



中山大学天琴中心

TianQin Research Center for Gravitational Physics,
Sun Yat-sen University

引力波暑期学校

Summer School on Gravitational Waves

学 员 手 册

2019 年 7 月 14 日~7 月 26 日

暑期学校须知

亲爱的老师、同学：

欢迎参加“中山大学天琴中心 2019 年引力波暑期学校”，现将有关暑期学校相关事宜介绍如下：

（一）入住地点

中山大学珠海校区校内学生宿舍

地址：荔园 16 号，荔园 15 号

学生处电话：020-84112505

招待所电话：0756-3668168

（二）餐饮安排

1. 用餐时间

早餐：7:30-8:30 午餐：11:00-13:00 晚餐：17:00-19:00

2. 用餐地点

荔园食堂

3. 餐券于报到时发放，请妥善保管未使用的餐券。

（三）上课地点

教学楼 C 区 203 教室

（四）温馨提示

1. 请注意保管好暑期学校文件、材料、宿舍钥匙。

2. 上课期间请关闭移动电话或调至静音状态，请勿随意走动。

3. 为方便同学们安排相关行程，宿舍可入住至 7 月 27 日（周六）。请于下午 5 点前完成退宿，宿舍最后离开的同学请及时将宿

舍钥匙、空调遥控器归还。

4. 请大家课余自由活动期间注意安全，尽量避免单独外出。如外出活动，需提前告知会务组，否则造成的安全问题需自行负责。

会务组/Conference team:

胡一鸣 Yi-Ming Hu (15876650785, huyiming@sysu.edu.cn)

张雪峰 Xue-Feng Zhang (13011221735,
zhangxf38@sysu.edu.cn)

张建东 Jian-Dong Zhang (13683286300, zhangjd9@sysu.edu.cn)

王珊慧 Shan-Hui Wang (15812793390,
wangshh65@sysu.edu.cn)

张蕾 Lei Zhang (16607565310, zanglei56@sysu.edu.cn)

紧急联系人/Emergency contact:

龙腾雨 Teng-Yu Long (13025785205)

袁慧敏 Hui-Min Yuan (13229857921)

一、课表/Program:

上课地点: 教学楼 C 区 203 教室

All courses will take place at C203

7 月 15 日 (星期一) /15th July (Monday)

时间	课程安排	主讲人
08:30 – 08:40	开幕式 Opening Ceremony	梅健伟
08:40 – 09:00	合影 Group Photo	
09:00 – 10:10	航天器姿态与平动控制问题: 天琴方程 Spacecraft attitude and translation control problems: TianQin equations	Enrico Canuto
10:10 – 10:30	Coffee Break	
10:30 – 11:40	航天器姿态与平动控制问题: 天琴方程 Spacecraft attitude and translation control problems: TianQin equations	Enrico Canuto
11:40 – 13:00	Lunch	
14:30 – 15:40	刚体动力学: 天琴模型 Dynamics of rigid bodies: TianQin models	Enrico Canuto
15:40 – 16:00	Coffee Break	
16:00 – 17:10	刚体动力学: 天琴模型 Dynamics of rigid bodies: TianQin models	Enrico Canuto

7 月 16 日 (星期二) /16th July (Tuesday)

时间	课程安排	主讲人
09:00 – 10:10	B-DECIGO 与 DECIGO 项目的科学目标与技术介绍 Science and Technology of B-DECIGO and DECIGO	Masaki Ando
10:10 – 10:30	Coffee Break	
10:30 – 11:40	B-DECIGO 与 DECIGO 项目的科学目标与技术介绍 Science and Technology of B-DECIGO and DECIGO	Masaki Ando
11:40 – 13:00	Lunch	
14:30 – 15:40	平动与姿态控制介绍: 天琴控制系统 Introduction to translation and attitude control: TianQin control system	Enrico Canuto
15:40 – 16:00	Coffee Break	
16:00 – 17:10	平动与姿态控制介绍: 天琴控制系统 Introduction to translation and attitude control: TianQin control system	Enrico Canuto

7月17日（星期三）/17th July (Wednesday)

时间	课程安排	主讲人
09:00 – 10:10	B-DECIGO 与 DECIGO 项目的科学目标与技术介绍 Science and Technology of B-DECIGO and DECIGO	Masaki Ando
10:10 – 10:30	Coffee Break	
10:30 – 11:40	B-DECIGO 与 DECIGO 项目的科学目标与技术介绍 Science and Technology of B-DECIGO and DECIGO	Masaki Ando
11:40 – 13:00	Lunch	
14:30 – 15:40	如何设计空间引力波天文台 How to design your own gravitational-wave observatory	Simon Barke
15:40 – 16:00	Coffee Break	
16:00 – 17:10	如何设计空间引力波天文台 How to design your own gravitational-wave observatory	Simon Barke

7月18日（星期四）/18th July (Thursday)

时间	课程安排	主讲人
09:00 – 10:10	如何设计空间引力波天文台 How to design your own gravitational-wave observatory	Simon Barke
10:10 – 10:30	Coffee Break	
10:30 – 11:40	如何设计空间引力波天文台 How to design your own gravitational-wave observatory	Simon Barke
11:40 – 13:00	Lunch	
14:30 – 15:40	LISA 探路者实验原理 LISA Pathfinder: Principles	Timothy Sumner
15:40 – 16:00	Coffee Break	
16:00 – 17:10	LISA 探路者实验结果 LISA Pathfinder: Results	Timothy Sumner

7月19日（星期五）/19th July (Friday)

时间	课程安排	主讲人
09:00 – 10:10	孤立检验质量电荷控制原理 Charge Control for Isolated Proof-masses: Principles	Timothy Sumner
10:10 – 10:30	Coffee Break	
10:30 – 11:40	孤立检验质量电荷控制实践 Charge Control for Isolated Proof-masses: Implementation	Timothy Sumner
11:40 – 13:00	Lunch	
14:30 – 15:40	地面振动隔离 Seismic Isolation	Giles Hammond
15:40 – 16:00	Coffee Break	
16:00 – 17:10	悬吊系统 Suspensions	Giles Hammond

7月22日（星期一）/22nd July (Monday)

时间	课程安排	主讲人
09:00 – 10:10	学生习作：设计室温或低温悬吊装置 Students Work in Groups: to design a room temperature and/or cryogenic suspension	Giles Hammond
10:10 – 10:30	Coffee Break	
10:30 – 11:40	学生报告 Student Presentations: to present designs and motivations	Giles Hammond
11:40 – 13:00	Lunch	
14:30 – 15:40	引力波数据处理初步 Introductory GW Data Analysis	Ik Siong Heng
15:40 – 16:00	Coffee Break	
16:00 – 17:10	引力波数据处理初步 Introductory GW Data Analysis	Ik Siong Heng

7月23日（星期二）/23rd July (Tuesday)

时间	课程安排	主讲人
09:00 – 10:10	广义相对论与引力波简介 Introduction of General Relativity and Gravitational Waves	Martin Hendry
10:10 – 10:30	Coffee Break	
10:30 – 11:40	引力波物理 Gravitational Wave Physics	Martin Hendry
11:40 – 13:00	Lunch	
14:30 – 15:40	构建引力波数据处理管线 Constructing GW Data Analysis pipelines	Ik Siong Heng
15:40 – 16:00	Coffee Break	
16:00 – 17:10	构建引力波数据处理管线 Constructing GW Data Analysis pipelines	Ik Siong Heng

7月24日（星期三）/24th July (Wednesday)

时间	课程安排	主讲人
09:00 – 10:10	引力波天文学 GW astronomy	Martin Hendry
10:10 – 10:30	Coffee Break	
10:30 – 11:40	引力波天文学 GW astronomy	Martin Hendry
11:40 – 13:00	Lunch	
14:30 – 15:40	冷原子干涉惯性传感和精密测量 Cold atomic interference inertial sensing and precision measurement	胡忠坤
15:40 – 16:00	Coffee Break	
16:00 – 17:10	冷原子干涉惯性传感和精密测量 Cold atomic interference inertial sensing and precision measurement	胡忠坤

7月25日（星期四）/25th July (Thursday)

时间	课程安排	主讲人
09:00 – 10:10	冷原子干涉惯性传感和精密测量 Cold atomic interference inertial sensing and precision measurement	胡忠坤
10:10 – 10:30	Coffee Break	
10:30 – 11:40	冷原子干涉惯性传感和精密测量 Cold atomic interference inertial sensing and precision measurement	胡忠坤
11:40 – 13:00	Lunch	
14:30 – 15:40	引力波探测激光干涉仪 Laser Interferometry for GW Detection	Michimura Yuta
15:40 – 16:00	Coffee Break	
16:00 – 17:10	引力波探测激光干涉仪 Laser Interferometry for GW Detection	Michimura Yuta

7月26日（星期五）/26th July (Friday)

时间	课程安排	主讲人
09:00 – 10:10	引力波探测激光干涉仪 Laser Interferometry for GW Detection	Michimura Yuta
10:10 – 10:30	Coffee Break	
10:30 – 11:40	引力波探测激光干涉仪 Laser Interferometry for GW Detection	Michimura Yuta
11:40 – 13:00	Lunch	
14:30 – 15:40	空间惯性基准设计 Inertial Reference System Design	周泽兵
15:40 – 16:00	Coffee Break	
16:00 – 17:10	空间惯性基准设计 Inertial Reference System Design	周泽兵
17:10-17:20	结业式 Closure	练军想

二、Participants/名册（按姓氏顺序排列）：

	Name	Institute																																	
1	Masaki Ando（安東正樹）	University of Tokyo																																	
2	Simon Barke	University of Florida																																	
3	Enrico Canuto	Polytechnic University of Turin																																	
4	Giles Hammond	University of Glasgow																																	
5	Martin Hendry	University of Glasgow																																	
6	Ik Siong Heng（王毅雄）	University of Glasgow																																	
7	胡忠坤 Zhong-Kun Hu	Huazhong University of Science and Technology																																	
8	Timothy Sumner	Imperial College London																																	
9	Michimura Yuta（道村唯太）	University of Tokyo																																	
10	周泽兵 Ze-Bing Zhou	Huazhong University of Science and Technology																																	
学员名单： <table> <tr> <td>曹娅琴 Ya-Qin Cao</td><td>常 鑫 Xin Chang</td><td>崔 凯 Kai Cui</td></tr> <tr> <td>范崇锋 Chong-Feng Fan</td><td>冯 叶 Ye Feng</td><td>冯嘉茜 Jia-Qian Feng</td></tr> <tr> <td>郭 弘 Hong Guo</td><td>侯翠芳 Cui-Fang Hou</td><td>贾 楠 Nan Jia</td></tr> <tr> <td>李贵琳 Gui-Lin Li</td><td>李 佳 Jia Li</td><td>李志向 Zhi-Xiang Li</td></tr> <tr> <td>刘雁冲 Yan-Chong Liu</td><td>马 浩 Hao Ma</td><td>马浩君 Hao-Jun Ma</td></tr> <tr> <td>毛姣姣 Jiao-Jiao Mao</td><td>孟圣峰 Sheng-Feng Meng</td><td>邵才莹 Cai-Ying Shao</td></tr> <tr> <td>苏星达 Xing-Da Su</td><td>吴文浩 Wen-Hao Wu</td><td>吴张启 Zhang-Qi Wu</td></tr> <tr> <td>谢孟喆 Meng-Zhe Xie</td><td>许 昕 Xin Xu</td><td>杨菲宇 Fei-Yu Yang</td></tr> <tr> <td>杨 航 Hang Yang</td><td>杨志伟 Zhi-Wei Yang</td><td>叶少伟 Shao-Wei Ye</td></tr> <tr> <td>曾 明 Ming Zeng</td><td>张梦真 Meng-Zhen Zhang</td><td>赵梦浩 Meng-Hao Zhao</td></tr> <tr> <td>祝冬冬 Dong-Dong Zhu</td><td></td><td></td></tr> </table>			曹娅琴 Ya-Qin Cao	常 鑫 Xin Chang	崔 凯 Kai Cui	范崇锋 Chong-Feng Fan	冯 叶 Ye Feng	冯嘉茜 Jia-Qian Feng	郭 弘 Hong Guo	侯翠芳 Cui-Fang Hou	贾 楠 Nan Jia	李贵琳 Gui-Lin Li	李 佳 Jia Li	李志向 Zhi-Xiang Li	刘雁冲 Yan-Chong Liu	马 浩 Hao Ma	马浩君 Hao-Jun Ma	毛姣姣 Jiao-Jiao Mao	孟圣峰 Sheng-Feng Meng	邵才莹 Cai-Ying Shao	苏星达 Xing-Da Su	吴文浩 Wen-Hao Wu	吴张启 Zhang-Qi Wu	谢孟喆 Meng-Zhe Xie	许 昕 Xin Xu	杨菲宇 Fei-Yu Yang	杨 航 Hang Yang	杨志伟 Zhi-Wei Yang	叶少伟 Shao-Wei Ye	曾 明 Ming Zeng	张梦真 Meng-Zhen Zhang	赵梦浩 Meng-Hao Zhao	祝冬冬 Dong-Dong Zhu		
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三、交通和住宿/ **Transportation and Accommodation**

Transportation (Outside school)



Flight:

The name of the local airport is Zhuhai Jinwan Airport (珠海金湾机场). It is about one hour by taxi from the airport to the SYSU Zhuhai campus. The cost is about RMB200.

Train:

One can always take the train to Guangzhou first, and then take an intercity from GuangzhouNan (广州南) to ZhuHaiBei (珠海北) or TangJiaWan (唐家湾). These are two stops that are closest to the SYSU Zhuhai campus.

Bus:

One can also go to the SYSU main campus in Guangzhou, and then take the inter-campus bus to the SYSU Zhuhai campus.

Transportation (Inside school)



Class location: 教学实验大楼 (Teaching and Laboratory Building)

Dining Location: 荔园餐厅 (No.1 Student Cafeteria, Liyuan)

Reception& Organization

July14 Registration

(Starting at 9:00 am. Please inform us in advance if you need to arrive earlier.)

July15 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July16 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July17 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July18 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July19 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July20&21 Happy Weekend

July22 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July23 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July24 Courses: Teaching and Laboratory Building C203 , Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July25 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July26 Courses: Teaching and Laboratory Building C203, Zhuhai Campus, SYSU

Lunch: 荔园食堂

Dinner: 荔园食堂

July27 Leave School

(Starting at 9:00 am and before 5:00 pm. Please inform us in advance if you need to leave earlier.)