课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	晶体结构与对称群 Crystal Structures and Symmetry Groups
2.	授课院系 Originating Department	物理系 Department of Physics
3.	课程编号 Course Code	PHYS005
4.	课程学分 Credit Value	1
5.	课程类别 Course Type	专业选修课 Major Elective Courses
6.	授课学期 Semester	夏季 Summer
7.	授课语言 Teaching Language	中英双语 English & Chinese
8.	授课教师、所属学系、联系方式（如属团队授课，请列明其他授课教师） Instructor(s), Affiliation& Contact （For team teaching, please list all instructors）	王克东副教授，物理系 慧园一栋 404 室 Kedong Wang, Associate Professor, Department of Physics Rm. 404, Building 1，HuiYuan wangkd@sustech.edu.cn 0755-8801-8207
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	待公布 To be announced
10.	选课人数限额(可不填) Maximum Enrolment （Optional）	50

11. 授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other（Please specify）	总学时 Total
学时数 Credit Hours	16	0	0	0	16

12.	先修课程、其它学习要求 **Pre-requisites or Other Academic Requirements**	No 无
13.	后续课程、其它学习规划 **Courses for which this course is a pre-requisite**	No 无
14.	其它要求修读本课程的学系 **Cross-listing Dept.**	No 无

教学大纲及教学日历 SYLLABUS

15. **教学目标 Course Objectives**

Students will learn macro and micro structures of crystals, indexing of planes and directions in crystals, symmetry operations in crystals, crystallographic point groups, symbols of point groups, crystallographic space groups, symbols of space groups, the concept of reciprocal space and reciprocal lattice, and some common methods in determining crystal structures.

学生在课堂上将学习晶体的宏观和微观结构；晶面和晶向的标定；晶体中的对称操作；晶体学点群及符号；晶体学空间群及符号；倒易空间概念；以及常用确定晶体结构的方法。

16. **预达学习成果 Learning Outcomes**

Through the learning of this course, students are expected to

通过课程的学习，预计学生将：

1. Know some typical crystal structures

知道一些典型的晶体结构

2. Know how to index planes and directions in crystals

知道如何标定晶面指数和晶向指数

3. Understand the meanings of crystallographic point group symbols

明白晶体学点群及其符号的意义

4. Understand the meanings of crystallographic space group symbols.

明白晶体学空间群及其符号的意义

5. Understand the meaning of reciprocal space and reciprocal lattice.

明白何为倒空间以及倒格子的结构

6. Know the basic principle of some common methods in determining crystal structures.

知道确定晶体结构的一些常用实验手段的基本原理。

17. 课程内容及教学日历 （如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）
Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

Lecture 1, Microstructures of crystals and Bravais lattices (4 hours)

第一章，晶体的微观结构和布拉菲格子（4 课时）

Lecture 2, Point symmetry elements and point groups (4 hours)

第二章，点对称元素和晶体学点群（4 课时）

Lecture 3, Extra symmetry elements and space groups (4 hours)

第三章，空间对称元素和空间群（4 课时）

Lecture 4, Reciprocal lattice and the principle of diffraction techniques (4 hours)

第四章，倒格子和衍射技术原理（4 课时）

Lecture 5, Indexing of surface structures (1 hour, depend on the teaching pace)

第五章，表面结构标定（1 课时，依授课进度决定）

18. 教材及其它参考资料 **Textbook and Supplementary Readings**

No textbook.

课程评估 ASSESSMENT

19.

评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance		10%		
课堂表现 Class Performance				
小测验 Quiz		50%		
课程项目 Projects				
平时作业 Assignments		40%		
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告 Final Presentation				
其它（可根据需要改写以上评估方式） Others (The above may be modified as necessary)				

20. 记分方式 **GRADING SYSTEM**

☑ A. 十三级等级制 **Letter Grading**
☐ B. 二级记分制（通过/不通过） **Pass/Fail Grading**

课程审批 REVIEW AND APPROVAL

21. **本课程设置已经过以下责任人/委员会审议通过**
This Course has been approved by the following person or committee of authority

物理系教学指导委员会
Education Instruction Committee of Physics department