

Department of Physics

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What is Physics?

The scope of physics ranges from the cosmos to the elementary particles and everything between them in size. We study the fundamental laws governing matter in the universe. Important questions such as the origin and fate of the universe are examples of pristine physics. We also figure out ways to improve human life by utilizing the physical laws of nature. By harnessing the atoms we have control over nano-technology. We have just begun to understand complex systems such as biological systems and thus give a firm foundation to bio-technology. We have been pioneers in information technology, as can be witnessed by the fact that the inventor of the web browser is a particle physics experimentalist. The Korean economy has been driven by the advances in semiconductor physics. As Paul Samuelson, a Nobel Laureate in Economics once put it, physics is the "king of natural sciences". We use the mathematical language found in the natural world which has always been a surprising source of new experimental discoveries. The development of computers has given us another tool to delve into the mysteries of the universe.

Physics at Kyung Hee

The Physics Department at Kyung Hee provides solid training in fundamental concepts of basic and applied physics, provides experimental and computer-aided classes, and emphasizes the social aspects of physics. A systematic curriculum of core courses in physics prepares students to go to graduate school in physics, or find employment in related fields such as the semiconductor industry or the field of information technology. In the nation-wide evaluation of physics departments in 1992, both undergraduate and graduate programs of our Department were ranked in the top tier with fewer than 15 other departments. In 1997, the Department won the first prize in the University-wide evaluation of the University's 34 units. The faculty members played a major role in the establishment of the Advanced Display Research Center (ADRC), one of the four display research centers supported by the Ministry of Commerce and Industry of Korea. These serve as proven examples of high quality in education and research, and demonstrate good prospects of the Department. In 2002, in a nation-wide evaluation of physics departments by Joong-Ang Ilbo, we ranked 3rd in research area of faculty, indicating the very strong research abilities of the faculty. In 2007, our department was ranked 1st in the area of research performance of faculty members by Joong-Ang Ilbo. Most recently, in 2008 our department was ranked one of the best physics departments in a nation-wide evaluation.

Degree Requirements

To receive the Bachelor of Science in Physics, a student must:

- complete a minimum of 130 credit units
- satisfy the general requirements of the School of Sciences for professional degrees
- complete 63 units of major courses including 21 units of required courses for a major in Physics
- complete 48 units of major courses including 21 units of required courses for a minor in Physics
- acquire a minimum English proficiency test score of TOEIC 700 or TOEFL(CBT 203, iBT 74), TEPS 650, OPIc IM, TOEIC Speaking 130

Courses

1st Year

Calculus and Recitation 1, Calculus and Recitation 2, Physics and Laboratory 1, Physics and Laboratory 2, Chemistry and Laboratory 1, Chemistry and Laboratory 2, Biology and Laboratory 1, Biology and Laboratory 2, Information Physics

2nd Year

Elementary Electronics Laboratory, Advanced Electronics Laboratory, Mechanics 1, Mechanics 2, Electromagnetism 1, Electronics 1, Mathematical Physics 1, Mathematical Physics 2, Modern Physics

3rd Year

Electromagnetism Laboratory, Optics Laboratory, Electromagnetism 2, Quantum Mechanics 1, Quantum Mechanics 2, Waves and Optics, Thermal and Statistical Physics 1, Special Topics in Physics 1, Special Topics in Physics 2, Computational Display Physics, Semiconductor Physics, Internship(Physics), Capstone Design(Physics)

4th Year

Solid State Physics Laboratory, Semiconductor Process Laboratory, Solid State Physics 1, Solid State Physics 2, Thermal and Statistical Physics 2, Display Optics, Advanced Materials Physics, Spectroscopy, Nuclei and Elementary Particles, Seminars in Physics, Relativity and Cosmology, Introduction to Quantum Information, Physics with Big Data Analysis

Careers and Graduate Destinations

The majority of our students advance to graduate school in physics. A few opt to study engineering or other fields of study. The majority of those who are employed after undergraduate study find themselves in the fields of semiconductors, software, financial industry, and secondary education. Some have found their calling in the broadcasting and entertainment industries, or have become jazz singers or film directors. Students who have earned their master's are needed in the R&D part of the semiconductor and display industries or in national research labs. Those with a Ph.D. have become professors or researchers.

Faculty

Keon-Ho Yoo, Ph.D. Massachusetts Institute of Technology, 1990, Professor, Experimental Condensed Matter Physics, khyoo@khu.ac.kr

Soonkeon Nam, Ph.D. Yale University, 1987, Professor, Cosmology&String Theory, nam@khu.ac.kr

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