

Explanatory Leaflet

Graduate School of Frontier Sciences

Department of Advanced Energy

Nuclear Fusion Research Education Program

Examination date and time

Master course August 21 (Tue), August 22 (Wed), August 28 (Tue), 2018 Doctor course August 21 (Tue), August 22 (Wed), August 23 (Thu), 2018

Guidance

May 25 (Fri) 16:30~18:00, 2018 (Hongo Campus) Eng. Bldg. No.2, 10F Meeting Room 5 May 26 (Sat) 13:00~15:00, 2018 (Kashiwa Campus) Kashiwa Library, Media Hall

Contact

Kashiwanoha 5-1-5, Kashiwa-shi, Chiba 277-8561 Kiban Bldg. 1F The University of Tokyo Graduate school of Frontier Sciences, Kyomu-kakari TEL 04-7136-4092 OR Contact Person of Department of Advanced Energy e-mail: ae-nyushi@apsl.k.u-tokyo.ac.jp

Homepage

http://www.k.u-tokyo.ac.jp/ae/

^{*} This document is a translation of necessary part of the Japanese version. In the event that any question should arise about this version, the Japanese version is the authoritative version

INDEX

Department of Advanced Energy	2
[1] Preface	2
[2] Research fields	2
[3] Special Selection for Master course	9
[4] Special Selection for Doctor course	10
[5] Guidance for Examination	11
Chosa Hyou	12
Master Cource Chosa Hyou	13
Doctor Cource Chosa Hyou	15

Department of Advanced Energy

[1] Preface

ENERGY is the word to describe the potential for work to be done. Any creatures, communities, systems cannot continue to exist without their own mechanism for production, absorption, conversion, transmission and utilization of energy. The mission of the Department of Advanced Energy is to do the educational and research activities on energy-related issues from a wide view point of advanced modern physics, materials, instrumentation, control, system engineering, environmental science and so on. The followings are fields in which we are going to play a leading role:

- Plasma Physics and its Applications,
- High Enthalpy (High Speed and High Temperature) Flow Physics and its Application,
- Structures and Materials for Extremely Severe Environment,
- Energy Production, Conversion and Utilization in Space,
- Advanced Electromagnetic Energy Engineering, Superconductivity Technology,
- High Efficiency Energy Conversion Technology,
- Systems Analysis for Energy Issues.

We are aiming at making a contribution to human prosperity through Advanced Energy, gathering and synthesizing knowledge and technologies that have been studied separately in each academic field. The Department of Advanced Energy will do its best to extend the envelope of existing education & research fields in Energy Technology and Science and to be a pioneer in a new innovative area.

[2] Research fields

Core Laboratories



Fusion Engineering

OGAWA, Yuichi Professor ogawa@ppl.k.u-tokyo.ac.jp 04-7136-4344 http://www.frd.k.u-tokyo.ac.jp/



Electric Vehicle, Motion Control Wireless Power Transfer

HORI, Yoichi Professor hori@k.u-tokyo.ac.jp 04-7136-3846 http://www.hori.k.utokyo.ac.jp/staff/hori/index-j.html



Power Systems Engineering

YOKOYAMA, Akihiko Professor yokoyama@syl.t.u-tokyo.ac.jp 03-5841-6665 http://www.syl.t.u-tokyo.ac.jp/



Plasma Physics and Non-Linear Science

YOSHIDA, Zensho **Professor**

yoshida@k.u-tokyo.ac.jp

04-7136-3991

http://www.ppl.k.u-tokyo.ac.jp/



Plasma Science and Engineering

ONO, Yasushi

Professor

ono@k.u-tokyo.ac.jp

03-5841-6686

http://tanuki.t.u-tokyo.ac.jp/



Superconducting Energy Technology

OHSAKI, Hiroyuki Professor

ohsaki@k.u-tokyo.ac.jp

04-7136-5527

http://www.ohsaki.k.u-tokyo.ac.jp/



Aerodynamics Lunar and Planetary Exploration

SUZUKI, Kojiro

Professor

kjsuzuki@k.u-tokyo.ac.jp

04-7136-3851

http://daedalus.k.u-tokyo.ac.jp/



Fracture Dynamics of Solid Materials Impact Engineering

UENISHI, Koji **Professor**

uenishi@k.u-tokyo.ac.jp

04-7136-3824

http://www.dyn.t.u-tokyo.ac.jp/



Plasma Engineering Energy, Biomedicine, and Environment

ONO, Ryo **Associate Professor** ryo-ono@k.u-tokyo.ac.jp

03-5841-6663

http://streamer.t.u-tokyo.ac.jp/



Power Electronics

BABA, Jumpei Associate Professor

j-baba@k.u-tokyo.ac.jp

03-5841-6563

http://www.asc.t.u-tokyo.ac.jp/index-

j.html



Thermo-Fluid and Energy System Engineering

OKAMOTO, Koji Associate Professor k-okamoto@k.u-tokyo.ac.jp 04-7136-3823

http://www.thermo.t.utokyo.ac.jp/index.html



Nanoscale Servo, Electric Vehicle, Motion Control

FUJIMOTO, Hiroshi Associate Professor fujimoto@k.u-tokyo.ac.jp

04-7136-4131

http://hflab.k.u-tokyo.ac.jp/



Plasma Science, Advanced Fusion Engineering

NISHIURA, Masaki Associate Professor nishiura@ppl.k.u-tokyo.ac.jp 04-7136-5560

04-7130-3300

http://www.ppl.k.u-tokyo.ac.jp/



Space Propulsion, Small Spacecraft

KOIZUMI, Hiroyuki Associate Professor koizumi@al.t.u-tokyo.ac.jp

03-5841-1838

http://www.al.t.u-

tokyo.ac.jp/koizumi/html/htdocs/

Space Energy System Cooperative Laboratory (Japan Aerospace Exploration Agency, Cooperative Laboratories outside the university)



Aeronautical Technology Directorate

YOSHIDA, Kenji Professor yoshida.kenji@jaxa.jp 050-3362-4858

http://www.aero.jaxa.jp/



Research and Development Directorate

fujita.kazuhisa@jaxa.jp 050-3362-4378

FUJITA, Kazuhisa Professor http://www.kenkai.jaxa.jp/research/explo

ration/exploration.html



Composite structures, Structural design optimization

Yuichiro Aoki Associate Professor aoki.yuichiro@jaxa.jp 050-3362-4891 http://www.aero.jaxa.jp/

Advanced Erectric Energy System Laboratory (Research Institute of Electric Power Industry, Cooperative Laboratories outside the university)]



Transfer, conversion and application technology of electric power

NEMOTO, Koshichi **Professor**

nemoto@criepi.denken.or.jp 046-856-2121

http://criepi.denken.or.jp/jp/electric/index.h

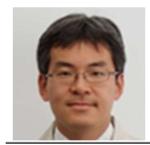


Superconducting Materials

ICHINOSE, Ataru **Professor**

ai@criepi.denken.or.jp 046-856-2121

http://criepi.denken.or.jp/jp/electric/index.h



Power System Engineering

NAGATA, Masaki **Associate Professor**

mnagata@criepi.denken.or.jp

03-3480-2111

http://criepi.denken.or.jp/jp/system/

Deep Space Exploration Laboratory II (Japan Aerospace Exploration Agency, Cooperative Laboratories outside the university)



Deep Space Mission Design

KAWAKATSU, Yasuhiro **Professor**

Kawakatsu.Yasuhiro@jaxa.jp

050-3362-7836

http://kawakatsu.isas.jaxa.jp/



Spacecraft Guidance, Navigation and Control

SAKAI, Shinichiro **Associate Professor**

sakai@isas.jaxa.jp 050-3362-5919



Plasma Physics and Fusion Science

YAMADA, Hiroshi **Professor**

yamada.hiroshi@nifs.ac.jp

0572-58-2342

http://www.nifs.ac.jp/people/hdpprd.html



MITO, Toshiyuki **Professor**

mito@nifs.ac.jp 0572-58-2120

http://www.nifs.ac.jp/index.html



Plasma physics Computer simulation

USAMI, Shunsuke Associate Professor

usami.shunsuke@nifs.ac.jp

0572-58-2356

http://fps.nifs.ac.jp/index.html

Advanced Erectric Energy System Laboratory (Research Institute of Electric Power Industry, Cooperative Laboratories outside the university)]



MIZUMA, Takeshi **Professor**

mizuma@edu.k.u-tokyo.ac.jp 04-7136-5554

http://www.l-transport.k.u-

tokyo.ac.jp/mizlab/

[Nuclear Fusion Research Education Program]
For information regarding the Nuclear Fusion Research Education Program, contact the prospective supervising professor first.

[3] Special Selection for Master course

1. Written Examination

(1) General Education Subjects: TOEFL

Submit a TOEFL score sheet by August 3 (Wed) to Kyomu-kakari, Graduate School of Frontier Sciences. You may also take a TOEFL-ITP on August 21 (Tue).

- (2) General Education Subjects: Mathematics, Physics
- (3) Special Education Subjects (Essay)

A theme of essay and an answer sheet will be sent to applicants with an admission ticket prior to the examination. Examinees must mail their essay written on the sheet to Kyomu-kakari, Graduate School of Frontier Sciences; it must be postmarked by August 3 (Wed). If the essay is not submitted, the examinee will fail. All the examinees are requested to attend the examination with a copy of the essay against a postal failure. In case you don't receive the ticket and answer sheet by July 17 (Tue), make contact with Kyomu-kakari, Graduate School of Frontier Sciences

2. Oral examination

(1) Primary Oral Examination

Questions about the essay which the examinee wrote, and about his/her knowledge as a graduate school student. 15 to 30 min./person. Examinees cannot bring their essay into the oral examination room.

(2) Secondary Oral Examination

Interview regarding his/her adaptation to the research fields and motivation.

3. Examination date and time

(1) Primary Examination

Subjects		Date and Time	Exam. Room	Bring with	Others
Written Exam	TOEFL-ITP	August 21 (Tue) 9:30∼12:30	_ Kashiwa Library,	Admission ticket	Only for the person who wants
	Mathematics August 21 (Tue) Physics 13:30~16:30		Media Hall (TBD)	Writing materials	
August 22 (Wed) Primary Oral Exam 9:00~14:00 (TBD)		Kibantou Bldg 2B6, 2D8 3B1, 3B3 (TBD)	Admission ticket	Waiting room: Kibantou Bldg. 2nd Floor, Big Lecture Room (TBD)	

^{*} After finishing the written exam on August 21 (Tue), we conduct a questionnaire to ask any change of prospective supervising professor.

(2) Secondary Examination **

Subjects Date and Time		Exam. Room	Bring with	Others	
Secondary Oral Exam	August 28 (Tue) 11:00~13:00	Kibantou Bldg 3B1	Admission ticket	Waiting room: Kibantou Bldg. 2nd Floor, Big Lecture Room (TBD)	

^{*} Secondary Examination will be imposed on the examinees who passed the Primary Examination.

4. Announcement of successful applicants in the primary examination

The list of successful applicants in the primary examination will be posted on a notice board in front of Kyomu-Kakari, at 17:00 August 24 (Fri). The examinees may also check the result via web site (details including the password will be announced on the examination day).

5. Declaration of Special Selection for International Student

Declare himself/herself to be applying to the special selection in the "Chosa Hyou" form attached to the explanatory leaflet.

6. Entrance in September

If applicants wish to enter the graduate school in September 2018 instead of April 2019 and have an eligible visa, declare in the "Chosa Hyou" form attached to the explanatory leaflet. Refer to the Guidelines for Applicants to Master Course (Boshu-Yoko) for the entrance procedure.

7. "Chosa Hyou"

- (1) A "Chosa Hyou" form must be submitted with the application form.
- (2) Applicants who graduated from a university in China, must submit verification documents for their Bachelor's degree certificate in English from the China Academic Degree & Graduate Education Development Center (CDGDC) (http://www.cdgdc.edu.cn/). The verification documents must be sent directly from the CDGDC to the Graduate School of Frontier Sciences, the University of Tokyo by the application deadline indicated in the Guidelines for Applicants.
- (3) Applicants can consult the prospective supervising professor about the research theme in the master course prior to the entrance exam.
- (4) Check whether all the submitting materials are in an envelope using the check sheet on the back of "Chosa Hyou" form.

[4] Special Selection for Doctor course

1. Selection Process

The examination is composed of the primary (written exam, oral exam) and the secondary (master thesis or its equivalent) exams.

2. Written Examination (This exam is waived for those who have finished or are anticipated to finish a master course in University of Tokyo)

(1) General Education Subjects: TOEFL

Submit a TOEFL score sheet by August 3 (Wed) to Kyomu-kakari, Graduate School of Frontier Sciences. You may also take a TOEFL-ITP on August 21 (Tue).

(2) General Education Subjects: Mathematics, Physic

3. Oral Examinatio

Questions about the examinees' knowledge as a doctor candidate student.

(1) Presentation of the examinees' research in his/her master course (20 min.) and questions (approximately

Prepare viewgraphs with a PC and 7 copies of the viewgraphs for presentation.

Applicants wishing to enter in September 2018, also bring the master thesis or its equivalent (original or a copy) on the oral examination day.

- (2) Questions about his/her study plan in the doctor course.
- (3) Questions about his/her knowledge of general and special education.

4. Examination date and time

(1) Primary Examination

	Subjects	Date and Time	Exam. Room	Bring with	Others
Written_	August 21 TOEFL-ITP (Tue) 9:30∼12:30		Kashiwa Library,	Admission ticket	Only for the person who wants
Exam	Mathematics Physics	August 21 (Tue) 13:30~16:30	Media Hall (TBD)	Writing materials	
Oral Exam (For applicants wishing to enter in September 2018, this oral exam is also regarded as the secondary exam)		August 22 (Wed) 14:00~18:00 August 23 (Thu) 9:00~12:00 (TBD)	Kibantou Bldg. 3B1,3B3 TBD)	Admission ticket A PC for presentation and 7 copies of the viewgraphs Applicants wishing to enter in September 2018, also bring the master thesis or its equivalent (original or a copy)	Waiting room: Kibantou Bldg. 2nd Floor, Big Lecture Room (TBD)

(2) Secondary Examination

T he examination regarding the master thesis or its equivalent is conducted around the middle of February 2019 for the applicants wishing to enter in April 2019. Details of this exam will be announced only to the applicants successful in the primary exam. For the applicants wishing to enter in September 2018, the oral exam in the primary exam is regarded as this secondary exam.

5. Declaration of Special Selection for International Student

Declare himself/herself to be applying to the special selection in the "Chosa Hyou" form attached to the explanatory leaflet.

6. Entrance in September

If applicants wish to enter the graduate school in September 2018 instead of April 2019 and have an eligible visa, declare in the "Chosa Hyou" form attached to the explanatory leaflet. Refer to the Guidelines for Applicants to Doctor Course (Boshu-Yoko) for the entrance procedure.

- 7. "Chosa Hyou" and Study Plan
 (1) A "Chosa Hyou" form and "Study Plan" must be submitted with the application from.
- (2) Applicants who graduated from a university in China, must submit verification documents for their Bachelor's and Master's degree certificates in English from the China Academic Degree & Graduate Education Development Center (CDGDC) (http://www.cdgdc.edu.cn/). The verification documents must be sent directly from the CDGDC to the Graduate School of Frontier Sciences, the University of Tokyo by the application deadline indicated in the Guidelines for Applicants.
- (3) Study plan must include following issues and be written on an A4 size paper. Assume a half, a full and a half page for each issue,
 - Objectives (background, current state of art, etc.) i.
 - Method (show annual plan) ii.
 - Distinctive aspects, Originality
- (4) Applicants are encouraged to consult the prospective supervising professor about the research theme in the doctor course prior to the entrance exam.
- (5) Check whether all the submitting materials are in an envelope using the check sheet on the back of "Chosa Hyou" form.

[5] Guidance for Examination

1. Examination time and date

Refer to the above information

2. Examination site

Kashiwa Campus (Kashiwanoha 5-1-5, Kashiwashi, Chiba)

Kashiwa Library 1F, Media Hall

Transdisciplinary Sci. Bldg. 2B6, 2D5, 3B1, 3B3, (Waiting: Big Lecture room)

Bus: Bound for "Kokuritu-Gan-Kenkyu-Center (National Cancer Research Center) " via "Kashiwanoha Park" at Kashiwa station, Bound for "Nagareyama-Ootaka- no-Mori-Eki " "Todai-West" "Edogawadai-Eki" at Kashiwa-no-ha Campus station, Todai-mae" bus stop Applicants must come to the examination room 15 min. prior to the starting time

3. Items requested for the applicants to bring with

- (1) Admission ticket
- (2) Black pencil, eraser, pencil sharpener. A wristwatch is permitted.

4. Rules during the examination

- (1) No leaving from the examination room until one hour passes.
- (2) Going to lavatory will not be permitted during the examination in principle.
- (3) Switch off your mobile phone during the examination.
- (4) Keep the admission ticket on the desk during the examination.
- (5) Enter your ticket number on each of answer sheet. Never enter your name.
- (6) Write your answer on the directed portion of the sheet. You may use its reverse side if needed.
- (7) Ticket number must be entered on the answer sheet even if there is no answer on it.
- (8) No question is permitted regarding the problems.
- (9) Do not bring the problem booklet or answer sheets home.

Chosa Hyou

Master

YEAR 2019

Master Cource

Chosa Hyou

Complete this form, cut off along the dotted line on the left, and submit with an application form.

he University of Tokyo, Graduate School of Frontier Sciencies

Department of Advanced Energy

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Name						et number o entry)			
University Graduated	Universi Departm				Facult Year	y: Mo.	(g	raduate	d/expected)
Laboratory									
			Contac	t Add	ress				
Home address Tel. No.	Tel:		o. if available:)	
Please write capital letters of alphabet indicating supervisors that you wish to be assigned in order of defirm 1st hope to 6th desire. In addition, faculty members not listed below do not recruit students this ye Person who wishes nuclear fusion research education program (Yoshida Zensho, Ono Yasushi, Ner Koshichi, Yamada Masaki, Mito Toshiyuki, Ryo Ono, Nishiura Masaki, Usami Shunsuke) should surre the alphabet with circles.					ents this year. * sushi, Nemoto				
1st	2nd	3rd	4th		5th	6th		e. g. 1	e. g. 2
							1	W	\bigcirc
A HORI, Yoichi		G ONO,	Ryo	M FUJITA, Kazuhisa		S	YAMAD	A, Hiroshi	
В УОКОУАМА,	Akihiko	H BABA	, Jumpei	N NEMOTO, Koshichi		Т	MITO, 1	Гoshiyuki	
C YOSHIDA, Zer	nsho	I OKAM	1OTO, Koji	O ICHINOSE, Ataru		U	USAMI,	Shunsuke	
D ONO, Yasushi		J FUJIN	1OTO, Hiroshi	P NAGATA, Masaki		٧	V MIZUMA, Takeshi		
E OHSAKI, Hiro		K NISHI	URA, Masaki			o W	W UENISHI, Koji		
F SUZUKI, Kojir	•		JMI, Hiroyuki	R SAKAI, Shinichiro			X AOKI, Yuichiro		
Descrive your motivation for appling to the department (For Special Selection for International Student) Applicants who want to apply to the special selection should indicate in the right box. (For entrance in September 2018) Applicants who want to enter the graduate school in September 2018 should indicate in the right box. Caution: The applicants who failed to finish the entrance procedure or failed to get a valid visa in									
designated period		•	19 instead.			T	_		
Select one or more options for English exam you wish to take				DEIC s	core sheet		-	n applicat t by Augu	ion] st 3 (Wed)]

Check list of Submitting Materials (Master Course)

University application form	
Photo Ticket A, Photo Ticket B, Admission Ticket	
Form to Attach Payment Certificate	Refer to the Boshu-Yoko for details including exceptions and payment method
Transcripts of Academic Records	Scores of both special and general education
Return envelopes	Affix with a JPY 410 stamp
Address label	
Inquiry Sheet (Chosa Hyou)	Complete the sheet included in the explanatory leaflet
TOEFL score sheet	Only those who wish to submit it
Diploma or graduation certificate from university	Only those who have graduated from a university or a graduate school at the time of application
Diploma, graduation certificate or a statement of anticipated graduation from university or from graduate school	Only non-Japanese applicants (If written in a language other than Japanese or English, attach a Japanese or English translation) No need for applicants who have graduated from University of Tokyo, including anticipated graduation by March 31, 2019
Certificate of Foreign Resident Registration	Only non-Japanese applicants living in Japan

Doctor

YEAR 2019

Doctor Cource

Chosa Hyou

Compleat this form, cut off along the dotted line on the left, and submit with an application form.

The University of Tokyo, Graduate School of Frontier Sciencies

Department of Advanced Energy

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Name				Ticket number (No entry)		
University Graduated		iversity: partment:		Graduate Scho Year Mo		ed/expected)
Laboratoy						
	•		Contact Add	ress		
Home address & Tel: (Cell Phone No		. if available:)	
Prospective Supervising Professor * Do you wish to be admitted in the Nuclear Fusion Research Education Program? (Yes No) Check Yes or No.				Program?		
		Descrive you	ur motivation for ap	pling to the depa	artment	
		for International Stu p apply to the specia	dent) l selection should indica	te in the right box.		
Caution: The a	vant to pplica	enter the graduate	school in September 201 finish the entrance proc 9 instead.			
Select one or more options for English exam you wish to take TOEFL and/or TOEIC score sheet [encl. in application] [submit by August 3 (Wed)]						

Check list of Submitting Materials (Doctor Course)

	University application form	
□ Tic	Photo Ticket A, Photo Ticket B, Admission ket	
	Form to Attach Payment Certificate	Refer to the Boshu-Yoko for details including exceptions and payment method
□ uni	Transcripts of Academic Records of all versities attended	Scores of both special and general education in undergraduate and in master course of graduate school
	Return envelopes	Affix with a JPY 410 stamp
	Address label	
	Inquiry Sheet (Chosa Hyou)	Complete the sheet included in the explanatory leaflet
	TOEFL score sheet	Only those who wish to submit it
	Research plan	Priscribed in the explanatory leaflet
□ gra	Diploma or graduation certificate from duate school	Only those who have finished a graduate school at the time of application
	Diploma, graduation certificate or a sement of anticipated graduation from versity and from graduate school	Only non-Japanese applicants (If written in a language other than Japanese or English, attach a Japanese or English translation) No need for applicants who have finished the graduate school in University of Tokyo, including anticipated graduation by March 31, 2019
	Certificate of Foreign Resident Registration	Only non-Japanese applicants living in Japan