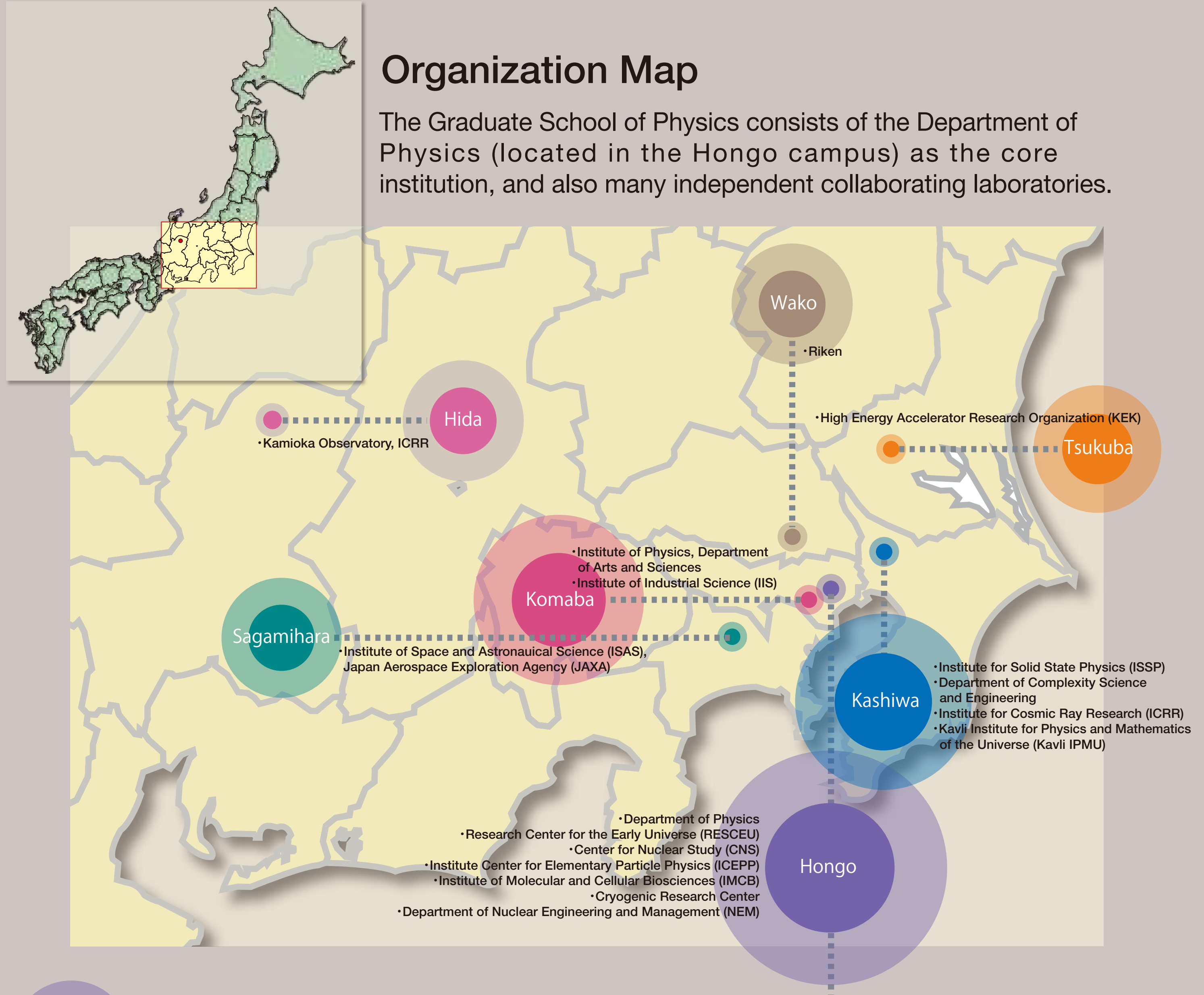
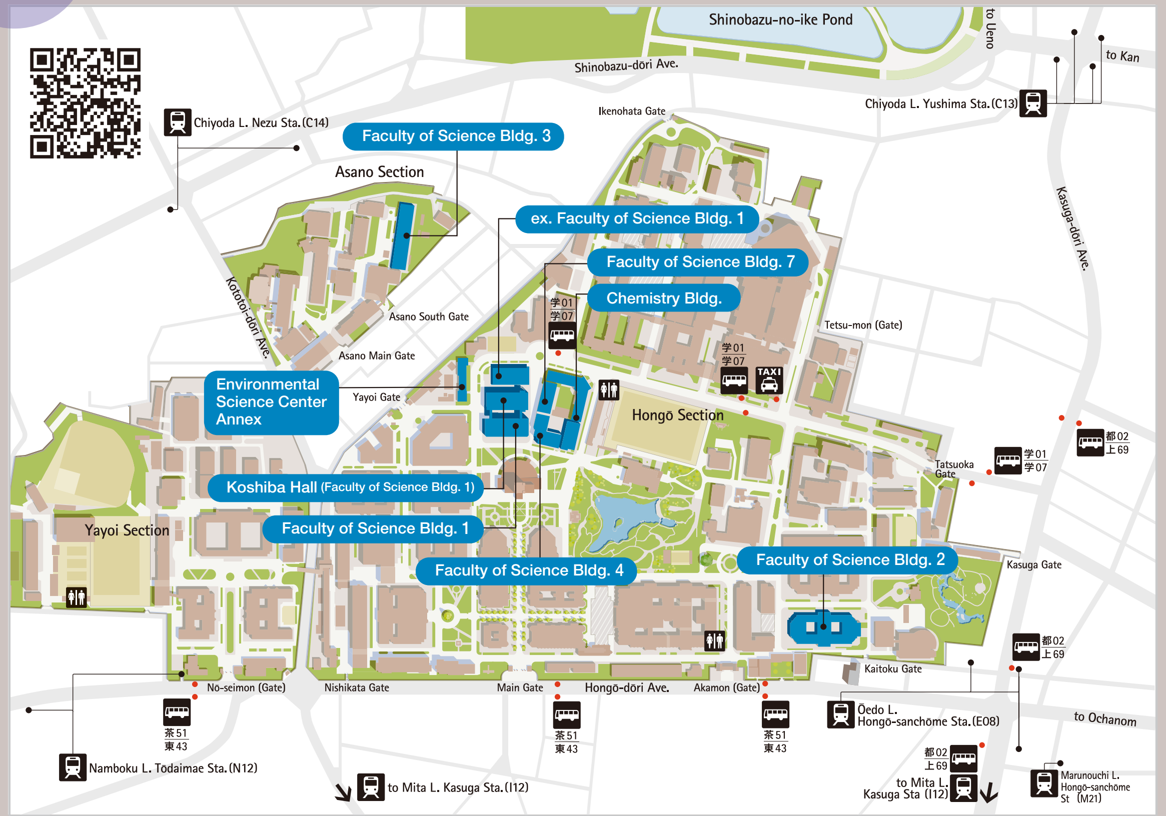
Organization Map

The Graduate School of Physics consists of the Department of Physics (located in the Hongo campus) as the core institution, and also many independent collaborating laboratories.



Hongo Campus Map



Access Map

Komaba Campus Map

Kashiwa Campus Map

Photomultiplier tube used in the Nobel prize-winning KAMIOKANDE neutrino observatory

Tea time at Kavli IPMU

Hitomi X-ray Astronomy Satellite ©JAXA

History

2015
Nobel Prize was awarded to Prof. Takaaki Kajita.

2008
Nobel Prize was awarded to Yoichiro Nambu, who graduated from the department of Physics in 1943.

2002
Nobel Prize was awarded to Masatoshi Koshiba (Professor Emeritus).

1998
First part of the Faculty of Science Center Building 1 (West Wing) was completed.

1993
Reorganization of Departments. Graduate School of Science was formed by current 12 Departments.

1973
Nobel Prize was awarded to Prof. Leo Esaki.

1967
Department of Physics, Department of Astronomy, and Department of Geo-Physics were separated again.

1951
Department of Physics, Department of Astronomy, and Department of Geo-Physics were combined together to Department of Physics.

1919
The College of Science became the Faculty of Science. The Departments of Theoretical Physics and Experimental Physics were merged to form the Department of Physics.

1901
Department of Physics was divided into Department of Theoretical Physics and Department of Experimental Physics

1877
Foundation of the University of Tokyo. Department of Physics was included in the College of Science.

1875
Department of Physics was formed in Tokyo-Kaisei School, a forerunner of the University of Tokyo.

Web Information

Graduate School of Science:
http://www.phys.s.u-tokyo.ac.jp/en/

Secretary office for support of international students.
http://www.s.u-tokyo.ac.jp/ilo/en/

The Global Science Graduate Course (GSGC)
http://www.phys.s.u-tokyo.ac.jp/en/admission/462/

Admissions of Graduate Courses
http://www.phys.s.u-tokyo.ac.jp/en/lp/admission_gc/

Address and Contact

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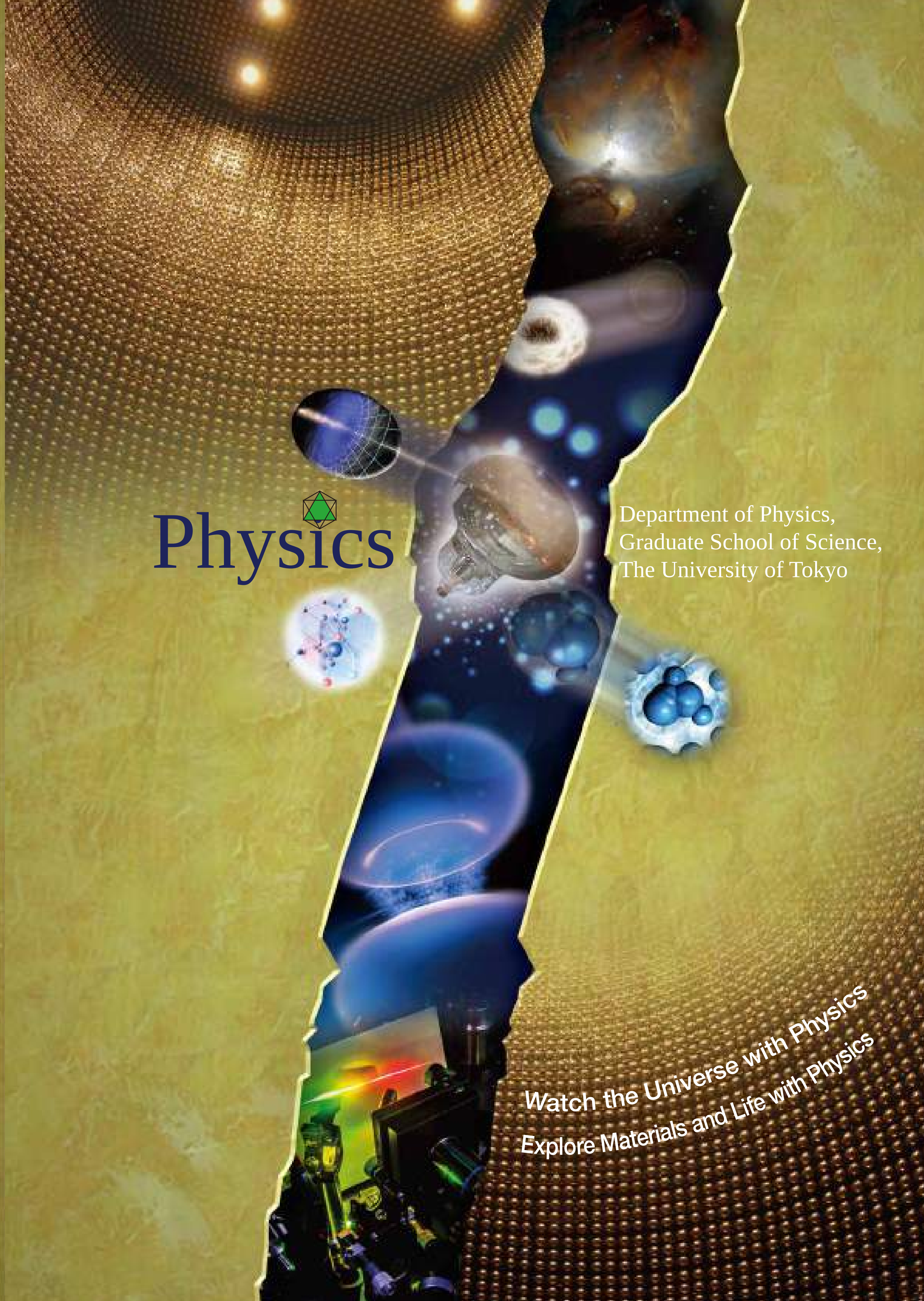
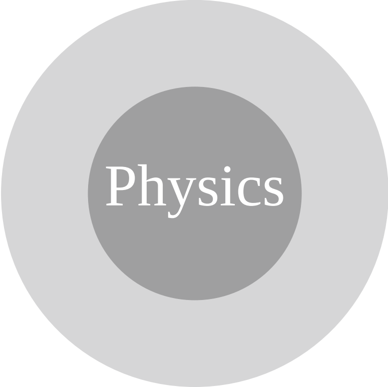
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033 TEL: +81-3-5841-4242

Physics

Department of Physics, Graduate School of Science, The University of Tokyo





Physics

Examples of collaborating institutes and organizations

Institute for Solid State Physics
http://www.issp.u-tokyo.ac.jp/index_en.html

Institute for Space and Astronauical Science (ISAS), Japan Aerospace Exploration Agency (JAXA)
http://www.isas.jaxa.jp/e/

Institute for Cosmic Ray Research (ICRR)
http://www.icrr.u-tokyo.ac.jp/index_eng.html

Kavli Institute for the Physics and Mathematics of the Universe (Kavli IPMU)
http://www.ipmu.jp/

High Energy Accelerator Research Organization (KEK)
http://www.kek.jp/en/

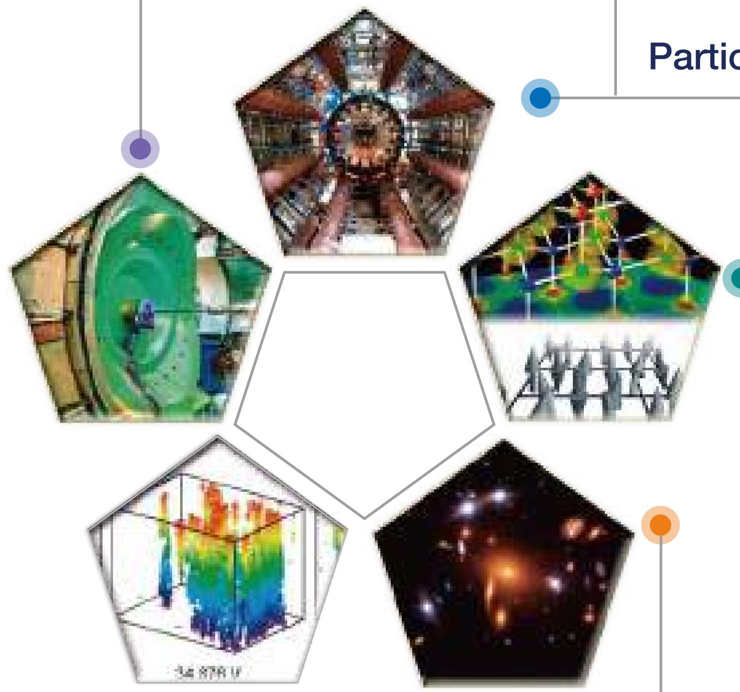
Institute of Physics, Department of Arts and Science

About Us

The Department of Physics has more than 130 faculty members. They are all internationally recognized researchers who cover almost all of the frontier fields of Physics, such as Condensed-Matter Physics, Cosmology, Particle Physics, Nuclear Physics and General Physics. We have the longest history among Japanese universities concerning education and research in Physics, while turning out many outstanding physicists, including Leo Esaki (1973 Nobel laureate), Ryogo Kubo, Yoichiro Nambu (2008 Nobel laureate), Masatoshi Koshiba (Professor Emeritus, 2002 Nobel laureate), and Takaaki Kajita (Professor, 2015 Nobel laureate) over the past century. Our Department is one of the world's largest and top-ranked graduate schools in Physics.

Structure

The frontier fields of modern physics span a considerably wide range. Thus, our faculty members are working not only for the Department of Physics at Hongo Campus, but also for related graduate schools, research institutes and centers, and outside research organizations, which enables us to conduct diverse and advanced research.



Research Activities

The Graduate School of Physics covers most of the frontier fields in Physics at the top level in the world, with more than 130 senior faculty members who can supervise graduate students. Please visit our web page for details.

http://www.phys.s.u-tokyo.ac.jp/en/

Condensed-Matter

In the experimental condensed-matter group, we aim to explore novel quantum phases formed by ensembles of electrons, atoms and molecules in materials, and to understand their properties microscopically. Our playgrounds include, for example, superconductivity, topological quantum phases, correlated electron systems, quantum magnetism and superfluid He. The development of new experimental probes, such as advanced spectroscopy using photons from synchrotron radiation and free-electron lasers, as well as characterization under extreme conditions (ultra-low temperature, ultra-high magnetic-field vacuum and pressure) are also our important activities.

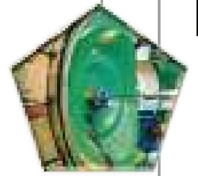
Magnetism and superconductivity are typical co-operative phenomena caused by the interaction of electrons and nuclei in crystals. Theoretical condensed-matter physics aims to understand such interesting phenomena in condensed-matter from the basic principles of physics and interactions between constituent particles. We also pursue methodological development for that purpose. The research field of theoretical condensed-matter physics is further expanding due to recent developments of new experimental techniques, like highly accurate electron spectroscopy or laser cooling, as well as large-scale computer simulations.

Astrophysics and Cosmology

Astrophysics aims to (1) understand the origin and evolution of the universe, and (2) explore physics under extreme conditions, such as high temperature, high density, and strong magnetic fields. We conduct experimental and observational studies using ground-based, underground, and space-borne facilities. Multi-messenger observations through electromagnetic waves, cosmic rays, neutrinos and gravitational waves allow us to reveal the exciting nature of the Universe.

Topics of theoretical research include the evolution of the universe, the formation of stars and black holes, and the nature of dark matter and dark energy. To this end, we utilize observational data and computer simulations as well as a broad range of theoretical physics, such as particle physics, general relativity, plasma physics, atomic and molecular physics, fluid mechanics, and celestial dynamics. We also explore novel methods for data analysis of gravitational-wave detection, for exascale computing, and for developing turbulence theory.

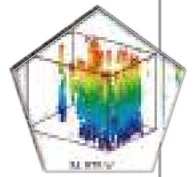
Particle and Nuclear Physics



We are studying atomic nuclei and elementary particles, the fundamental constituents of the observable matter in the universe, using cutting-edge experimental technologies and accelerators. To explore phenomena at both large and small scales, our research necessarily considers various topics. In particular, basic questions are being addressed: Why does matter have mass? How was the universe created? How can we understand strong interactions, and what are the mechanisms responsible for synthesizing the variety of elements on Earth? What are the limits where beautiful symmetries arise or break down?

In theoretical particle physics, we conduct research to address fundamental questions concerning the origin of space-time and matter. Some concrete examples of our focus are: Physics beyond the standard model; Particle cosmology, such as dark matter and inflation; Superstring, M-theory, quantum gravity, supersymmetric gauge theory; Mathematical physics related to quantum field theory, such as duality and integrability; Quantum foundation -- the conceptual and mathematical underpinnings of quantum theory. Research on theoretical nuclear physics includes exotic nuclei, novel shell structures, quark-gluon matter in and out of equilibrium, and astrophysical applications.

General Physics / Biophysics



The research fields of Experimental General Physics cover laser physics and spectroscopy, plasma physics, and the physics of non-equilibrium systems. In laser physics and spectroscopy, we study novel quantum states of matter, light-matter interactions in strong optical fields, and the spectroscopy of various systems, including atoms, molecules, nanoparticles, semiconductor nanostructures, and biological molecules. In plasma physics, nonlinear dynamics and collective phenomena in non-equilibrium plasmas are studied in order to realize nuclear fusion. The physics of living matter and out-of-equilibrium systems are studied, which are relevant to biophysics and soft matter.

A living organism is a complex system consisting of many layers, but it is composed of both physical and fundamental constituents. Therefore, it should be possible to understand the principles governing life in term of physics. From this viewpoint, biophysics aims for a general integrated understanding of biological phenomena through the methodologies of physics, by resolving a living organism into its elements, such as molecules and cells, and by considering it as a system in which the elements interact with each other. We are conducting theoretical and experimental research on the physics at many layers, such as molecules, supermolecules, cells, nerves, and the brain.