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More US Students Take High School Physics

US high school enrollments in physics have reached their highest level in the post-World War II era, according to a recent report from the American Institute of Physics. The report, *Maintaining Momentum: High School Physics for a New Millennium*, found that over the last decade, the proportion of high school students who take physics rose from about 20% to 28%, which translates into about 800 000 students now enrolling in physics each year. Based on a 1997 survey of high school physics teachers, the report is the fourth in a series begun by AIP in the mid-1980s; the response rate was 75%.

According to the report, written by AIP's Michael Neuschatz and Mark McFarling, "The gains are not simply the result of physics being made more widely available" but rather the fact that a broader range of courses is now offered. Although traditional algebra-based courses still make up two-thirds of enrollments, so-called conceptual physics courses, which use little algebra or trigonometry, have also become popular over the last decade, accounting for one-fifth of physics course enrollments. And among students with the strongest math abilities, the proportion taking advanced placement or second-year physics has doubled since 1987.

More high school girls are taking physics: In 1997, they made up 47% of physics course enrollments, compared to 39% ten years earlier. However, the report notes, girls are still underrepresented in advanced placement physics, and women still comprise only one-fourth of high school physics teachers. Asian-American students continued to have the highest enrollments of all racial and ethnic groups, with 44% taking physics. And, although slightly higher proportions of African-American and Hispanic students now take physics—16% and 15%, respectively, compared to 10% for each group in 1990—they remain severely underrepresented, the report notes.

The survey also compared, for the

first time, physics enrollments based on socioeconomic levels. Not surprisingly, enrollments in public schools deemed "much worse off" economically based on their locations were less than half those of the richest schools—20% versus 44%. And only 10% of the poorest schools offered advanced placement courses, compared to 35% of the wealthiest schools. "There is some indication that the gap is, if anything, growing worse," the report notes. For example, when asked about the preparation of their entering students, 26% of the respondents at the richest schools said that there had been some improvement over the past four years, while 20% said student preparation had fallen. At the poorest schools, however, only 18% reported improvement, while 33% reported a decline.

And despite the recent enrollment gains, the report notes, physics still draws the lowest enrollments of all the high school sciences, with levels about half those of chemistry. What's more, only a little over 1% of high schoolers have taken two years of physics by the time they graduate, far fewer than their peers in many European and Asian countries.

The full report, which also looks at the demographics and professional backgrounds of high school physics teachers, can be downloaded as a PDF file from the AIP statistics division's home page, <http://www.aip.org/statistics/trends/hstrends.htm>. A printed summary of the report is available free of charge from AIP, Education and Employment Statistics Division, One Physics Ellipse, College Park, MD 20740; phone 301-209-3066.

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IN BRIEF

Articles archive. PubSCIENCE is a new on-line database of physical sciences publications, launched this month by the Department of Energy's Office of Scientific and Technical Information. The database is starting out with some two million articles from more than 1000 peer-reviewed journals. For some journals, listings go back two decades or more, and the database will be continuously updated. PubSCIENCE is modeled on the National Library of Medicine's PubMed. Citations can be searched for free on the Web at <http://www.osti.gov/pubsci/>, but the cost and availability for accessing the full articles vary, depending on the publisher and whether the user is a subscriber to the particular journal.

On-line geoscience journal. The American Geophysical Union (AGU) and the Geochemical Society have created an on-line journal dedicated to interdisciplinary research in geochemistry and geophysics. One aim of *Geochemistry, Geophysics, Geosystems*—or *G-Cubed* for short—is to keep publication costs and subscription rates low; for example, the editorial and review process will be handled electronically, thereby eliminating the mailing costs involved in working with reviewers and authors, says Cornell University's William White, one of the journal's three editors (along with the University of Cambridge's Harry Elderfield and Harvard University's Richard O'Connell). Another reason for going all-electronic, White says, is "to enable authors to publish very large data sets, which paper journals could never afford to print." Access to the journal will be free for at least the first year. The first issue is set to be posted on the journal's Web site, <http://www.g-cubed.org>, in early December, prior to AGU's fall meeting, and the journal will be updated weekly.

Physics moratorium. The University of Wyoming's trustees have approved an academic plan that includes mothballing the physics and astronomy department's graduate programs. Reinstating them will be conditional on the department's swelling its undergraduate ranks and making its Wyoming Infrared Observatory financially independent (see PHYSICS TODAY, June, page 53). The uncertain future of the department has contributed to the recent departures of three faculty members, and at least two of the remaining six professors are considering outside offers, says physics and astronomy chair Paul Johnson. On the upside, the university has allocated about \$60 000 toward repairing the department's planetarium, and has given the green light to recruiting two new faculty members this year, and two more next year.

Beam physics degrees. Michigan State University's new graduate program in beam physics is now accepting applications. Many of the courses for the master's degree and PhD are self-paced and offered through the Web. Transfer credits are allowed, and courses can also be taken at the university and at the US Particle Accelerator School (which, in conjunction with Indiana University, sponsors its own beam physics master's program; see PHYSICS TODAY, June 1997, page 74). PhD candidates