



The 6th OVERSEAS CHINESE PHYSICS ASSOCIATION ACCELERATOR SCHOOL

第六届世界华人物理学会加速器学校

2010.07.29 ~ 8.7 · 北京



华人物理学会加速器学校

OVERSEAS CHINESE PHYSICS ASSOCIATION

ACCELERATOR SCHOOL

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The sixth OCPA Accelerator School

Organized by

Division of Beam Physics, Overseas Chinese Physics Association

Institute of High Energy Physics, Chinese Academy of Sciences

Sponsored by

Overseas Chinese Physics Association

National Synchrotron Radiation Research Center, Hsinchu

Shanghai Institute of Applied Physics, CAS, Shanghai

Institute of High Energy Physics, CAS, Beijing

World Scientific Publishing Co Pte Ltd, Singapore

Institute of Modern Physics, CAS, Lanzhou

University of Science and Technology of China, Hefei

Peking University

Tsinghua University

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K.K. Phua	潘国驹	IAS, NTU and WSPC
Hongjie Xu	徐洪杰	SINAP

Curriculum Committee

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Local Committee

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Gang Chen	陈 刚	IHEP
Ping Su	苏 萍	IHEP
Jingshi Zhao	赵晶石	IHEP

Date and Location

The Sixth OCPA Accelerator School will be held at China HuaDian Advanced Training Center(中国华电集团高级培训中心), MiYun District(密云区), Beijing, China, from Thursday, July 29 to Saturday, August 7, 2010.

Hotel Address:

XiWengZhuang Town, MiYun District, Beijing
(北京市密云县溪翁庄镇(密云县溪翁庄镇路口左转 1000 米))

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Introduction

This is the sixth OCPA Accelerator School in its series. The first School was held in Hsinchu, Taiwan, August 3-12, 1998; the second in Yellow Mountain, Anhui, July 18-27, 2000; the third in Singapore, July 25 to August 3, 2002. The 2004 school was canceled due to SARS and the fourth School was held in Yangzhou, Jiangsu, July 27-August 5, 2006. The fifth school was held in Nantou, Taiwan, September 1-10, 2008. The purpose of the school is to provide the students a basic training on modern accelerators. It offers a program that is both exciting and practical. Participants are welcome from all countries and regions. Students are expected to have the equivalent of a senior undergraduate or graduate school training in physics or engineering. No prior knowledge of accelerators is required. Topics covered in the school include those encountered in the operation of existing accelerators, and those facing accelerators that are being proposed and constructed. The accelerators emphasized particularly include synchrotron radiation, high energy physics, heavy ions, and medical applications. Office hours and discussion sessions are set aside in the formal course sessions to consolidate the learning. After the introduction and consolidation of the basic topics, some advanced topics encountered in the more modern accelerators will be introduced.

The Sixth OCPA Accelerator School (OCPA2010) will be held from July 29 to August 7, 2010 in Beijing. The themes of OCPA2010 are spallation neutron sources and particle therapy accelerator facilities. The lectures involve basic accelerator physics, technology systems and applications. The curriculum for the school is designed as basic topics (10 courses), topics on spallation neutron sources (4 courses), topics on hadron therapy (6 courses), technical topics (11 courses), and seminars (5 courses). Professors from U.S., Taiwan and Mainland of China are invited to give the lectures.

Registration Fee

There will be no registration fee for attending the school.

Official Language

The official spoken language for all activities of the school is Chinese (Mandarin).

Program of the Sixth OCPA Accelerator School

TIME	July 29	July 30	July 31	August 1	August 2	August 3	August 4	August 5	August 6	August 7		
7:00	Breakfast											
08:00-09:00	G1: Intro. to Accelerators	G3-Long. Dynamics	G5-Impedance	G7-Hadron synchrotrons	Mutianyu Great Wall (慕田峪长城)	G8-Injection & extraction	S1-New light sources	H5-IMP carbon therapy	T10-Cryogenics & SC	S4-Targets & spectrometers		
09:00-10:00	G1: Intro to Accelerators	G3-Long. Dynamics	G5-Impedance	G7-Hadron synchrotrons		G8-Injection & extraction	S2-Advanced acceleration	H6-Taiwan proton therapy	T10-Cryogenics & SC	S5-Management engineering		
Break						Break						
10:15-11:15	G1: Intro. to Accelerators	G3-Long. Dynamics	G6-Hadron linacs	G7-Hadron synchrotrons		G9-Beam transport	H1-Hadron therapy	T7-RF for hadron linac	G10-Cyclotron	S5-Management engineering		
11:15-12:15	G2-Transverse Dynamics	G4-Lattice	G6-Hadron linacs	N2-Spall. Neu. sources		G9-Beam transport	H1-Hadron therapy	T7-RF for hadron linac	G10-Cyclotron	Closing		
12:30	Lunch					Lunch						
14:00-15:00	G2-Transverse Dynamics	G4-Lattice	G6-Hadron linac	N3-Design CSNS linac		N4-Design CSNS RCS	H2-Accel. for hadron therapy	T8-RF for hadron rings	T11-Radiation protection	DEPARTURE		
15:00-16:00	G2-Transverse Dynamics	G4-Lattice	N1-High power accel.	N3-Design CSNS linac		N4-Design CSNS RCS	H2-Accel. for hadron therapy	T8-RF for hadron rings	Exam			
Break						Break						
16:15-17:15	T2-Magnet	T1-Ion Source	T5-Vacuum	T3-Power supply		T6-Beam Diagnostics	H3-Beam delivery	T9-Control				
17:15-18:15	T2-Magnet	T1-Ion Source	T5-Vacuum	T4-Pulsed PS		T6-Beam Diagnostics	H3-Beam delivery	T9-Control				
18:30	Super					Super						
20:00-21:00	S3-Accel. applications	Office hours and discussion	Office hours and discussion	Banquet		Office hours and discussion	H4-APTF design	Office hours and discussion	Office hours and discussion			
21:00-22:00	S3-Accel. applications	Homework	Homework			Homework	Homework	Homework	Homework	Homework		

Class Location: Multifunction Hall (多功能厅)

Dining Location: Banquet Hall of the second floor of Building 1 (1 号楼二层宴会厅)

School Courses and Assignment

Course topics	Code	Units	Lecturer	e-mail
General courses				
Introduction to accelerators	G1	3	张闯	zhangc@ihep.ac.cn
Transverse dynamics	G2	3	李世元	shylee@indiana.edu
Longitudinal dynamics	G3	3	李世元	
Lattice design	G4	3	郭锦城	cckuo@nsrrc.org.tw
Impedance and collective effects	G5	2	赵午	achao@slac.stanford.edu
Introduction to hadron linacs	G6	3	傅世年	fusn@ihep.ac.cn
Introduction to hadron synchrotrons	G7	3	韦杰	weij@tsinghua.edu.cn
Injection and extraction	G8	2	邓昌黎	teng@aps.anl.gov
Beam transport and manipulation	G9	2	唐靖宇	tangjy@ihep.ac.cn
Introduction to cyclotrons	G10	2	张天爵	tjzhang@ciae.ac.cn
Topics on spallation neutron sources				
Introduction to high-power accelerators	N1	1	翁武忠	Bill.Weng@science.doe.gov
Introduction to SNS facilities	N2	1	韦杰	weij@tsinghua.edu.cn
Design CSNS linac	N3	2	傅世年	fusn@ihep.ac.cn
Design of CSNS RCS	N4	2	王生	wangs@ihep.ac.cn
Topics on hadron therapy				
Introduction to hadron therapy	H1	2	方守贤	fangsx@ihep.ac.cn
Accelerator design for hadron therapy	H2	2	李世元	shylee@indiana.edu
Beam delivery system	H3	2	唐靖宇	tangjy@ihep.ac.cn
APTF design	H4	1	方守贤	fangsx@ihep.ac.cn
Carbon therapy at IMP	H5	1	宋明涛	songmt@impcas.ac.cn
Proton therapy in Taiwan	H6	1	葉健一	yen0805@cgmh.org.tw
Technical courses				
Introduction to ion sources	T1	2	赵红卫	zhaohw@impcas.ac.cn
Magnet technology	T2	2	黄清郷	cshwang@nsrrc.org.tw
Power supply technology	T3	1	张旌	jingzhang@mail.ihep.ac.cn
Pulsed power supplies and modulators	T4	1	谷鸣	guming@sinap.ac.cn
Vacuum technology	T5	2	熊高鈺	hsiung@nsrrc.org.tw
Beam instrumentation technology	T6	2	冷用斌	lengyongbin@sinap.ac.cn
RF technology for hadron linacs	T7	2	李健	jlee@ihep.ac.cn
RF technology for hadron synchrotrons	T8	2	孙虹	sunh@ihep.ac.cn
Accelerator control	T9	2	王春红	wangch@ihep.ac.cn
Cryogenics & SC technology	T10	2	王兆恩	rftwang@nsrrc.org.tw
Radiation protection	T11	1	王庆斌	wangqb@ihep.ac.cn
Seminars				
New generation light sources	S1	1	邓昌黎	teng@aps.anl.gov
Advanced acceleration	S2	1	邓昌黎	
Accelerator applications	S3	2	唐传祥	tang.xuh@tsinghua.edu.cn
Spallation targets and spectrometers	S4	1	王芳卫	fwwang@aphy.iphy.ac.cn
Management of accelerator engineering	S5	2	翁武忠	Bill.Weng@science.doe.gov
Examination		3	All	
Total		70	36 (27)	

Arrival and Departure

It is suggested that you plan your travel to arrive at the Institute of High Energy Physics, (IHEP,中国科学院高能物理研究所)CAS in Beijing, China as your destination for all the participants. The nominal arrival date is July 28 for students, and the latest arrival time for teachers is one day before their lectures. We will arrange a school bus for teachers and students from **IHEP** to China HuaDian Advanced Training Center(中国华电集团高级培训中心) on July 28 and from **China HuaDian Advanced Training Center** to **IHEP** on August 7 after the school . The bus ride will be about an hour and a half. The bus schedule is to be determined based on the convenience of the school teachers and students later, but at this time is set sometime in the afternoon.

If school lecturers need airport pickup or plan to go to **China HuaDian Advanced Training Center** independently, the school will make the arrangement at their request. Please contact with Ms.Jingshi ZHAO(赵晶石)at ocpa2010@ihep.ac.cn.

How to get to IHEP?

Beijing can be reached by all major international airlines. Domestic participants can also take trains and buses. It is most convenient for you to take taxi or by subway from the Beijing Capital Airport to IHEP. If you take taxi, it's about 40 minutes to 1 hour, and costs about ¥120 to¥150 RMB with ¥10 highway passing fee. If you want to get to IHEP by subway, you can choose Beijing Subway Airport Line to Dongzhimen Station to take Line2 and Line1. Airport →Dongzhimen(Line2)→Jianguomen/Fuxingmen(Line1)→Yuquanlu(玉泉路) (IHEP).

School Program

The school program has described in the previous page of this brochure. The first lecture starts at 8:00 a.m. on Thursday, July 29. Lecture material will be distributed upon arrival or before each lecture.

Students are encouraged to apply for the credits offered at the Graduate University of their affiliations with the certification issued by this OCPA accelerator school.

Teachers of basic and advanced courses will assign homework to students, and the school will arrange assignment and discussion hours for students to do homework. There will be office hours and discussion sessions for teachers to answer student's questions.

The school program contains a final open-book examination on August 6. Examination results will be available before the end of the school. The school will honor the outstanding students according to study performance and examination records at its close session.

Proceedings

There is presently no plan to issue the school proceedings other than photocopies of the teaching material distributed at the school. Proceedings of the 2010 school will be distributed during this school as part of the learning material.

Social Program

Participants are invited to join a one-day excursion on Monday August 2 to tour the Mutianyu Great Wall. On Sunday, August 1, the school will host a banquet.

Utilities

There is internet service available in the hotel room for connecting your laptop computers. A photocopying machine will also be provided. The electric appliances operate at 220 V 50 Hz.



中国科学院高能物理研究所

Division of Beam Physics, Overseas Chinese Physics Association

Institute of High Energy Physics, Chinese Academy of Sciences

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