

070200 物理学 2024 级全日制硕士生培养方案

2024 Full-time Master Program for Physics (Master Student)

一、基本信息 Basic Information

院系名称 School	李政道研究所 Tsung-Dao Lee Institute (TDLI)	适用年级 Grade	2024 级 Class		
适用专业 Major	物理学 Physics	标准学制 Duration	3 年 Years		
学习形式 Study Mode	全日制 Full time				
项目类型 Program Type	学术型 Academic				
培养层次 Program Level	硕士生 Master Student				
最低学分 Min Credit	23	最低 GPA 学分 Min GPA Credit	16	最低 GPA Min GPA	2.7

二、学科简介 Introduction

上海交通大学物理学科始建于 1906 年，近年来发展迅速，学科水平不断提升。在全国第四轮一级学科评估中进入 A 档，2019 年入选上海市高峰高原学科，2020 年 QS 学科国际排名首次进入前 50 名。

物理学科现拥有理论物理、粒子物理与核物理、凝聚态物理（国家重点学科）、光学（国家重点学科）、原子分子物理、激光等离子体物理（国防特色学科）、计算物理及软凝聚态物理等学科方向，是国内物理学科专业门类最为齐全的物理院系之一。近年来本学科引进和培养了一大批国内外知名专家学者，形成了一支极具竞争力的高水平师资队伍。

本学科坚持以“立德树人、教书育人”为中心，以“培养拔尖创新人才”为宗旨，以“创新性、多元化和国际化”为驱动，全面提升学生的社会责任感、创新精神、实践能力、人文情怀和全球视野，致力于培养德才兼备、数理基础扎实并具备服务国家重大战略需求能力的高水平创新型人才。研究生培养重点推进培养过程中的质控建设，实行严格的博士资格考试和分流淘汰机制；实施致远荣誉博士计划，引导学生潜心高水平的前沿研究，极大提升科研创新水平；多渠道加强和支持学生国际学术交流，拓展国际化视野。

The discipline of Physics in Shanghai Jiaotong University was founded in 1906. In recent years, it has developed rapidly and the level of discipline is constantly improving. In the fourth round of national first level discipline evaluation, it got the rank A. And in 2019, it was selected into program of “Shanghai peak and plateau disciplines”. In QS world University Ranking by subject 2020: Physics & Astronomy, it is in the top 50.

The discipline now has several sub-disciplines including theoretical physics, particle and nuclear physics, condensed matter physics (national key discipline), optics (national key discipline),

atomic and molecular physics, laser plasma physics (national defense characteristic discipline), computational physics and soft condensed matter physics. It is one of the few physics departments that have nearly complete sub-disciplines of Physics in China. In recent years, many existing well-known experts together with newly joined famous members form a highly competitive and high-level faculty team.

The discipline adheres to the "fostering integrity and promoting rounded development of people" as the core, the "cultivation of top-notch innovative talents" as the purpose, and "innovation, diversification and internationalization" as the driving force to comprehensively improve students' social responsibility, innovative spirit, practical ability, humanistic feelings and global perspective, and is committed to train innovative student with both political integrity and ability, solid mathematical and physical foundation and ability to serve the major strategic needs of the country. Postgraduate training emphasizes the quality control during the training process; executing doctoral qualification examination; implementing the Zhiyuan honorary doctor program to guide students to concentrate on important frontier researches; strengthening and supporting international academic exchanges of students through multiple channels to expand international vision.

三、培养目标 Program Objective

恪守学术道德规范，崇尚科学精神，对学术研究，特别是对物理学的基础和应用基础研究有浓厚兴趣，具备一定的学术潜力。在科研选题、研究方法和创新能力等方面经过系统训练，具有独立从事物理学及相关领域或跨学科创新性科学研究工作和相关领域实际工作的能力。

对本学科相关领域的学术研究前沿动态能比较准确把握，能够进行课程学习和文献阅读及科学研究等，具有坚实的理论基础和较为宽阔的知识面，能有效地获取专业知识和先进的研究方法，对获取的知识和研究方法能够理解并正确应用研究成果，并较为独立地解决科学研究或实际工作中的具体问题。

能够与他人良好地合作，具备一定的开展学术研究或技术开发的能力，并具备一定的实验技能及组织协调能力。比较熟练地掌握一门外国语，能够进行外文文献阅读，具有一定的写作能力和进行学术交流的能力。

Abide by academic ethics and uphold the spirit of science, has a strong interest in academic research, especially in the basic and applied basic research of physics, and has certain academic potential. After systematic training in scientific research topics, research methods and innovation ability, he has the ability to independently engage in physics and related fields or interdisciplinary innovative scientific research and practical work in related fields.

They can accurately grasp the frontier trends of academic research in related fields of this discipline, and can carry out course learning, literature reading and scientific research. It has a solid theoretical foundation and a wide range of knowledge, can effectively acquire professional knowledge and advanced research methods, understand and correctly apply the research results to the acquired knowledge and research methods, and solve specific problems in scientific research or practical work relatively independently.

Be able to cooperate well with others, have the ability to carry out academic research or technology development, and have certain experimental skills and organization and coordination

ability. Master a foreign language, be able to read foreign literature, have certain writing ability and academic communication ability.

四、培养方式及学习年限 Training Mode and Study Duration

全日制学术型硕士生学习年限为 3 年。未能按时完成学业者，硕士生最长可延长 1 学年。

The length of study for full-time academic master students is 3 years. For those who fail to complete their studies on time, the longest extension of master's degree is one year.

五、课程学习要求 Course Requirement

须修读完成总学分不少于 23，其中 GPA 课程学分不少于 16，GPA 不低于 2.7，课程学习原则上要求在第一学年内完成。

The total credits required to be completed shall not be less than 23, including GPA course credit no less than 16, GPA no less than 2.7. In principle, the course learning is required to be completed within the first academic year.

六、培养过程要求 Training Requirement

硕士生学位论文开题一般在第二学年内进行，首次学位论文开题未通过的，可在下一学期再次申请开题，两次论文开题均未通过的，由院系考核小组基于学业考核作出“应予退学”的建议。

硕士生中期检查应在学位论文送审前三个月进行，中期检查应达到的基本要求是：完成培养计划中规定的全部课程学习并成绩合格；GPA 不低于 2.7；学位论文开题已通过。

Generally speaking, the opening of master's dissertation is carried out in the second academic year. Those who fail to pass the first thesis opening can apply for opening again in the next semester. If the opening of both theses fails, the assessment team of the college and department shall make a proposal of "dropping out" based on the academic assessment.

The mid-term examination should be carried out three months before the dissertation is submitted for examination. The basic requirements of the mid-term examination are as follows: complete all courses specified in the training plan and pass the grade; GPA is no less than 2.7; the thesis opening has passed.

七、学术成果要求 Requirement on Academic Achievements

硕士生在学习期间应从事与学院和学科培养目标相应的科学研究，并取得一定的创新性成果，成果的形式和具体要求按 2020 年 5 月公布的“物理与天文学院硕士研究生毕业要求和流程规范”执行。

During the semester, master students should engage in scientific research corresponding to the training objectives of the college and discipline, and obtain certain innovative achievements. The form and specific requirements of the results shall be implemented according to the "requirements and process specification for graduate students of School of physics and astronomy" published in May 2020.

八、学位论文 Thesis/dissertation work

硕士学位论文须是硕士生在导师指导下完成的，较为完整的学术研究工作的总结，论文应体现出硕士生所在学科领域中做出的学术成果，应能反映出硕士生已经掌握了较为坚实宽广的基础理论和较为系统的专业知识，具备了较为独立的从事科学研究能力。硕士学位论文应包括文献综述、选题意义、研究内容、研究方法、研究结果、讨论与结论等内容。

硕士学位论文的撰写应符合学校关于学位论文的规范性和质量的要求，并按照学校规定的格式打印，具体要求请参阅《上海交通大学博士、硕士学位论文撰写指南》。论文一般应以中文书写，如有特殊情况（例如论文被指定参加国际专家评审，或该研究生不具有中文写作能力）需要用英文写作，则需要向学院学位评定委员会申请并获批准，上报研究生院备案。

硕士学位论文评审一般于答辩前一个半月进行，由各学院按照本学院自定的评审办法资助实施，关于学位论文答辩的具体要求请参阅《上海交通大学关于申请授予硕士学位（学术型）的规定》。

The master's degree thesis must be a summary of the relatively complete academic research work completed by the master under the guidance of the tutor. The paper should reflect the academic achievements made by the master students in the field of their disciplines, and reflect that the master students have mastered a relatively solid and broad basic theory and systematic professional knowledge, and have a relatively independent ability to engage in scientific research. Master's degree thesis should include literature review, significance of topic selection, research content, research methods, research results, discussion and conclusion.

The writing of master's degree thesis should meet the requirements of the University on the standardization and quality of dissertation, and be printed according to the format stipulated by the University. For specific requirements, please refer to the "Shanghai Jiaotong University doctoral and master's thesis writing guide". Generally, the thesis should be written in Chinese. In case of special circumstances (such as the thesis is appointed to participate in the international expert review, or the graduate student does not have the ability to write in Chinese), he / she should apply to the academic degree evaluation committee of the college for approval and report to the graduate school for filing.

The evaluation of master's degree thesis is generally conducted one and a half months before the oral defense, and is funded and implemented by each college in accordance with its own evaluation methods. For the specific requirements of dissertation defense, please refer to the provisions of Shanghai Jiaotong University on application for granting master's degree (academic type).

九、课程设置 Courses

另见课程设置列表 Please see also the curriculum list.