



10th ITER INTERNATIONAL SCHOOL 2019

overview

The 10th ITER International School (IIS) will be held at the Korea Advanced Institute of Science and Technology (KAIST) in Daejeon, Korea from 21st to 25th January 2019

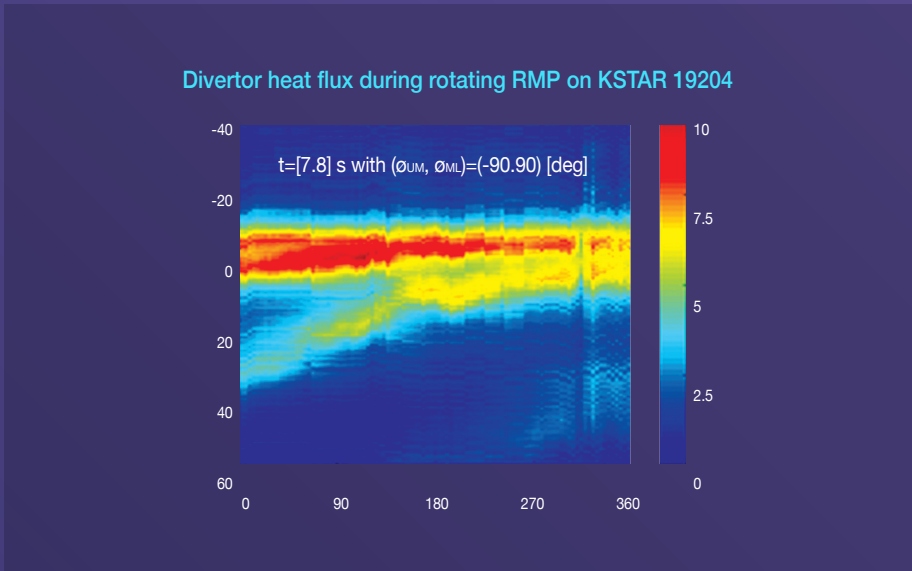
Purpose

The ITER International School aims to prepare young future scientists/engineers for working in the field of nuclear fusion and in research applications associated with the ITER Project and to provide them with a wide overview of the interdisciplinary skills required by the ITER Project.

Subject

Physics and Technology of Power Flux Handling in Tokamaks

This subject has an interdisciplinary character: power flux handling in tokamaks is key challenge for the development of nuclear fusion, but one that can only be resolved through the integration of physics-based approaches to decrease power fluxes on the tokamak wall together with technological developments for tokamak wall components.



[Figure 1] Measurements of the power flux at the outer divertor target of the KSTAR tokamak during H-mode plasmas in which ELMs are suppressed by an externally applied three dimensional magnetic field.



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10th

ITER International School 2019

THE PHYSICS AND TECHNOLOGY OF POWER FLUX HANDLING IN TOKAMAKS

21ST (MON) - 25TH (FRI) January 2019

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea





PROGRAMME

	MONDAY 21 JAN 2019		TUESDAY 22 JAN 2019	WEDNESDAY 23 JAN 2019	THURSDAY 24 JAN 2019	FRIDAY 25 JAN 2019
Topic	Introduction		Physics of stationary power dissipation	Physics of transient power fluxes in H-mode plasmas scenarios (L-H/H-L, ELMs)	Plasma Facing Component Technology	Plasma Facing Component Technology
9.00-9.20	Welcome and Introduction to KAIST W. Choe	9.00-10.30	Power Exhaust in ITER - I R. Pitts	ELM suppression by 3-D magnetic fields Y. In	ITER Plasma Facing Components M. Merola	Plasma facing components beyond ITER – solid materials F. Maviglia
9.20-10.20	Introduction to ITER A. Loarte					
10.20-10.40	Coffee Break					
10.40-11.20	Introduction to KSTAR S.W. Yoon	10.50-12.20	Power Exhaust in ITER - II R. Pitts	Active control of ELMs and small-ELM/ELM-less regimes M. Fenstermacher	Shape design of plasma facing components for stationary and transient power fluxes J. Gunn	Plasma facing components beyond ITER – liquid materials D. Andruczyk
11.20-12.00	Korean contributions to ITER H.G. Lee					
12.00-12.30	Overview of the K-DEMO programme Y.S. Hwang					
12.30-13.30	Lunch Break	12.20 13.30	Lunch Break	Lunch Break	Lunch Break	Lunch Break
13.30-15.00	Basic Boundary Physics D. Reiter		Physics of divertor power exhaust beyond ITER (advanced divertors and high core radiation regimes) H. Zohm	Power Fluxes in suppressed/controlled-ELM H-mode plasma scenarios O. Schmitz	Technology and Manufacturing of Plasma Facing Components K. Ezato	Best Poster Prize
						Closing Session
15.00-15.20	Coffee Break	15.00-15.20	Coffee Break	Coffee Break	Coffee Break	
15.20-16.50	Introduction to H-mode plasmas: L-H transition, pedestal, ELMs and stationary and transient power fluxes R. Maingi	15.20-16.50	Poster Session - I	Discussion	Poster Session - II	
16.50-18.00	Discussions	16.50-18.00	Discussions		Discussions	
		18:30-		Banquet		

KSTAR Tour

KSTAR is the world-class superconducting tokamak developed and constructed by domestic technology. The knowledge-base for fusion science and operation technology will be established through the operation of KSTAR. A world-leading position in fusion technology will be attained in the era of commercial fusion power plants.

Timetable	
15:30	Departure from KAIST
15:45	Arrival at the National Fusion Research Institute (NFRI), welcome and technical tour
16:30	Departure from NFRI, arrival at KAIST

※ Please note: The KSTAR tour will be restricted to only accessible areas and will be available to the first 40 registered people on a first come first served basis. Registration requires providing personal data to the organizers for reasons of security.

Banquet

The banquet on 23rd JAN 2019 on the fifth floor at the venue from 18:30~



SPEAKERS



LECTURE
Introduction to KAIST

WONHO CHOE



LECTURE
Introduction to ITER

ALBERTO LOARTE



LECTURE
Introduction to KSTAR

SI WOO YOON



LECTURE
Korean contributions to ITER

HYEON GON LEE



LECTURE
Overview of the K-DEMO Program

YONG SEOK HWANG



LECTURE
Basic Boundary Physics

DETLEV REITER



LECTURE
Introduction to H-mode plasmas

RAJESH MAINGI



LECTURE
Power Exhaust in ITER

RICHARD PITTS



LECTURE
Physics of divertor power exhaust beyond ITER

HARTMUT ZOHM



LECTURE
ELM-crash-suppression using 3-D magnetic fields

YONGKYOON IN



LECTURE
Active control of ELMs and small-ELM/ELM-less regimes

MAX FENSTERMACHER



LECTURE
Power Fluxes in suppressed/controlled- ELM H-mode plasma scenarios

OLIVER SCHMITZ



LECTURE
ITER plasma facing components

MARIO MEROLA



LECTURE
Shape design of plasma facing components for stationary and...

JAMIE GUNN



LECTURE
Technology and manufacturing of plasma facing components

KOICHIRO EZATO



LECTURE
Plasma facing components beyond ITER – solid materials

FRANCESCO MAVIGLIA



LECTURE
Plasma facing components beyond ITER – liquid materials

DANIEL ANDRUCZYK



COMMITTEES

STEERING COMMITTEE			
Name	Institution and Country	Name	Institution and Country
Alain Bécoulet	IRFM, CEA, France	Denis Minkin	Kurchatov Institute, Russia
Yvon Berland	Aix Marseille University France	Shishir Deshpande	IPR India
Bernard Bigot, Chair	ITER Organization	Chiharu Kubo	Kyushu University, Japan
Tony Donne	Eurofusion, Europe	Kijung Jung	NFRI, Korea
Xuru Duan	SWIP, China	Yasuhiko Takeiri	NIFS, Japan
Charles M. Greenfield	General Atomics, USA	Yuanxi Wan	USTC, China
Sybill Gunter	IPP, Germany		

SCIENTIFIC ADVISORY COMMITTEE			
Name	Institution and Country	Name	Institution and Country
Sadruddin Benkadda IIS Director	CNRS-Aix Marseille University, France	Si-Woo Yoon	NFRI, Korea
Alberto Loarte Chair	ITER Organization	Jiangang Li	IPP, China
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Hideo Sugama	NIFS, Japan	Yutaka Kamada	QST, Japan
Akihide Fujisawa	Kyushu University, Japan	Sergey Kononov	Kurchatov Institute, Russia

Local Committee

Chair	Chair: W. Choe (KAIST)
Co-chair	K.J. Jung (NFRI)
Members	Y.C. Ghim (KAIST), H.G. Lee (NFRI), T.H. Ha (NFRI), S.M. Shin (NFRI), J.M. Song (NFRI), M.J. Noh (KAIST), H.Y. Jung (KAIST)

Contact

For any additional questions you may have in relation to the organization of this event, please contact us at the following e-mail address: iis2019info@nfri.re.kr