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<th>No.</th>
<th>Department</th>
<th>Location</th>
<th>Research Thesis</th>
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<th>Required Abilities</th>
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<th>Supervisor</th>
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<tr>
<td>1</td>
<td>Multidisciplinary Technology Research, Flight Research Unit</td>
<td>Chofu, TOKYO</td>
<td>Multi-Detection and Isolation (MDI) Algorithm for Flight Control and its Application Through Flight Tests with Research Airplane</td>
<td>The task of the research is to propose new &quot;practical&quot; algorithms to detect and neutralize faulty units, which are estimated from aircraft telemetry data in real flights. The algorithm must not only be accepted by control theories but also the control systems must achieve sufficient performance in real conditions because the algorithm is intended to be certified by civil aviation authorities. The developed algorithms will be tested and evaluated in numerical simulations inћbelow-In-The-Loop Simulations (BITS), and real flight with MUFG clips which is NASA-funded research aircraft equipped with research flight-control system. This research project in Mission2030 program is a Class B collaboration research program.</td>
<td>Person who engages in this research must have strong background of aircraft flight dynamics and control theories including identification theory. It is strongly recommended to have practical experience of research activity or development of research system. Programming skills for Matlab, C/C++, and experience of research flight tests onboard, such as communication with real pilots but also pilots, are recommended. English skill is strongly required if Japanese skill is not enough for daily communications.</td>
<td>The following will be provided for the job:  1) participation in the below-in-the-loop simulation with research airplane (MDI-MUFG), 2) Participation in research analysis (MDI-MUFG) to evaluate FDD performance in new paradigm.</td>
<td>Prof. H. Matsuhara, Prof. T. Takehara, Prof. M. Kinoshita, Prof. M. Yoshida</td>
</tr>
<tr>
<td>2</td>
<td>Institute of Space and Astronautical Science (ISAS), Department of Space Science and Astrophysics</td>
<td>Sagamihara, KANAGAWA</td>
<td>Research in Space Astronomy and Astrophysics for the Observation Missions under the International Collaborations</td>
<td>The successful candidates will conduct research in the field of space astronomy and astrophysics with the space flight systems joining the international missions advanced under the international collaborations including this department. Examples are sounding rocket experiments (including TOSOWO observational flight of 7 days from the Super TIGER sounding rocket and SciTiger sounding rocket which is installed on the SuperTIGER sounding rocket), and the light/gamma ray space telescopes based on large international collaborations. Each lead large agency, Electronic Frontier Service, and so on. The successful candidates will develop mission or analysis data joining are of the various types of international missions involving the department not restricted to the above examples. The successful candidates can gain experience in the instrument development and in acquiring the international missions, through which we will foster the researchers who can lead the international missions. This research theme includes ground-based observations coordinated with the space observatories.</td>
<td>It is preferable to have experience and knowledge in one of the following research fields: 1) observational research using the space flight systems such as satellites and sounding rockets, 2) instrument development for the space missions or ground observatories, 3) evaluation of the results from the space missions or ground observatories.</td>
<td>The Department is composed by researchers studying solar-physics, plasma physics, astrophysics including supernovae, and especially those involving neutrinos as one of the research targets. A successful applicant will work with those members. Since many researches are oriented towards improving orbital missions, it is natural for a successful applicant to be expected to the applicant to learn international space missions work to produce the data to be used for the works, hard to deciper.</td>
<td>Prof. Tadayasu Dotani, Prof. M. Ishida, Prof. M. Yoshida, Prof. T. Takahashi, Prof. T. Tsuboi</td>
</tr>
<tr>
<td>3</td>
<td>Institute of Space and Astronautical Science (ISAS), Department of Space Science and Astrophysics</td>
<td>Sagamihara, KANAGAWA</td>
<td>Creation of Future Astronomy: Astrophysics Missions</td>
<td>The successful candidates will conduct research on the creation of new mission concept development of innovative telescopes, or related research with the aim of advancing future missions in the field of space astronomy and astrophysics. Through such research, we foster researchers who can lead the detector development or mission proposal in the future. The research projects include high sensitivity wide-field telescopes in the field of X-ray/gamma-ray astronomy, infrared astronomy and radio astronomy. Furthermore, we promote development of high-temperature detectors useful for various wave length from radio through X-rays. Although it is expected to contribute future missions in the field of X-ray/gamma-ray astronomy, infrared and radio astronomy, research on an innovative new mission concept based on innovative idea or related mission development is also welcome.</td>
<td>It is preferable to have knowledge and experience in one of the following research: 1) observational research using satellites, sounding rockets, and ground detectors, 2) development of instrument for either the space missions or ground observatories, 3) experimental research in the field of physics or astrophysics.</td>
<td>Successful candidates will conduct research under the supervision of professors (associate professors) in this department, who have a lot of experience of the international missions. The department has basic facilities necessary to conduct experiments in the field of space astronomy and astrophysics.</td>
<td>Prof. Tadayasu Dotani, Prof. M. Ishida, Prof. M. Yoshida, Prof. T. Takahashi, Prof. T. Tsuboi</td>
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<td>4</td>
<td>Institute of Space and Astronautical Science (ISAS), Department of Solar System Sciences</td>
<td>Sagamihara, KANAGAWA</td>
<td>Focus on Existing Data to Prove a Competing New Missions</td>
<td>We welcome an applicant who will have a fresh look at the existing data from solar system research, and take the initiative to think of a new mission for the Solar System Exploration at ISAS. The new missions can be obtained by 1) discovery of new mission concept through data analysis of existing missions or past missions; 2) discovery of new mission concept by learning the past project experience; 3) preparation for a new sounding rocket experiment concerning astrophysics mission.</td>
<td>Experience in analysis of data from missions exploring the solar system including the sun.</td>
<td>The Department is composed by researchers studying solar-physics, plasma physics, astrophysics including supernovae, and especially those involving neutrinos as one of the research targets. A successful applicant will work with those members. Since many researches are oriented towards improving orbital missions, it is natural for a successful applicant to be expected to the applicant to learn international space missions work to produce the data to be used for the works, hard to deciper.</td>
<td>Prof. Yuko Ishikawa, Prof. Hidehisa Fujimoto</td>
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<tr>
<td>5</td>
<td>Institute of Space and Astronautical Science (ISAS), Department of Interdisciplinary Basic Science</td>
<td>Sagamihara, KANAGAWA</td>
<td>Research of Nucleation and Crystal Growth in Space Environment</td>
<td>The research sites to investigate nucleation and crystal growth phenomena by utilizing the space environment. The researcher is expected to be a team member of space experiment mission through development of flight experiment, data analysis and modeling of the phenomena. Specifically, the present research consists of the following studies: 1) material analysis of nanocrystal samples and its application to commercial materials, 2) preparation for a new sounding rocket experiment concerning astrophysics mission.</td>
<td>Applicant must have a Ph.D. (or equivalent doctoral level) degree and experience in materials science. Abilities in image processing, material preparation and sample evaluation are preferred.</td>
<td>Researchers and engineers working on the Department of Interdisciplinary Basic Science of ISAS can offer you some advice during one-year work and study. You will work in ISAS Sagamihara Campus. You can utilize setups for materials processing and analysis, a short-duration microgravity facility, microgravity environment simulators, the JAXA supercomputer, and a machine shop for development of prototypes.</td>
<td>Prof. Tsubaki Sato, Prof. T. Tsuboi</td>
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<td>6</td>
<td>ISAS Department of Interdisciplinary Science</td>
<td>Tsukuba, IBARAKI</td>
<td>Research on Physical Properties and Structure of High Temperature Melts using Containerless techniques</td>
<td>Due to the chemical reaction between crucibles, high temperature melts are hard to be handled with conventional methods using container. This research projects utilizes containerless techniques (electrostatic and aerodynamic levitation) and study on structure and thermophysical properties of high temperature melt. This research project studies on 1) growth of single crystals and synthesis of crystalline phases from deeply undercooled melts by ground facilities, 2) structural analysis of high temperature melts using synchrotron facilities, 3) Observations and analyses of experiments using the Electrostatic Levitation Furnace on the International Space Station (ISS-ELF).</td>
<td>1) Experience and knowledge on material processing, 2) Experience and knowledge on measurement and control, 3) Experience on X-ray structural analysis or levitation experiments (preferable)</td>
<td>Ground facilities (electrostatic levitators and aerodynamic levitators) are available in Tsukuba Space Center. Fundamental equipments and facilities necessary for sample preparations and analyses are also available. Synchrotron experiments will be conducted under the collaboration with researchers from other organisations (Tokyo University, JAMSTEC, and others).</td>
<td>Prof. Takashiro Shibana, Prof. H. Tsuboi</td>
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<td>7</td>
<td>ISAS Department of Space Flight System</td>
<td>Sagamihara, KANAGAWA</td>
<td>Study on Space Flight System</td>
<td>Multi-discipline space flight engineering including spaceflight systems as well as ground support systems and their basic disciplines such as system engineering, space transportation engineering, structures and systems engineering. The candidates are required to contribute space science programs and projects in ISAS through their study on the space flight system.</td>
<td>The candidates should possess wide knowledge and abilities in space engineering and should have studied in one of the space engineering fields.</td>
<td>Research will be supervised by the academic staffs in Department of Space Flight Systems as well as the collaboration with other research staffs in ISAS including ISAS. The applicants must examine various facilities in ISAS and can receive various supports by the technicians in charge of them.</td>
<td>Prof. Yuko Sato, Prof. M. Ishida, Prof. T. Tsuboi</td>
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<td>No</td>
<td>Department and Space Flight System</td>
<td>Location</td>
<td>Research Themes</td>
<td>Details</td>
<td>Required Abilities</td>
<td>Working Environment</td>
<td>Supervisor</td>
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<td>1</td>
<td>SOLAR-B Project</td>
<td>Sagamihara, KANAGAWA</td>
<td>Solar Space Mission Design</td>
<td>Devises earth orbiling satellites, deep space explorers must reach their target objects by themselves.</td>
<td>Applicants must have strong engineering design and problem-solving skills for the development of the spacecraft system. Applicants are required to be engaged in either solar or earth-related tasks.</td>
<td>Working space and PC will be provided. As for the observations of the Sun, applicants must have experience in hardware R&amp;D studies on scientific instruments, including the lead of the team and its management. For this reason, it is also frequently called &quot;mission design.&quot; Therefore, a researcher must have a good knowledge of physics and spacecraft design. The researcher is also expected to study the design process specific to deep space missions.</td>
<td>Associate Professor, Toshihiro Kawakatsu</td>
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<td>2</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Research on Synthetic Aperture Radar for Small Satellite</td>
<td>SYNAP (Synthetic Aperture Radar) Program</td>
<td>Knowledge and experience that are required for this work are: (i) experience in SAR imaging, (ii) knowledge of spacecraft system design, (iii) experience in software development, and (iv) experience in research and development experience of spacecraft system is preferable.</td>
<td>The research is done under the lead of research staffs in ISAS Department of Space Systems and Astronautics, as well as other research staffs of ISAS (JAXA, J Stall, etc.). A POS for design and analysis work will be provided to the researcher, and the JAXA career computer is also available on research research.</td>
<td>Professor, Tetsuo Yoshimitsu</td>
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<td>3</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Research on Solar Missions</td>
<td>Solar Missions: Research and Development on Hinode observations</td>
<td>Basic knowledge of solar physics or relevant research experience is required.</td>
<td>Working space and PC will be provided. As for the observations of the Sun, applicants must have experience in hardware R&amp;D studies on scientific instruments, including the lead of the team and its management.</td>
<td>Associate Professor, Makoto Yoshikawa</td>
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<td>4</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Research for New Earth Asteroid Missions</td>
<td>New Earth Asteroids (NEAs) are important for the science to study the origin and evolution of the solar system. Some are also important for the future human future because they may be a natural resource.</td>
<td>Basic knowledge of planetary science or spacecraft engineering is recommended. In addition to these, it is desirable to have one or more experiences from the following:</td>
<td>Working space and PC will be provided. As for the observations of the Earth, applicants must have experience in hardware R&amp;D studies on scientific instruments, including the lead of the team and its management.</td>
<td>Associate Professor, Toshifumi Shimizu</td>
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<td>5</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Research and Development of Solar Power System for Future Solar Missions</td>
<td>SOLAR-B (Solar Orbits for Lunar, Asteroid, Remote, and Beyond) Project</td>
<td>Applicants are required to be engaged in either solar or earth-related tasks.</td>
<td>SOLAR-B solar power group (SOLAR-B) will supervise the research and it is possible to use various test facilities in ISAS. Meanwhile, collaborative research activities with solar physics group in ISAS (with which SOLAR-B project have long-term working relationship) as well as use of test facilities at NAFO are also available and encouraged.</td>
<td>Associate Professor, Yoshihiro Shimizu</td>
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<td>No.</td>
<td>Department</td>
<td>Location</td>
<td>Research Themes</td>
<td>Satellite</td>
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<td>14</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Observation Planning Data Processing Data Analysis for Near-Infrared Near-Far Infrared Observations Magneto-optical Sciences</td>
<td></td>
<td>Project researchers are required to coordinate data evaluation processes and fire the development of new software applications. They need to have experience in astronomical data analysis and software development.</td>
<td>The staff scientists of ISAS projects will collaborate with project participants. The scientific requirements for data analysis planning and execution are defined for each observation.</td>
<td>Associate Professor: Takahiro Saito</td>
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<td>15</td>
<td>Institute of Space and Astronautical Science (ISAS), Hayabusa 2 Project Team</td>
<td>Sagamihara, KANAGAWA</td>
<td>Asteroid analysis and Operation Planning for Asteroid Priosity Phase of Hayabusa 2</td>
<td></td>
<td>Sufficient knowledge and experience with dynamical analysis (e.g., asteroid 162173’s) and attitude dynamics. Sufficient knowledge and experience with numerical data analysis or simulation.</td>
<td>Research Study will be conducted solely under the supervision of Dr. Takahiro Saito, the project engineer of Hayabusa2 Project Team. An Office equipment and computer will be provided. Attendance at project meetings of related fields will be permitted.</td>
<td>Assistant Professor: Tatsuo Saki</td>
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<td>16</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Construction of AKARI data archive and astronomical research using the AKARI data</td>
<td></td>
<td>The candidates must be Software Developers or Computer Scientists.</td>
<td>The successful candidates will participate in the AKARI Data archive and software development.</td>
<td>Associate Senior Research Scientist: Takeshi Yamamura</td>
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<td>17</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Development of Advanced Data Analysis System to Promote Interdisciplinary Space Sciences Research and Original Research using that System</td>
<td></td>
<td>Doctoral degree in space science, mathematics, or information technology. At least 2 years of experience in data analysis or software development.</td>
<td>The candidates will be involved in the AKARI Data archive and software development.</td>
<td>Professor: Kent Ellsworth</td>
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<td>18</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Research for Hayabusa 2 Return Sample receiving</td>
<td></td>
<td>Must have an experience of experimental research in the field of astromaterials or terrestrial materials.</td>
<td>The successful candidates will participate in the AKARI Data archive and software development.</td>
<td>Associate Professor: Reina Alex</td>
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<td>19</td>
<td>Institute of Space and Astronautical Science (ISAS)</td>
<td>Sagamihara, KANAGAWA</td>
<td>Astrodynamics in the proximity of Mars Mean</td>
<td></td>
<td>The candidates must have a strong background in astrodynamics and/or spacecraft systems.</td>
<td>The successful candidates will participate in the AKARI Data archive and software development.</td>
<td>Associate Professor: Tatsuo Kawanishi</td>
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</table>
20. Institute of Space and Astronautical Science (ISAS), 

**Research Theme:** Development of Space Instruments on board **OMOTENASHI**

**Research Unit:** Technology

**Supervisor**

Department: Professor, Takao Nakagawa (80-3822-3544)

**Supervisors' Post, Name, Phone**

Department Director, Masaki Dotani

050-3362-5920

Professor, Kazuhisa Fujita

fujita.kazuhisa@jaxa.jp

Senior Researcher, Kazuki Fujioka

050-3362-4370

Contacts (Post, Name, Phone)

Kazuhisa Fujita

Senior Researcher

Kazuki Fujioka

Senior Researcher

**Site**

Department of Solar System Sciences

**Location**

Sagamihara

**Salary**

4/4

**Ratios**

10:0

**Notes**

(due research project contributions)

**Research Theme:** Development of Space Instruments on board **OMOTENASHI**

**Research Unit:** Technology

**Supervisor**

Department: Professor, Takao Nakagawa (80-3822-3544)

**Supervisors' Post, Name, Phone**

Department Director, Masaki Dotani

050-3362-5920

Professor, Kazuhisa Fujita

fujita.kazuhisa@jaxa.jp

Senior Researcher, Kazuki Fujioka

050-3362-4370

Contacts (Post, Name, Phone)

Kazuhisa Fujita

Senior Researcher

Kazuki Fujioka

Senior Researcher

**Site**

Department of Solar System Sciences

**Location**

Sagamihara

**Salary**

4/4

**Ratios**

10:0

**Notes**

(due research project contributions)

**Research Theme:** Development of Space Instruments on board **OMOTENASHI**

**Research Unit:** Technology

**Supervisor**

Department: Professor, Takao Nakagawa (80-3822-3544)

**Supervisors' Post, Name, Phone**

Department Director, Masaki Dotani

050-3362-5920

Professor, Kazuhisa Fujita

fujita.kazuhisa@jaxa.jp

Senior Researcher, Kazuki Fujioka

050-3362-4370

Contacts (Post, Name, Phone)

Kazuhisa Fujita

Senior Researcher

Kazuki Fujioka

Senior Researcher

**Site**

Department of Solar System Sciences

**Location**

Sagamihara

**Salary**

4/4

**Ratios**

10:0

**Notes**

(due research project contributions)