

上海交通大学研究生专业课程信息收集表

Information Form for SJTU Graduate Profession Courses

课程基本信息 Basic Information				
*课程名称 Course Name	(中文 Chinese) 材料表面与界面			
	(英文 English) Surfaces and Interfaces of Materials			
*学分 Credits	2	*学时 Teaching Hours	32 (1 学分=16 课时)	
*开课学期 Semester	春季学期 Spring	*是否跨学期 Cross-semester?	否 No	跨 Spanning over 一个学期 Semesters (含夏季学期)。
*课程类型 Course Type	专业前沿课 Program Frontier Course	*课程分类 Course Type	全日制课程 For full-time students	
*课程性质 Course Category	专业课 Specialized Course	课程层次 Targeting Students	硕士课程 Master Level	
*授课语言 Instruction Language	中文 Chinese	主要授课方式 Teaching Method	课堂教学 In class teaching	
*成绩类型 Grade	等第制 Letter grading	主要考核方式 Exam Method	论文 Essay	
*开课院系 School	材料科学与工程学院 School of Materials Science and Engineering			
所属学科 Subject	材料学 Materials Science			
负责教师 Person in charge	姓名 Name	工号 ID	单位 School	联系方式 E-mail
	张文龙		材料科学与工程学院	zhangwl@sjtu.edu.cn
课程扩展信息 Extended Information				
*课程简介 (中文) Course Description	<p>(分段概述课程定位、教学目标、主要教学内容、先修课程等；不少于 200 字。)</p> <p>本课程的主要教学内容包括表面原子结构、表面电子结构、表面热力学、表面吸附、表面分析方法和表界面效应共六个部分。内容涵盖二维结晶学的基本概念，表面的原子排列、弛豫和重构以及表面缺陷，表面态和界面态以及表面隧道效应，表面空间电荷层和表面电导，界面和晶界特性，表面热力学基本理论、表面张力和表面能，吸附的宏观和微观理论，表面分析方法以及与表面和界面理论相关的现象及应用。先修课程包括材料科学基础，金属学或固体物理导论。</p>			
*课程简介 (English) Course Description	<p>(须与中文一致，翻译请力求信达雅。)</p> <p>The main contents of this course include six parts: surface atomic structure, surface electronic structure, surface thermodynamics, surface adsorption, surface analysis method as well as surface and interface effect. It covers basic concepts of two-dimensional crystallography, atomic arrangement of surfaces, relaxation and reconstruction, surface defects, surface and interfacial states as well as surface tunneling effects, surface space charge layers and surface conductance, interface and grain boundary characteristics, the basic theory of surface thermodynamics, surface tension and surface energy, macroscopic and microscopic theories of surface adsorption, surface analysis methods as well as phenomena and their applications related to surface and interface theories. The</p>			

	prerequisite includes Materials Science Foundation, Metallography or Introduction to Solid State Physics.		
*教学大纲 (中文) Syllabus	(建议列表形式, 各列内容: 章节、主要内容、课时数、教学方式等)		
	教学内容 Content	授课学时 Hours	教学方式 Format
	第一章: 绪论	4	讲课
	第二章: 表面原子结构	6	讲课
	第三章: 表面电子结构	6	讲课
	第四章: 表面热力学	4	讲课
	第五章: 表面吸附	4	讲课
	第六章: 表面分析方法	6	讲课
*教学大纲 (English) Syllabus	(须与中文一致, 翻译请力求信达雅。)		
	Content	Hours	Format
	Chapter 1: Introduction	4	Teaching
	Chapter 2: Surface atomic structure	6	Teaching
	Chapter 3: Surface electronic structure	6	Teaching
	Chapter 4: Surface thermodynamics	4	Teaching
	Chapter 5: Surface adsorption	4	Teaching
	Chapter 6: Surface analysis methods	6	Teaching
Chapter 7: Effects of surface and interface	4	Teaching	
*课程要求 (中文) Requirements	(课程考核方式、考核标准等; 不少于 50 字) 1、作业: 表面原子结构、表面电子结构、表面热力学、表面吸附每部分布置一次作业, 共 4 次作业 2、考试: 平时 (20%) + 课程论文 (80%)		
*课程要求 (English) Requirements	(须与中文一致, 翻译请力求信达雅。) 1、 Homework: For the course, totally four homework should be done. The homework will be taken from the four parts including surface atomic structure, surface electronic structure, surface thermodynamics and surface adsorption corresponds one homework.		

	2、Examination: Attendance and Homework (20%) +course papers (80%)
*课程资源 (中文) Resources	(教材、教参、网站资料等。) 1、《表面与界面物理》朱履冰 主编, 1993 2、《半导体表面与界面物理》丘思畴 著, 1995.1
*课程资源 (English) Resources	(须与中文一致, 请力求信达雅。) 1. Surface and interface physics. Lvbing Zhu, 1993 2. Surface and interface physics of semiconductors, Sichou Qiu, 1995
备注 Note	