

VII Graduate Course Education

1. Department of Astronomical Science, School of Physical Sciences, the Graduate University for Advanced Studies

The Graduate University for Advanced Studies was established as an independent graduate university without undergraduate courses via partnerships with inter-university research institutes for the sake of advancing graduate education.

There used to be four schools – Cultural and Social Studies, Mathematical and Physical Sciences, Life Science, and Advanced Sciences before the reorganization of the School of Mathematical and Physical Sciences into the schools of Physical Sciences, High Energy Accelerator Science, and Multidisciplinary Sciences in April 2004. Now the total of six schools are offering doctoral education and research opportunities.

NAOJ has been accepting three-year doctoral course students since FY 1992 and five-year students since FY 2006 for the Department of Astronomical Science at the School of Physical Sciences. (The School of Mathematical and Physical Sciences was reorganized into the School of Physical Sciences in April 2004.)

(1) Objective of the Department of Astronomical Science

The Department of Astronomical Science aims to train students, through observational, theoretical or instrument development research in astronomy or in related field, in an environment with the most advanced observational instruments and supercomputers, as researchers who work at forefront of world-class research; experts who carry out the development of advanced technology; and specialists who endeavor in education and public outreach activities equipped with advanced and specialized knowledge.

Numbers of students to be admitted:

Two (per year in five-year doctoral course)

Three (per year in three-year doctoral course)

Degree: Doctor of Philosophy

(2) Admission Policy

The Department of Astronomical Sciences seeks students with a strong interest in astronomy and the Universe; a passion for unraveling scientific questions through theoretical, observational, and instrument development research; and students who have not only basic academic skills, but who also have the needed theoretical and creative aptitude for advanced research.

(3) Department Details (Course Offerings)

Optical and Near Infrared Astronomy

[Educational and Research Guidance Field]

Ground-based astronomy / Optical and infrared telescope system / Planets / Sun, stars and interstellar matter / Galaxies and cosmology

Radio Astronomy

[Educational and Research Guidance Field]

Ground-based astronomy / Radio telescope system / Sun, stars and interstellar matter / Galaxies

General Astronomy and Astrophysics

[Educational and Research Guidance Field]

High-precision astronomical measurement / Astronomy from space / Data analysis and numerical simulation / Earth and planets / Sun, stars and interstellar matter / Galaxies and cosmology

(4) Course-by-Course Education Program to Cultivate Researchers in Physical Sciences with Broad Perspectives

The School of Physical Sciences began its “Course-by-Course Education Program to Develop Student Research Capability and Aptitude” in FY 2009 as part of MEXT’s Program for “Enhancing Systematic Education in Graduate Schools”. Currently the School is carrying out its succeeding program, “Course-by-Course Education Program to Cultivate Researchers in Physical Sciences with Broad Perspectives” since FY2012, offering four specific courses to the students: the Basic Course, the Advanced Research Course, the Project Research Course, and the Development Research Course. In FY 2013, the Department of Astronomical Science accepted four students in the Basic Course and three students in the Advanced Research Course. The Department also offered the e-learning class “Introduction to Observational Astronomy II” as a school-wide common basic subject, as well as the “Exercise in Scientific English” class, in order to provide a good foundation for students at the graduate school.

In order to better prepare students for the international stage, the Department hosted the Asia Winter School during November 13 to 15, 2013, as well as the 2013 Summer Student program at Mitaka, Mizusawa, Nobeyama and Hawaii campuses to allow undergraduate students a chance to experience research at the Department of Astronomical Science. In addition to the existing Research Assistant system, the Department also provided Associate Researcher positions for the students of the Department of Astronomical Science.

(5) Number of Affiliated Staff (2014/3/31)

Chair of the Department of Astronomical Science	1
Optical and Near Infrared Astronomy Course	
Professors	9
Associate Professors	12
Lecturer	1
Assistant Professors	9
Radio Astronomy Course	
Professors	6
Associate Professors	10
Assistant Professors	18
General Astronomy and Astrophysics Course	
Professors	8
Associate Professors	11
Assistant Professors	14
Total	99

(6) Graduate Students (30 students)

1st year (5 students)

Name	Principal Supervisor	Supervisor
Okutomi, Koki	Tomisaka, Koji	Watanabe, Junichi
Onoue, Masafusa	Kashikawa, Nobunari	Miyazaki, Satoshi
Nagasawa, Ryosuke	Hanada, Hideo	Matsumoto, Koji
Baba, Haruka	Aoki, Wako	Usuda, Tomonori
Ryu, Tsuguru	Hayashi, Saeko	Usuda, Tomonori

2nd year (7 students)

Name	Principal Supervisor	Supervisor
Yang, Yi	Hayashi, Saeko	Usuda, Tomonori
Ishikawa, Shogo	Kashikawa, Nobunari	Kodama, Tadayuki
Onishi, Kyoko	Iguchi, Satoru	Kuno, Nario
Onitsuka, Masahiro	Usuda, Tomonori	Takato, Naruhisa
Sakurai, Junya	Miyazaki, Satoshi	Kobayashi, Yukiyasu
Shimakawa, Rizumu	Kodama, Tadayuki	Arimoto, Nobuo
Suzuki, Taiki	Oishi, Masatoshi	Saito, Masao

3rd year (6 students)

Name	Principal Supervisor	Supervisor
Aoki, Sumire	Arimoto, Nobuo	Kodama, Tadayuki
Saito, Yuriko	Imanishi, Masatoshi	Kashikawa, Nobunari
Hashizume, Katsuya	Osuga, Ken	Tomisaka, Koji
Matsuzawa, Ayumu	Iguchi, Satoru	Saito, Masao
Oh, Daehyeon	Aoki, Wako	Takami, Hideki
Giono, Gabriel	Suematsu, Yoshinori	Hara, Hirohisa

4th year (4 students)

Name	Principal Supervisor	Supervisor
Kataoka, Akimasa	Tomisaka, Koji	Nakamura, Fumitaka
Shino, Nagisa	Honma, Mareki	Shibata, Katsunori
Min, Cheul Hong	Honma, Mareki	Shibata, Katsunori
Toshikawa, Jun	Kashikawa, Nobunari	Kodama, Tadayuki

5th year (8 students)

Name	Principal Supervisor	Supervisor
Ishizaki, Yoshifumi	Kashikawa, Nobunari	Iye, Masanori
Imase, Keisuke	Kodama, Tadayuki	Kashikawa, Nobunari
Suenaga, Takuya	Usuda, Tomonori	Aoki, Wako
Sakai, Nobuyuki	Honma, Mareki	Shibata, Katsunori
Sako, Nobuharu	Watanabe, Tetsuya	Sekii, Takashi
Sukom, Amnart	Hayashi, Saeko	Izumiura, Hideyuki
Kaithakkal, Anjali John	Suematsu, Yoshinori	Sekii, Takashi
Pan, Hsi-An	Kuno, Nario	Iono, Daisuke

Research Student (1 student)

Name	Supervisor	
Tsuchiya, Tomoe	Watanabe, Junichi	

2. Education and Research Collaboration with Graduate Schools

Name	Affiliated Institute	Supervisor
Okada, Takashi	The University of Tokyo	Sekimoto, Yutaro
Kasuga, Megumi	The University of Tokyo	Hara, Hirohisa
Kato, Yuta	The University of Tokyo	Mizuno, Norikazu
Sakai, Daisuke	The University of Tokyo	Kobayashi, Hideyuki
Tezuka, Kenjiro	The University of Tokyo	Gouda, Naoteru
Baba, Fuko	The University of Tokyo	Hara, Hirohisa
Hirai, Yutaka	The University of Tokyo	Kajino, Toshitaka
Lee, Minju	The University of Tokyo	Kawabe, Ryohei
Aso, Yusuke	The University of Tokyo	Ohashi, Nagayoshi
Iwaki, Daichi	The University of Tokyo	Iye, Masanori
Ohashi, Satoshi	The University of Tokyo	Mizuno, Norikazu
Saito, Toshiki	The University of Tokyo	Kawabe, Ryohei
Shibagaki, Shota	The University of Tokyo	Kajino, Toshitaka
Shibata, Takashi	The University of Tokyo	Kokubo, Eiichiro
Sekiguchi, Sigeyuki	The University of Tokyo	Sekimoto, Yutaro
Tagawa, Hiromichi	The University of Tokyo	Gouda, Naoteru
Miyagawa, Kenta	The University of Tokyo	Hara, Hirohisa
Aoki, Kunichika	The University of Tokyo	Hara, Hirohisa
Koyamatsu, Shin	The University of Tokyo	Ohashi, Nagayoshi
Sekine, Masakazu	The University of Tokyo	Sekimoto, Yutaro
Hara, Takuji	The University of Tokyo	Gouda, Naoteru
Hara, Chihomi	The University of Tokyo	Kawabe, Ryohei
Fujii, Kosuke	The University of Tokyo	Mizuno, Norikazu
Akiyama, Kazunori	The University of Tokyo	Kobayashi, Hideyuki
Kiyokane, Kazuhiro	The University of Tokyo	Mizuno, Norikazu
Fujii, Akihiko	The University of Tokyo	Kokubo, Eiichiro
Ueda, Junko	The University of Tokyo	Kawabe, Ryohei
Koyama, Shoko	The University of Tokyo	Kobayashi, Hideyuki
Takahashi, Yasuhiro	The University of Tokyo	Tamura, Motohide
Hayashi, Takayuki	The University of Tokyo	Kobayashi, Hideyuki
Higuchi, Yuichi	The University of Tokyo	Iye, Masanori
Rusu Cristian Eduard	The University of Tokyo	Iye, Masanori
Kasai, Miho	Toho University	Matsuo, Hiroshi
Kubo, Daiki	Toho University	Matsuo, Hiroshi
Watanabe, Dota	Toho University	Matsuo, Hiroshi

3. Commissioned Graduate Students

Doctoral Course	Affiliated Institute	Period	Supervisor
Ui, Takahiro	Hiroshima University	2013/4/1~2014/3/31	Yamashita, Takuya
Oya, Masahito	Nihon University	2013/4/1~2014/3/31	Watanabe, Junichi
Mizuno, Izumi	Kagoshima University	2013/4/1~2014/3/31	Kuno, Nario
Nomura, Mariko	Ochanomizu University	2013/4/1~2013/12/31	Tomisaka, Kouji
Horie, Masaaki	Nihon University	2013/4/1~2014/3/31	Watanabe, Junichi
Sekiguchi, Takanori	The University of Tokyo	2013/12/1~2014/3/31	Flaminio, Raffaele
Ono, Yoshito	Tohoku University	2014/1/6~2014/3/31	Iwata, Ikuru

Master's Course	Affiliated Institute	Period	Supervisor
Chida, Hikaru	Tokai University	2013/4/1~2014/3/31	Honma, Mareki
Fukase, Masao	Nihon University	2013/4/1~2014/3/31	Watanabe, Junichi
Hokama, Kazuki	University of the Ryukyus	2013/4/1~2014/3/31	Honma, Mareki

4. Degrees Achieved with NAOJ Facilities

Name	Degree	Thesis
Pan, Hsi-An	Doctor of Philosophy, SOKENDAI	Environmental Dependence of Star Formation in Nearby Barred Spiral Galaxies
Sakai, Nobuyuki	Doctor of Philosophy, SOKENDAI	Spiral Structure and Non-Circular Motions of the Milky Way Galaxy Revealed by VLBI Astrometry
Suenaga, Takuya	Doctor of Philosophy, SOKENDAI	Brown Dwarfs and Planetary Mass Objects in Star Forming Regions: Toward the Low Mass End of Initial Mass Function
Ishizaki, Yoshifumi	Master of Science, SOKENDAI	Search for quasars at redshift 7 using Subaru telescope
Hashizume, Katsuya	Master of Science, SOKENDAI	Global structure of super-critical accretion flows and outflows in radiation hydrodynamic simulations