

# Application Guidelines (AY2018) for the Program of Excellence in Photon Science (XPS), a World-leading Innovative Graduate Study (WINGS) Program [For Students who Enrolled in the Master's Course in April, 2018]

## Educational and research goals of XPS

XPS is an international integrated Master's/Doctoral program that connects the wide range of research fields related to photon science and places the main educational focus on the fundamental, innovative, and interdisciplinary nature of this field. The objective of the program is to train excellent students who already have a strong basis in their specialized fields to play active roles internationally as Doctoral graduates in industry and academia. Through the program, the students will develop the following qualities in addition to their knowledge of photon science:

- (1) Excellent research ability in a specialized field related to photon science
- (2) Ability to survey issues from a broad perspective and discover ways to solve them
- (3) Ability to solve complex problems in human society by going back to the essence of the issue
- (4) A global mindset and the communication skills needed to play an active role in the international community

## 1. Application requirements

To apply for this program, **you must be a student at the University of Tokyo and have enrolled in the Master's course of any department in the Graduate School of Science or the Department of Applied Physics, Graduate School of Engineering, in April, 2018.** You must also fulfill all of the requirements below (\*1):

- You aim to acquire a PhD degree in photon science, in the broad sense of the term
- You are interested in the social/industrial applications of science, and are eager to actively learn about them
- You fully understand the purpose of XPS, as well as the course requirements and other rules, and will cooperate with activities related to XPS
- You intend to enroll in the Doctoral program at one of the above-listed departments (\*2)
- You agree to apply for the JSPS Research Fellowship for Young Scientists, and should you be accepted, you also agree to stay in XPS (This requirement does not apply for students awarded Japanese Government (Monbukagakusho) Scholarships)
- You are eager to gain experience abroad and to apply for [JSPS's Overseas Challenge Program for Young Researchers](#)
- You understand and agree to the fact that your PhD diploma will bear a note saying that you have completed XPS

(\*1) Except for the International Graduate Program for Excellence in Earth-Space Science, you may not simultaneously apply for XPS and another WINGS program or Program for Leading Graduate Schools.

(\*2) You must not apply for XPS if you are planning to find business employment when you finish your Master's degree.

## 2. Selection method

Selection will be based on the prospective students' application documents (Applicant Information, Research Proposal, Research Background, Essay, and Supervisor's Letter of Opinion), and their scores in the graduate school entrance examination.

### 3. Number of students to be admitted

Graduate School	Department	Number of students to be admitted
Graduate School of Science	Dept. of Physics	40
Graduate School of Science	Dept. of Astronomy	
Graduate School of Science	Dept. of Earth and Planetary Science	
Graduate School of Science	Dept. of Chemistry	
Graduate School of Science	Dept. of Biological Sciences	
Graduate School of Engineering	Dept. of Applied Physics	

### 4. Selection announcement and enrollment procedures

- (1) The results of the selection will be posted in the front hallway of the School of Science Bldg. 1 (Area W), on Tuesday, **September 25, 2018**, at around 1 pm. All applicants will also receive their results by email (sent to the email address on their application form).
- (2) Enrollment documents will be emailed to successful applicants with the selection results. Those who have been accepted must finish the necessary procedures (submitting the enrollment documents) by Wednesday, **October 3, 2018**. Those who fail to submit the necessary documents by the deadline will be considered to have declined to enroll in XPS.

### 5. Application procedures

#### (1) Application documents

a. Application Forms (MS Excel and Word)

b. TRA Research Plan (if applicable) (See 7. (1))

Fill out the forms provided by the Graduate School of Science on the website indicated in (2), upload the files (MS Excel and Word) to the following website during the application period indicated in (3) below, and inform the WINGS Desk at the Graduate School Office of the Graduate School of Science by email ([wings.s@gs.mail.u-tokyo.ac.jp](mailto:wings.s@gs.mail.u-tokyo.ac.jp)) that the files have been uploaded (\*1 and \*2).

Upload application documents to:

[https://webfs.adm.u-tokyo.ac.jp/public/Io0QgAoJLkFABGgBc7dkJCttWrr7bTfcPwwM\\_yDkFtAi](https://webfs.adm.u-tokyo.ac.jp/public/Io0QgAoJLkFABGgBc7dkJCttWrr7bTfcPwwM_yDkFtAi)

c. Supervisor's Letter of Opinion

Ask your supervisor to fill out the form provided by the Graduate School of Science on the website indicated in (2) and email the file to the WINGS Desk at the Graduate School Office of the Graduate School of Science ([wings.s@gs.mail.u-tokyo.ac.jp](mailto:wings.s@gs.mail.u-tokyo.ac.jp)) during the application period indicated in (3) below. Please use the UTokyo File Transfer System or similar service to send the file because attached files are automatically deleted for security reasons (\*3).

(\*1) Upload the file well in advance as the server may become busy just before the deadline.

(\*2) Put your Student ID number at the beginning of the file name when uploading the file (e.g., [35999999] Application Form). In addition, set the email subject as “Completed uploading the Application Forms for XPS” and include your name and Student ID number in the body of the email.

(\*3) Confirm that your supervisor has sent the file during the application period. Your application will not be considered unless all of the necessary documents (including the supervisor’s letter of opinion) are submitted by the deadline.

(2) Download application documents from:

<http://www.s.u-tokyo.ac.jp/ja/info/5975/>

(3) Application period

**From Friday, July 27 until 3pm on Wednesday, August 8, 2018 (JST).**

\*Late submissions will not be accepted.

## 6. Enrollment period

New XPS students will be enrolled in the program **from October 2018 to March 2020.**

In January or February 2020, a Qualifying Examination (QE) will be held to select those permitted to stay in the program throughout their Doctoral studies. The QE will include the submission of a research proposal for their Doctoral research and the oral defense of the proposal. Students who pass the QE will be enrolled in XPS up to **March 2023.**

Those who are selected to stay in the course will take their Final Examination (FE) in the summer of 2022, and those who pass the FE will qualify to complete the course. The FE will include the submission of a research report and the oral defense of the report. The course will be completed if and when the students receive their PhD degrees. For those who submit their dissertations early, XPS will be completed at the time of the conferral of their degrees, provided that they have qualified to complete the course by that time.

## 7. Financial support

(1) Master's students

If desired, students may be appointed as *TAKUETSU* (Excellence) Research Assistants (TRAs) and be paid to engage in research related to photon science. The appointment will begin from October 1, 2018, and 170,000 yen will be paid per month (\*1, \*2, and \*3). Those who wish to be appointed as TRAs must submit the TRA Research Plan in addition to the Application Forms.

Students awarded Japanese Government (Monbukagakusho) Scholarships or any scholarships from the University of Tokyo cannot be appointed as TRAs, but may apply for XPS. Students who do not wish to be appointed as TRAs, for example, because they are receiving other scholarships or have concerns about dependent exemption, may also apply for the program. In these cases, applicants only need to fill out the Application Forms.

(2) Doctoral students

Students selected based on the results of the QE will receive a monthly grant of 180,000 yen (\*3 and \*4). An XPS student may decline to receive the grant and still remain on the program. Students who are accepted as JSPS Research Fellows are not allowed to receive the monthly grant.

If students are not selected to receive the monthly grant, they may be appointed as TRAs. In this case, they will receive 180,000 yen per month to carry out research related to photon science (\*1, \*2, and \*3).

(\*1) TRAs are not allowed to work as Research Assistants, but are encouraged to work as Teaching Assistants on campus.

(\*2) Income tax will be deducted from your TRA salary every month. You must therefore make a year-end adjustment or file a final tax return.

(\*3) If your total income in one calendar year (January-December) exceeds a certain amount, you will be excluded from the category of dependent and/or non-working dependent on your parents' health

insurance. Moreover, depending on your total yearly income, you may be required to pay resident's tax in the next fiscal year.

(\*4) The grant will count as miscellaneous income, and is thus subject to taxation. Recipients must file a tax return to the National Tax Agency. Failure to do so may be considered tax evasion. The WINGS Desk will send you the necessary papers in January. Recipients of the grant are not allowed to receive other financial aid or earnings from part-time work.

## 8. Course requirements

### (1) Coursework

All XPS students are required to obtain one credit for the Laboratory Course of Advanced Optical Science I or II by the end of their Master's course. In addition, they must obtain six credits for courses from the Lectures on Advanced Photon Science by the end of their first Doctoral year (at least two credits must be for courses given by a department other than their own). If a student has obtained credits for some of these courses prior to enrolling in XPS, they should apply for them to be counted. If approved, the credits will be counted toward their required coursework credits.

### (2) Meetings with a secondary supervisor

Each XPS student is assigned a secondary supervisor in addition to their main supervisor. All XPS students are required to meet and report their academic progress to their secondary supervisor once every six months. See the Appendix for details of faculty members who can take on the role of secondary supervisor.

### (3) Required activities for the Doctoral course

To complete XPS, students must take part in one of the three activities listed below during the first or second year of their Doctoral studies:

- a. An assignment abroad
- b. A corporate internship
- c. Joint research at another university or research institution

Note that all of these activities require prior application. Once your plan has been reviewed and approved, XPS may cover the travel expenses required to participate.

## 9. Features of the course

### (1) Errantry opportunities

XPS plans to cover overseas travel expenses for students to give several successive presentations on their research results before submitting their Doctoral dissertation. Details will be announced after the selection of XPS students.

### (2) International secondary supervisors

In addition to the secondary supervisors described in 8. (2), internationally distinguished researchers may be available as international secondary supervisors to support and advise XPS students in their research activities. Details will be announced after the selection of XPS students.

### (3) Scientific meetings hosted or co-hosted by XPS

Students are encouraged to attend photon science meetings hosted or co-hosted by XPS, including seminars and forums.

#### (4) Job opportunities

XPS plans to offer jobs of Teaching Assistants and mentors supporting international students.

### 10. Notes

- (1) Only applications for which all of the necessary documents are submitted by the deadline will be considered.
- (2) Under no circumstances may an applicant change the contents of their application once it has been submitted.
- (3) For unforeseen reasons, changes may be made to these guidelines or the application procedures. In such cases, an announcement will be made to potential applicants.
- (4) Personal information made known to XPS through the application process will be used for the following purposes: (i) selection of XPS students (application processing and selection), (ii) announcement of selected applicants, and (iii) enrollment procedures. For selected applicants only, the information will be further used for administrative duties relating to: (i) academic affairs (e.g., registration, enrollment), and (ii) student support (e.g., employment assistance, tuition waiver applications).
- (5) Any student who is found to have made a false statement in their application, even after being selected to join the program, may have their status as an XPS student removed retroactively.

### 11. Contact

WINGS Desk, Graduate School Office of the Graduate School of Science, The University of Tokyo

Room 275, School of Science Bldg. 1 (Area E), 7-3-1 Hongo, Bunkyo-ku, Tokyo

Phone: 03-5841-4626

Email: [wings.s@gs.mail.u-tokyo.ac.jp](mailto:wings.s@gs.mail.u-tokyo.ac.jp)

[Last updated: **July, 2018**]

List of Secondary Supervisors for the  
Program of Excellence in Photon Science (XPS)

Name	Title, Affiliation	Specialization
<a href="#">ASAI Shoji</a>	Professor, Dept. of Physics, School of Science [Program Coordinator]	Experiments on Elementary Particles
<a href="#">ANDO Masaki</a>	Associate Professor, Dept. of Physics, School of Science	Gravitational-Wave Astronomy
<a href="#">UEDA Masahito</a>	Professor, Dept. of Physics, School of Science	Measurement Theory
<a href="#">OKADA Yasushi</a>	Professor, Dept. of Physics, School of Science	Biophysics
<a href="#">HAYASHI Masamitsu</a>	Associate Professor, Dept. of Physics, School of Science	Experimental Condensed Matter Physics
<a href="#">BAMBA Aya</a>	Associate Professor, Dept. of Physics, School of Science	High Energy Astrophysics, Experiment
<a href="#">MURAO Mio</a>	Professor, Dept. of Physics, School of Science	Quantum Information Theory
<a href="#">YUMOTO Junji</a>	Professor, Dept. of Physics, School of Science	Quantum Physics, Laser Physics
<a href="#">YOKOYAMA Masashi</a>	Associate Professor, Dept. of Physics, School of Science	Experimental Particle Physics
<a href="#">YOSHIDA Naoki</a>	Professor, Dept. of Physics, School of Science	Astrophysics
<a href="#">KOHNO Kotaro</a>	Professor, Dept. of Astronomy, School of Science	Extragalactic Radio Astronomy
<a href="#">WALLIS Simon</a>	Professor, Dept. of Earth and Planetary Science, School of Science	Tectonics, Structural Petrology
<a href="#">TAKAHASHI Yoshio</a>	Professor, Dept. of Earth and Planetary Science, School of Science	Environmental Chemistry, Geochemistry
<a href="#">HOSHINO Masahiro</a>	Professor, Dept. of Earth and Planetary Science, School of Science	Space Physics, Astroplasma Physics
<a href="#">OHKOSHI Shin-ichi</a>	Professor, Dept. of Chemistry, School of Science	Solid State Chemistry
<a href="#">OZAWA Takeaki</a>	Professor, Dept. of Chemistry, School of Science	Analytical Chemistry
<a href="#">GODA Keisuke</a>	Professor, Dept. of Chemistry, School of Science	Quantum Photonics, Biomedical Photonics, Laser Spectroscopy
<a href="#">SHIONOYA Mitsuhiro</a>	Professor, Dept. of Chemistry, School of Science	Bioinorganic Chemistry, Supramolecular Chemistry
<a href="#">HASEGAWA Tetsuya</a>	Professor, Dept. of Chemistry, School of Science	Solid State Chemistry

Name	Title, Affiliation	Specialization
<a href="#"><u>YAMANOUCHI Kaoru</u></a>	Professor, Dept. of Chemistry, School of Science	Intense Laser Science, Physical Chemistry
<a href="#"><u>UEMURA Sotaro</u></a>	Professor, Dept. of Biological Sciences, School of Science	Biophysics
<a href="#"><u>TERASHIMA Ichiro</u></a>	Professor, Dept. of Biological Sciences, School of Science	Photosynthesis, Plant Physiological Ecology
<a href="#"><u>SAKAI Hirofumi</u></a>	Professor, Institute for Photon Science and Technology/Department of Physics, School of Science	Atomic/Molecular Physics (Experimental)
<a href="#"><u>MIO Norikatsu</u></a>	Professor, Institute for Photon Science and Technology, School of Science	Laser Optics
<a href="#"><u>KATORI Hidetoshi</u></a>	Professor, Dept. of Applied Physics, School of Engineering	Quantum Electronics
<a href="#"><u>FURUSAWA Akira</u></a>	Professor, Dept. of Applied Physics, School of Engineering	Quantum Optics, Quantum Information
<a href="#"><u>SOMEYA Takao</u></a>	Professor, Dept. of Electrical Engineering and Information Systems, School of Engineering	Organic Electronics
<a href="#"><u>KOASHI Masato</u></a>	Professor, Photon Science Center/Dept. of Applied Physics, School of Engineering	Quantum Information, Quantum Optics
<a href="#"><u>YOSHIOKA Kosuke</u></a>	Associate Professor, Photon Science Center/Dept. of Applied Physics, School of Engineering	Precision Spectroscopy
<a href="#"><u>MIYOKI Shinji</u></a>	Associate Professor, Institute for Cosmic Ray Research	Experimental Gravitational Wave Physics
<a href="#"><u>AKIYAMA Hidefumi</u></a>	Professor, Institute for Solid State Physics	Nano-Structure Physics
<a href="#"><u>KOBAYASHI Yohei</u></a>	Professor, Institute for Solid State Physics	Lasers
<a href="#"><u>KOMORI Fumio</u></a>	Professor, Institute for Solid State Physics	Surface Physics
<a href="#"><u>WADATI Hiroki</u></a>	Associate Professor, Institute for Solid State Physics	Optical Properties
<a href="#"><u>SHIMANO Ryo</u></a>	Professor, Cryogenic Research Center/Dept. of Physics, School of Science	Condensed Matter Physics
<a href="#"><u>MIDORIKAWA Katsumi</u></a>	Director, Center for Advanced Photonics, RIKEN	Laser Engineering
OHTSUKI Tomoko	Sr. Mgr., Product Line Management, Lumentum	Fiber Lasers

\* If the faculty member's name is in blue and underlined, it is linked to their website.