curriculum		

Additional advantages of the programme

Good Research recognition, Financial support, and Ready for job opportunity.

Details of Scholarships

1. Scholarship of the 60th Year Supreme Reign of His Majesty King Bhumibol Adulyadej.
2. Science Achievement scholarship of Thailand. (ทุนเรียนดีวิทยาศาสตร์แห่งประเทศไทย)
3. Institutional Strengthening Program (ทุนเสริมสร้างนักวิทยาศาสตร์รุ่นใหม่)
4. Teaching Assistantship (ทุนโครงการผู้ช่วยสอน) /Teaching Assistantship Development (ทุนพัฒนาผู้ช่วยสอน) (TA)

Additional information for applicants

We strongly encourage students to graduate within 2 years.

Application Process

Application is only available via online application at www.grad.mahidol.ac.th.

Required Documents

Prepare the following required documents to submit via online admission system or post :

- Two (2) recent photographs (1x1 inch in size)
- A copy of an applicant's degree certificate or a letter of graduation certification (for an applicant with a degree completion) 2 copies
- A letter certifying that an applicant is currently in the final year prior to graduation (for an applicant seeking for a degree) 2 copies
- A detailed transcript of a degree (for an applicant with a degree completion) 2 copies
- A grade report with course names and grades received from the first to the current 2 copies

- semester prior to graduation
- A copy of identification card 2 copies
 - A copy of house registration certification 2 copies
 - A copy of Certificate of English score: TOEFL/IELTS/MU-Test (if any). See detail here: http://www.grad.mahidol.ac.th/grad/academicinfo/engstandard2553_th.php 2 copies
 - A copy of proof of payment.

Submitting documents via online admission system.

- All documents must be in pdf format (maximum size 2 MB)
- Recent photograph must be in jpeg format only (maximum size 2 MB)

Proposal / Concept Paper

- **Statement of Purpose** 1 Copy

An applicant should send a Statement of Purpose directly to the Director of Graduate Studies Of Physics Department by email.

- **Letter of Recommendation** 1 Copy

Applicant or Evaluator should send a Letter of Recommendation by email or (surface) mail directly to the Director of Graduate Studies of Physics Department by email.

Job option after graduation

1. Instructor or facilitator in universities or high schools
2. Academician or researcher in government or private academic institute, international organization and non-government organization
3. Scientist or consultant for government or private organization
4. Project analyst and financial planner in financial or stock market
5. Employee for applied physics position in companies or industries

Further information may be obtained from the Director of Graduate Studies, Physics:

1. **Assoc. Prof. Dr. Weerachai Siripunvaraporn** (E-mail : weerachai.sir@mahidol.ac.th)

Room P.407-A, Physics Building, Floor 4,
Department of Physics, Faculty of Science,
Tel. : 0 2201 5764 Fax. : 0 2354 7159

2. **Asst. Prof. Dr. Charin Modchang** (E-mail : charin.mod@mahidol.ac.th)

Room P.608, Physics Building, Floor 6,
Department of Physics, Faculty of Science,
Tel. : 0 2201 5782 Fax. : 0 2354 7159

Program Coordinator

Miss Nipaporn Suwannawong (E-mail : bum_9577@hotmail.com)

Room P.605, Physics Building, Floor 6,

Department of Physics, Faculty of Science,

Tel. : 0 2201 5770 Fax. : 0 2354 7159

Note 1. For more education information : www.grad.mahidol.ac.th

**For more information please contact The Student Admission Section.
Tel . 0 2441 4125 ext. 208-210 , 0 2441 9129, E-mail : gradthai@mahidol.ac.th**



Letter of Recommendation
for Admission to the Physics Graduate Program, Mahidol University

Please complete the form and return it directly to:

*Department of Physics, Faculty of Science
Mahidol University
272 Rama VI Rd., Ratchathewi
Bangkok 10400*

Applicant's name: _____

Part I: Evaluator's information

Title and name: _____

School or Business: _____

Address: _____

Telephone number: _____

E-mail address: _____

Part II: Please answer the following questions about the applicant.

How do you know the applicant? _____

How long have you known the applicant? _____

In terms of his or her academic ability, how does the applicant rank among other students in his or her group (e.g Top 10% of his or her class)?

Part III: *What qualifies this applicant for the graduate program at Mahidol University? Please explain. Please also give information about his or her past accomplishments, particularly in research.*



Evaluator's signature _____ Date _____

Statement of Purpose

for Admission to the Physics Graduate Program, Mahidol University

Applicant's name: _____

Please state your reasons for wishing to study at Department of Physics, Mahidol University. Explain your goal and what you plan to accomplish in your career. Include your interest, background, and past achievements in both experimental and theoretical physics that would contribute to your success as a graduate student.

Please submit the evaluation forms with your application.