

Physics

An Overview

Physicists explore and identify basic principles governing the structure and behavior of matter, the generation and transfer of energy, and the interaction of matter and energy. Some physicists use these principles in theoretical areas, such as the nature of time and the origin of the universe; others apply their physics knowledge to practical areas, such as the development of advanced materials, electronic and optical devices, and medical equipment. Physicists design and perform experiments with lasers, particle accelerators, telescopes, mass spectrometers, and other equipment. Based on observations and analysis, they attempt to discover and explain laws describing the forces of nature, such as gravity, electromagnetism, and nuclear interactions. Physicists also find ways to apply physical laws and theories to problems in nuclear energy, electronics, optics, materials, communications, aerospace technology, and medical instrumentation.

Where Employed?

Physicists held about 14,000 jobs in 2002. Nearly one-third of physicists worked for scientific research and development services firms. The federal government employed 29 percent, mostly in the U.S. Department of Defense, but also in the National Aeronautics and Space Administration (NASA), and in the U.S. Departments of Commerce, Health and Human Services, and Energy. Other physicists and astronomers worked in colleges and universities in non-faculty, usually research, positions. An increasing number of physicists work in state government and private industries, including information technology companies, pharmaceutical and medicine manufacturing companies, or electronic equipment manufacturers.

Job Opportunities

Acoustics Physicist	Hydrologist
Astronomer	Engineer
Astrophysicist	Medical Physicist
Atomic, Molecular and Electron Physicist	Meteorologist
Biophysicist	Nuclear Physicist
Chemical Physicist	Systems Developer
Computer Programmer	Optics Physicist
Elementary Particle Physicist	Petrologist
Environmental Physicist	Plasma Physicist
Fluid Physicist	Solid State Physicist
Geodesist	Elementary/Secondary School Teacher
Geophysicist	Technical Writer/Journalist

Job Outlook

Employment of physicists is expected to grow more slowly than the average for all occupations through 2012. Although research and development budgets in private industry will continue to grow, many research laboratories in private industry are expected to continue to reduce basic research, in favor of applied or manufacturing research and product and software development. Nevertheless, persons with a physics background continue to be in demand in the areas of information technology, semiconductor technology, and other applied sciences. This trend is expected to continue; however, many of the new workers will have job titles such as software engineer, computer programmer, engineer, and systems developer, rather than physicist.

Wages and Salaries

Median annual earnings of physicists were \$85,020 in 2002. The middle 50 percent earned between \$66,680 and \$107,410. The lowest 10 percent earned less than \$50,350, and the highest 10 percent earned more than \$129,250. The American Institute of Physics reported a median annual salary of \$95,000 in 2002 for its full time members with Ph.D.'s (excluding those in postdoctoral positions); the median was \$87,000 for those with master's degrees, and \$78,000 for bachelor's degree holders.

Additional Information

American Institute of Physics -Physics Jobs - <http://www.physicstoday.org/jobs/>

American Institute of Physics - <http://www.aip.org/>

American Physical Society - <http://www.aps.org/jobs/index.cfm>

Careers in Science and Engineering - <http://sciencecareers.sciencemag.org/>

Careers Using Physics - <http://www.spsnational.org/cup/>

Careers with Physics (Institute of Physics) - <http://www.careers.iop.org/>

PhDs.org - <http://www.phds.org/>

Physics Jobs - <http://physicsweb.org/jobs>

Physics Jobs Online - <http://tiptop.iop.org/>

Physics Web - <http://www.physicsweb.org/>

Science Careers - <http://sciencecareers.sciencemag.org/>

The Scientist's Employment Network - <http://www.scijobs.org/>

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