

Master Program (for International Students) in Physics

Physics is the natural science that involves the study of matter and its motion through space and time, along with related concepts such as energy and force. It is conducted to disclose the structure of matter, interaction between matters, and the motion laws of matters in order to understand the universe. It results in many significant technologies and products.

The School of Physics at University of Electronic Science and Technology of China has the primary objective of advancing knowledge of physics and training of qualified manpower to acquire and develop an economy based on high technology. It is also involved in inter-disciplinary research with other branches of science as well as engaging in collaborative work with industry. Six fields, Theoretical Physics, Condensed Matter Physics, Radio physics, Optics, Plasma Physics, and Quantum Physics and Quantum Information, have established their reputation for research excellence. Collaborations in research across national borders and disciplines have been built. The school intends to play a key role in the advancement of China into a high-tech era.

This programme offers excellent opportunities for students to further develop their potential as intellectual leaders for a wide range of career paths. They will not only acquire fundamental and emerging knowledge in physics, but also solve practical problems of relevance to industrial development.

1.Objectives

Candidates of Master of Science in Physics are expected to have a profound knowledge in fundamental physics and experimental skills. They are also required to have a clear vision of cutting-edge research and emerging trends in physics.

A Survey of China and Comprehensive Chinese are compulsory for international postgraduates, who are required to pass the HSK 3 or equivalent Chinese language test by graduation.

2.Orientations

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| 1)Theoretical Physics | 2)Condensed Matter Physics |
| 3)Radio Physics | 4)Optics |
| 5)Plasma Physics | 6)Quantum Physics and Quantum Information |

3.Duration

The duration set for master candidates is 2 years full-time. An extension can be applied for by those who cannot finish their courses in time owing to objective causes, yet altogether 4 years is the last due.

4.Progression and Requirements

The minimum sum total credits for international students of master candidates are 26. Master candidates should complete the course work of no less than a total of 24 credits (out of which at least 15 credits should be acquired from degree courses), compulsory sections of no less than 2 credits, complete

the thesis (or a research report) independently, and pass the degree thesis defense.

The supervisor responsibility mechanism is adopted in the education for international master candidates. The supervisor is responsible for the student's making of personal study plan, the choice of courses, and the completion of the research report or the degree thesis. The personal study plan cannot be changed without permission of the supervisor.

During the course work, according to specifications by the discipline, the student is to pass examinations held for the degree courses and examinations or assessments held for the other optional courses. Of all the degree courses, common core courses are compulsory. Master candidates are allowed to choose 1~2 inter-disciplinary core courses as their degree courses under supervisors' guidance, but cannot replace compulsory courses. International students of Chinese language abilities can apply to take courses given in Chinese to local full-time graduate students and acquire corresponding credits if pass.

Those who fail to meet the requirements as described above can fill up the gap by repetition or make-up in the limit of one year. Those who fail to meet the credit requirements even till the end of the due time are to be terminated.

5. Curriculum

Course Categories		Course Number	Course Name	Class Hours	Credits	Semester	Notes
Degree Courses	Common Core Course	6900005001	Comprehensive Chinese	60	2	1,2	Compulsory
		6900005004	A Survey of China	36	2	1,2	
	Major Core Course	1100016010	Numerical Analysis	48	3	1/2	At least 1 from 3
		1100016011	Stochastic Processes and Applications	48	3	1	
		1100016012	Optimization Methods and Applications	48	3	1	
		0208096064	Advanced Electromagnetic Theory	48	3	1	
		1207026039	Advanced Quantum Mechanics	56	3.5	2	
		1207026043	General relativity	32	2	2	
		1207026045	Quantum Field Theory I	48	3	1	
Non-degree Optional Courses	Elective Major Course	0108107076	Radar Theory	24	1.5	2	
		1207027055	Quantum Field Theory (二)	48	3	2	
		1207027060	Solid-State Battery and Energy-Storage Device	16	1	1	
		1207027064	Nano-Optics	32	2	2	
	Other Elective Course	6900005005	Chinese Reading and Writing	32	2	1/2	
		XX0004XXXX	High-Level International Courses	/	/	1/2	

Master Programs for International Students

Compulsory Section	6400006003	Academic Activities	0	1	1,2	Compulsory at least 5
	6900006001	Chinese Proficiency Assessment	60	0	1,2	Compulsory
	XX00025XXX	Elective Competence Development Courses	0	1	1,2	

Directions: All courses, except for the Chinese ones specified by the requirements, are totally given in English.

6. Compulsory Sections

The compulsory sections for international students of master candidates include three parts, a candidate is required to complete the following aspects:

1) Elective Competence Development Courses: through introducing the academic cutting edge knowledge, culture, arts and sports, etc, such courses are given to improve the master candidates' comprehensive competence. A candidate should take at least one course and get one credit after assessment.

2) Academic Activities: to enliven academic atmosphere and to further and broaden master candidates' scope of knowledge, one should attend at least five academic lectures within and out of UESTC, and fill in the Academic Activities Registration Form and get the official stamp upon attendance. One credit can be granted to the candidate when he/she succeeds in completing the above procedures.

3) Chinese Proficiency Assessment: The Ministry of Education requires the Chinese language ability of international graduates' to reach the level 3 based on the International Chinese Proficiency Standards at the time of graduation. Master's/doctoral students are required to undergo a Chinese assessment level 3 during their stay at the university, and those who meet the requirements are eligible to apply for their graduation defense. Chinese Proficiency Assessment is accredited by School of International Education.

7. Degree Thesis

All degree thesis problems shall refer to UESTC Regulations for Postgraduate Degree Conferring.

物理学 来华留学硕士培养方案

物理学是研究物质及其运动的自然科学，揭示物质的结构、物质之间的相互作用和物质的运动规律，为理解自然界奠定坚实的基础。物理学新方法、新理论是众多新技术、新产品的重要源头。

电子科技大学物理学院拥有物理学一级学科博士学位授予权，设有博士后流动站。本学科依托物理学研究和与其它学科的交叉领域的研究，支撑相关工程技术的研发，提升学生对物理知识的掌握，培养合格的科技人才，促进服务于经济发展的高技术研究。本学科包含理论物理、凝聚态物理、无线电物理、光学、等离子体物理、量子物理与量子信息等六个优势学科方向，具有较强的基础研究能力和理工渗透、协调发展的明显特色，取得良好的学术声誉。物理学院致力于在高科技时代中发挥关键作用。

本学科课程体系立足于物理学学科，培养学生在宽口径职业方向的领导潜能，培养学生获取物理学基础知识和新兴知识的能力，培养学生解决与工业发展有关实际问题的能力。

1.培养目标

本学科硕士学位获得者应对物理学相关研究前沿和发展趋势有较深入的了解，具有物理学科较深厚的基础理论和系统专门的知识，掌握相关的实验技能，熟练运用计算机及相关信息技术，学会撰写学术论文并在国际会议上进行交流，有严谨的科学态度、工作作风和高尚的职业道德，毕业后能胜任科研、生产单位的研究、开发工作。

留学研究生必修中国概况和综合汉语等课程，毕业时须通过《国际汉语能力标准》三级水平考试或通过同等难度的汉语水平考试。

2.研究方向

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| 1. 理论物理 | 2. 凝聚态物理 |
| 3. 无线电物理 | 4. 光学 |
| 5. 等离子体物理 | 6. 量子物理与量子信息 |

3.培养方式与学习年限

攻读硕士学位者，学习年限为两年。若因客观原因不能按时完成学业者，可申请适当延长学习年限，但最长学习年限不超过四年。

4.学分与课程学习基本要求

总学分要求不低于 26 学分，课程总学分不低于 24 学分，其中学位课不低于 15 学分；必修环节不低于 2 学分。开展学位论文工作，撰写一篇学位论文（含研究报告），通过答辩。

留学研究生培养实行导师负责制。导师负责指导研究生制定个人培养计划、选课、开展研究报告或学位论文工作。

课程学习期间，应通过本专业规定的学位课程考试，以及其他选修课程的考试或考查。公共基础课为必修课。允许在导师指导下跨学科选修 1~2 门学位课作为本学科的学位课，但不可替代必修课。有汉语基础者，可申请选修面向国内全日制研究生用中文讲授的专业课程，通过者获得相应学

分。

未达到上述要求者，可以在一年内补修或重修有关课程，在规定期限内仍没有达到学分要求者，将被终止学业。

5.课程设置

课程类别		课程编号	课程名称	学时	学分	开课学期	备注
学位课	公共基础课	6900005001	综合汉语	60	2	1,2	必修
		6900005004	中国概况	36	2	1,2	
	专业基础课	1100016010	数值分析	48	3	1/2	必须选 1- 3 门
		1100016011	随机过程及应用	48	3	1	
		1100016012	最优化理论与应用	48	3	1	
		0208096064	高等电磁理论	48	3	1	
		1207026039	高等量子力学	56	3.5	2	
		1207026043	广义相对论	32	2	2	
		1207026045	量子场论（一）	48	3	1	
非学位课	专业选修课	0108107076	雷达原理	24	1.5	2	
		1207027055	量子场论（二）	48	3	2	
		1207027060	固态电池与储能器件	16	1	1	
		1207027064	纳米光学	32	2	2	
	其他选修课	6900005005	汉语阅读与写作	32	2	1/2	
		XX0004XXXX	前沿与交叉课程	/	/	1/2	
必修环节		6400006003	学术活动	0	1	1,2	必修 不少于 5 次
		6900006001	汉语水平测评	60	0	1,2	必修
		XX00025XXX	素质教育公选课	0	1	1,2	

说明：除规定的汉语课程以外，其他课程均采用英语授课。

6.必修环节

来华留学硕士研究生必修环节包含三部分，要求留学研究生分别完成以下内容：

1) 素质教育公选课：以介绍学术前沿知识、中外文化、艺术和体育等为主，加强来华留学研究生综合素质教育，可选修一门，考核通过后获 1 个学分。

2) 学术活动：为进一步活跃学术气氛并拓宽来华留学研究生的知识面，硕士研究生在校期间须参加 5 次以上校内外学术报告会，填写学术活动登记表，加盖举办学术活动单位的公章，报所在学院研究生科备案，全部完成后获得 1 学分。

3) 汉语水平测评：教育部要求留学研究生在毕业时中文能力应至少达到《国际汉语能力标准》三级水平。留学硕士/博士研究生在校期间须接受汉语三级水平测评，达到要求者方可申请毕业论文答辩。由国际教育学院进行水平认定。

7.学位论文

学位论文工作按照《电子科技大学研究生学位授予实施细则》的规定执行。