

Agenda for 2016 Joint ICTP/CAS/IAEA School and Workshop on Plasma-Material Interaction in Fusion Devices

Venue: Building No. 4, ASIPP. Lecture/Oral/Training: Meeting Room 601; Poster: 6th Floor Middle Meeting Room (from Tuesday on)

Monday July 18th		Tuesday July 19th		Wednesday July 20th		Thursday July 21st		Friday July 22nd	
7:40 Shuttle bus to ASIPP									
Session L1		Session L3		Session L4		Session L5		Session L6	
Lecturer: Niels Gierse		Lecturer: Jörg Neugebauer		Lecturer: Fei Gao and B. D. Wirth		Lecturer: B. D. Wirth and Fei Gao		Lecturer: Guang-Hong Lu	
8:30-9:00	Opening by Dr. Wan (Director of ASIPP) and Dr. Braams (Chaired by Dr. Luo)								
9:00-10:20	Lecture 1	8:30-10:00	Lecture 4	8:30-10:00	Lecture 6 by Fei Gao	8:30-10:00	Lecture 8 by B. D. Wirth	8:30-10:00	Lecture 10
	Plasma surface interactions		Ab initio description of defects in materials under extreme conditions (1)		Molecular dynamics simulations of fusion materials: challenges and opportunities (1)		Atomistic modeling of helium diffusion and clustering behavior in tungsten		Introduction to first-principles method
10:20-10:40	Photograph taking & Coffee break	10:00-10:20	Coffee break	10:00-10:20	Coffee break	10:00-10:20	Coffee break	10:00-10:20	Coffee break
10:40-12:00	Lecture 2	10:20-11:50	Lecture 5	10:20-11:50	Lecture 7 by B. D. Wirth	10:20-11:50	Lecture 9 by Fei Gao	10:20-11:50	Lecture 11
	Plasma-facing materials		Ab initio description of defects in materials under extreme conditions (2)		Introduction on Xolotl PSI code		Molecular dynamics simulations of fusion materials: challenges and opportunities (2)		Applications of first-principles method in studying fusion materials
12:00-13:30 Lunch									
Session L2		Session O2: Tungsten (1)		Session O3: Tungsten (2)		Session O4: Iron		Session O5: Damages	
Lecturer: Guang-Nan Luo		Chair: Jörg Neugebauer		Chair: Fei Gao		Chair: B. D. Wirth		Chair: Guang-Hong Lu	
13:30-15:00	Lecture 3 Plasma-facing components	13:30-13:55	O2 (Chang-Song Liu)	13:30-13:45	O11 (Yu-Wei You)	13:30-13:45	O15 (Jingyi Shi)	13:30-13:55	O3 (Jizhong Sun)
		13:55-14:10	O06 (XianShan Kong)	13:45-14:00	O12 (Jingzhong Fang)	13:45-14:00	O16 (Tao Lu)	13:55-14:10	O20 (Baoqin Fu)
		14:10-14:25	O07 (Li-Fang Wang)	14:00-14:15	O13 (Zhangcan Yang)	14:00-14:15	O17 (Jianhua Ding)	14:10-14:25	O21 (Yuexia Wang)
		14:25-14:40	O08 (Yinan Wang)	14:15-14:30	O14 (Haohua Wen)	14:15-14:30	O18 (Yange Zhang)	14:25-14:40	O22 (Xuebang Wu)
		14:40-14:55	O09 (Jiechao Cui)			14:30-14:45	O19 (Amit Sharma)	14:40-14:55	O23 (Yonggang Li)
		14:55-15:10	O10 (Jie Hou)						
15:10-15:30	Coffee break	15:10-15:30	Coffee break	14:30-14:50	Coffee break	14:45-15:05	Coffee break	14:55-15:20	Coffee break
Session O1: Experiments		15:30-18:00 Lab tour to ISSP and ASIPP		Session CT: Training Courses		Session P: Poster session		Session R: Review and Closing	
Chair: Niels Gierse				Lecturer: B. D. Wirth and Fei Gao		Chair: Guang-Nan Luo			
15:30-15:55	O1 (Huiqiu Deng)			14:50-16:20	Training on Xolotl by Prof. B. D. Wirth	15:05-18:00	Poster session - 6th Floor Middle Meeting Room (starting from Tuesday)	15:20-16:20	Discussion chaired by Bastiaan J. Braams
15:55-16:10	O01 (Petter Ström)			16:30-18:00	Training on LAMMPS by Prof. Fei Gao			16:20-16:50	Summary by Guang-Nan Luo & Closing by Bastiaan J. Braams
16:10-16:25	O02 (Yuping Xu)								
16:25-16:40	O03 (Jun Wang)								
16:40-16:55	O04 (Younggil Jin)								
16:55-17:10	O05 (Long Cheng)								
17:30-20:00	Reception								
20:00	Shuttle bus to hotel	18:00	Shuttle bus to hotel	18:00	Shuttle bus to hotel	18:00	Shuttle bus to hotel	17:00	Shuttle bus to hotel

Sunday July 17th, 2016 / Arrival			
14:00-18:00	Registration (lobby of BEST WESTERN PREMIER Hotel Hefei)		
Monday July 18th, 2016 / Session day 1st			
7:40	Shuttle bus to ASIPP (main gate of BEST WESTERN PREMIER Hotel Hefei)		
8:00-8:30	Registration (entrance of meeting room 601)		
Opening session – Chairman: Guang-Nan Luo (Institute of Plasma Physics, Chinese Academy of Sciences)			
8:30-9:00	Welcome by Dr. Baonian Wan (Director of ASIPP) and Dr. Bastiaan J. Braams (IAEA)		
Session L1 – Lecturer: Niels Gierse (Forschungszentrum Jülich)			
9:00-10:20	Lecture 1	Plasma surface interactions	
10:20-10:40	Photograph taking & Coffee break		
10:40-12:00	Lecture 2	Plasma-facing materials	
12:00-13:30	Lunch		
Session L2 – Lecturer: Guang-Nan Luo (Institute of Plasma Physics, Chinese Academy of Sciences)			
13:30-15:00	Lecture 3	Plasma-facing components	
15:10-15:30	Coffee break		
Session O1: Experiments – Chairman: Niels Gierse (Forschungszentrum Jülich)			
15:30-15:55	I1 (Huiqiu Deng)	Hunan University	Molecular dynamics simulation of the wetting behaviors of liquid Li on W surface
15:55-16:10	O01 (Petter Ström)	KTH, Royal Institute of Technology	Ion beam methods for the study of plasma-facing materials
16:10-16:25	O02 (Yuping Xu)	Institute of Plasma Physics, Chinese Academy of Sciences	Plasma-Material Interaction experiments during the 2015 spring EAST campaign employing MAPES
16:25-16:40	O03 (Jun Wang)	Beihang University	Surface morphology and deuterium retention in tungsten vanadium alloys exposed to deuterium plasmas in linear plasma device STEP
16:40-16:55	O04 (Younggil Jin)	Seoul National University	TDS Study of Effect of High Energy Ion induced Cascade Collisional Damage on Deuterium Retention in Tungsten
16:55-17:10	O05 (Long Cheng)	Beihang University	Investigation of surface morphology and deuterium retention in tungsten exposed to neon and deuterium mixture plasmas in Pilot-PSI
17:30-20:00	Reception		
20:00	Shuttle bus to the hotel (Main gate of Cafeteria of ASIPP)		

Tuesday July 19th, 2016 / Session day 2nd			
7:40	Shuttle bus to ASIPP (main gate of BEST WESTERN PREMIER Hotel Hefei)		
Session L3 – Lecturer: Jörg Neugebauer (Max Planck Institute for Iron Research)			
8:30-10:00	Lecture 4	Ab initio description of defects in materials under extreme conditions (1)	
10:00-10:20	Coffee break		
10:20-11:50	Lecture 5	Ab initio description of defects in materials under extreme conditions (2)	
12:00-13:30	Lunch		
Session O2: Tungsten (1) – Chairman: Jörg Neugebauer (Max Planck Institute for Iron Research)			
13:30-13:55	I2 (Chang-Song Liu)	Institute of Solid State Physics, Chinese Academy of Sciences	Multiscale insights into radiation resistance of nanocrystals
13:55-14:10	O06 (XianShan Kong)	Institute of Solid State Physics, Chinese Academy of Sciences	Towards understanding the differences in irradiation effects of He, Ne and Ar plasma by investigating the physical origin of their clustering in tungsten
14:10-14:25	O07 (Li-Fang Wang)	Beihang University	A new embedded-atom method interatomic potential for tungsten-hydrogen system
14:25-14:40	O08 (Yinan Wang)	Tsinghua University	Hydrogen-induced change in core structures of screw and edge dislocations in Tungsten
14:40-14:55	O09 (Jiechao Cui)	Sichuan University	Estimation of the lifetime of small helium bubbles near tungsten surfaces - a methodological study.
14:55-15:10	O10 (Jie Hou)	Institute of Solid State Physics, Chinese Academy of Sciences	Retention behavior of hydrogen isotopes in tungsten revisited by multi-scale modelling
15:10-15:30	Coffee break		
15:30-18:00	Lab tour to ISSP and ASIPP		
18:00	Shuttle bus to the hotel (Main gate of Building No. 4 in ASIPP)		

Wednesday July 20th, 2016 / Session day 3rd			
7:40	Shuttle bus to ASIPP (main gate of BEST WESTERN PREMIER Hotel Hefei)		
Session L4 – Lecturer: Fei Gao (University of Michigan) and Brian D. Wirth (University of Tennessee)			
8:30-10:00	Lecture 6 by Gao	Molecular dynamics simulations of fusion materials: challenges and opportunities (1)	
10:00-10:20	Coffee break		
10:20-11:50	Lecture 7 by Wirth	Introduction on Xolotl PSI code	
12:00-13:30	Lunch		
Session O3: Tungsten (2) – Chairman: Fei Gao (University of Michigan)			
13:30-13:45	O11 (Yu-Wei You)	Institute of Solid State Physics, Chinese Academy of Sciences	Clustering of transmutation solutes Re, Os, and Ta and its influence on helium bubble formation in tungsten
13:45-14:00	O12 (Jingzhong Fang)	Hunan University	Molecular dynamics simulations of the clustering and dislocation loop punching behaviors of noble gas atom in tungsten
14:00-14:15	O13 (Zhangcan Yang)	University of Tennessee	Kinetic Monte Carlo Simulations of Helium Cluster Nucleation in Tungsten with Pre-Existing Vacancies
14:15-14:30	O14 (Haohua Wen)	Sun Yat-Sen University	Interpretation of non-Arrhenius diffusion of helium in BCC Tungsten
14:30-14:50	Coffee break		
Session CT: Training Courses			
14:50-16:20	Training on Xolotl by Prof. Wirth		
16:30-18:00	Training on LAMMPS by Prof. Gao		
18:00	Shuttle bus to the hotel (Main gate of Building No. 4 in ASIPP)		

Thursday July 21st, 2016 / Session day 4th			
7:40	Shuttle bus to ASIPP (main gate of BEST WESTERN PREMIER Hotel Hefei)		
Session L5 – Lecturer: Brian D. Wirth (University of Tennessee) and Fei Gao (University of Michigan)			
8:30-10:00	Lecture 8 by Wirth	Atomistic modeling of helium diffusion and clustering behavior in tungsten	
10:00-10:20	Coffee break		
10:20-11:50	Lecture 9 by Gao	Molecular dynamics simulations of fusion materials: challenges and opportunities (2)	
12:00-13:30	Lunch		
Session O4: Iron – Chairman: Brian D. Wirth (University of Tennessee)			
13:30-13:45	O15 (Jingyi Shi)	University of Science and Technology of China	Atomistic study on the growth of helium bubbles in α-Fe from the view of energetics and mechanics
13:45-14:00	O16 (Tao Lu)	Institute of Plasma Physics, Chinese Academy of Sciences	Atomistic study of hydrogen behavior around a screw dislocation in alpha iron
14:00-14:15	O17 (Jianhua Ding)	Dalian University of Technology	The magnetism (Fe, Cr) and the stability of He-vacancy complexes in Fe-9Cr alloys
14:15-14:30	O18 (Yange Zhang)	Institute of Solid State Physics, Chinese Academy of Sciences	Effect of carbon and alloying solute atoms on helium behaviors in α-Fe
14:30-14:45	O19 (Amit Sharma)	Wright State University	Adaptive Kinetic Monte Carlo Study of Hydrocarbon Diffusion/Trapping in First-Wall and Amorphous Hydrocarbon Flakes
14:45-15:05	Coffee break		
Session P: Poster session – Chairman: Guang-Nan Luo (Institute of Plasma Physics, Chinese Academy of Sciences)			
15:05-18:00	6th Floor Middle Meeting Room, to be posted from Tuesday till Thursday		
18:00	Shuttle bus to the hotel (Main gate of Building No. 4 in ASIPP)		

Friday July 22nd, 2016 / Session day 5th			
7:40	Shuttle bus to ASIPP (main gate of BEST WESTERN PREMIER Hotel Hefei)		
Session L6 – Lecturer: Guang-Hong Lu (Beihang University)			
8:30-10:00	Lecture 10	Introduction to first-principles method	
10:00-10:20	Coffee break		
10:20-11:50	Lecture 11	Applications of first-principles method in studying fusion materials	
12:00-13:30	Lunch		
Session O5: Damages – Chairman: Guang-Hong Lu (Beihang University)			
13:30-13:55	I3 (Jizhong Sun)	Dalian University of Technology	Deuterium bubble bursting in tungsten
13:55-14:10	O20 (Baoqin Fu)	Sichuan University	Molecular Dynamics Study of the Dislocation Effect on displacement cascade in Tungsten
14:10-14:25	O21 (Yuexia Wang)	Fudan University	Mechanical response of Ti3SiC2 to He/H irradiation: Elaboration from first-principles calculation
14:25-14:40	O22 (Xuebang Wu)	Institute of Solid State Physics, Chinese Academy of Sciences	Influence of alloying additions on grain boundary cohesion in tungsten: First-principles predictions and opportunities
14:40-14:55	O23 (Yonggang Li)	Institute of Solid State Physics, Chinese Academy of Sciences	Ion radiation albedo effect: influence of surface roughness on ion retention and sputtering of materials
14:55-15:20	Coffee break		
Session R: Review and Closing			
15:20-16:20	Discussion chaired by Bastiaan J.Braams		
16:20-16:50	Summary by Guang-Nan Luo & Closing by Bastiaan J.Braams		
17:00	Shuttle bus to the hotel (Main gate of Building No. 4 in ASIPP)		
Saturday July 23rd, 2016 / Departure			

Poster Session

Size- height: 120 cm; width: 80 cm

Please bring your printed poster and post it on site at 6th Floor Middle Meeting Room (from Tuesday to Thursday).

No.	Name	Institute	Title
P01	Amjad Ali	Pakistan Atomic Energy Commission (PAEC)	Computation of Average Charge State for High Energy Density Systems using Screened Hydrogenic Model with l-Splitting
P02	Chengzhi Cao	Southwestern Institute of Physics	Modelling of HL-2M Standard Single Null Divertor by SOLPS-ITER
P03	Guohua Duan	Institute of Solid State Physics, Chinese Academy of Sciences	Energetic and kinetic role of free surface in healing irradiation-damage in nanoporous tungsten
P04	Jinming Gao	Southwestern Institute of Physics	Divertor heat flux mitigation by using supersonic molecular beam injection on the HL-2A tokamak
P05	Stanislav Herashchenko	National Science Center "Kharkiv Institute of Physics and Technology"	Damage of castellated tungsten targets under QSPA KH-50 plasma irradiation in experiments on simulation of ITER-like transient events
P06	Salah Ud-Din Khan	King Saud University	Theoretical Calculation and Simulation Studies for sideways force on vacuum vessel during VDEs in EAST Tokamak
P07	Shahab Ud-Din Khan	Institute of Plasma Physics, Chinese Academy of Sciences	Theoretical Calculation and Simulation Studies for asymmetric forces on the EAST plasma in kink mode and halo current analysis
P08	Xiaojie Li	Dalian University of Technology	Ab initio calculations of mechanical properties of bcc W-Re-Os random and RAFM alloys
P09	Guyue Pan	Institute of Solid State Physics, Chinese Academy of Sciences	The behavior of the hydrogen and helium under different orientation to W surface: A first principles study
P10	Ki-Baek Roh	Seoul National University	Recrystallization of bulk tungsten and plasma-sprayed tungsten with accumulated thermal energy relevant to Type-I ELM H-mode operation
P11	Siriyaporn Sangaroon	Maharakham University	A model for predicting tritium flux from blanket mock-up in Tokamak fusion reactors
P12	Dan Sun	Dalian University of Technology	Numerical simulation of plasma facing component with built-in tungsten filament on basis of join W/Cu functionally graded layer
P13	Jingjing Sun	Institute of Solid State Physics, Chinese Academy of Sciences	The diffusion and trapping properties of hydrogen in SiC: A first-principles study

No.	Name	Institute	Title
P14	Carlos Eduardo Velasquez Cabrera	Universidade Federal de Minas Gerais	First wall dpa for plasma facing materials
P15	Xiaoyang Wang	Tsinghua University	Effect of radiation damage on mechanical and structural properties of symmetric tilt grain boundaries and nanocrystalline grain boundary networks in bcc Fe
P16	Apiwat Wisitorsarak	King Mongkut's University of Technology Thonburi	The Development of SOL Transport Model for Integrated Core-SOL Simulation of L-Mode Plasma
P17	Jianchun Wu	Sichuan University	Study of the tungsten coated stainless steels with ion beam mixing or electron beam alloying treatment
P18	Yichun Xu	Institute of Solid State Physics, Chinese Academy of Sciences	Dissolution corrosion and embrittlement of iron in liquid lead-lithium
P19	Yaochun Yang	Dalian University of Technology	Ab initio study of the elastic properties of body-centered cubic Ti-Mo-M (M = Mg, Mn, Ni, Zr, Nb and W) random alloys
P20	Mingzhong Zhao	Institute of Plasma Physics, Chinese Academy of Sciences	The effect of intrinsic defects in the deuterium retention of tungsten
P21	Zhe Zhao	Institute of Solid State Physics, Chinese Academy of Sciences	Cluster dynamics simulation of grain boundary behaviors in the property of incidenting ion irradiation in tungsten