

cofounded by the late Carl Sagan), the University of California, and several businesses, including Sun Microsystems and Paramount Pictures. To find out more about SETI@home and how to participate, visit the project's Web site at <http://setiathome.ssl.berkeley.edu>.

TONI FEDER

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.

JEAN KUMAGAI

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

must also pass departmental exams in four core areas and complete a dissertation. MSU has been offering Internet-based instruction since 1995 through its Virtual University; course material is posted on the Web, and homework problems are solved on-line, with automated feedback given. The beam physics program's Web site, <http://vubeam.nscl.msu.edu>, has details on how to apply.

NSF awards. On 31 August, the National Science Foundation announced awards totaling \$50 million for research in a wide range of mostly interdisciplinary areas that use, or are metamorphosing due to, advanced computer technology. The Knowledge and Distributed Intelligence program grants went to 31 groups and ranged from about \$500 000 to nearly \$3 million—the largest award went to a University of California, Santa Barbara—led project that aims to integrate autonomous sources of ecological data into a single network. Among the other topics that won KDI funding are a study (based at the University of California, Berkeley) addressing economic, legal, social, and technical aspects of intellectual property rights; simulations of and experiments involving amorphous and crystalline ice growth (University of Washington); and development of a Web-based library of mathematical functions (National Institute of Standards and Technology). After this batch of grants, the

KDI program will be discontinued, but some of the fields it covers will become part of a new governmentwide program, called Information Technology for the 21st Century, or IT2, which is scheduled to start next year.

Student rocket. Attempts to revive TERRIERS, the research satellite built by Boston University students that lost power shortly after launch on 18 May, have thus far been unsuccessful. Meanwhile, another space experiment developed by BU students has been gearing up for launch. At press time, SPECTRE—the Student-run Program for Exoatmospheric Collecting Technologies and Rocket Experiment—was set to go up on 17 September from the sounding rocket range on Wallops Island, Virginia. During its 17-minute flight, SPECTRE will measure high-energy and visible radiation and observe radiation absorption by various atmospheric constituents. The experiment was the brainchild of five BU undergraduates, who drafted the proposal in hopes of getting out of the final exam in their introductory astronomy course. In the end, the students still had to take the final, but their proposal was accepted by NASA. SPECTRE is the first of three such experiments to be completed under the space agency's Student Launch Program, which provided \$35 000 for the BU effort plus the Nike-Orion rocket that will carry SPECTRE aloft. ■

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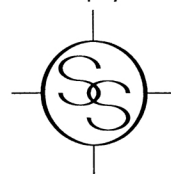
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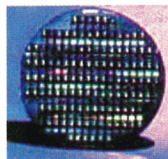
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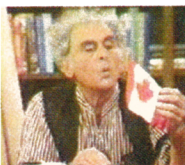
<http://www.pbs.org/transistor>

The 50-year history of the transistor is the subject of **Transistorized!** a television program and Web page produced jointly by the Public Broadcasting Service and the American Institute of Physics. The TV program airs on your local PBS station at 10 pm on 8 November.



<http://www.frightenstein.com/professor.html>

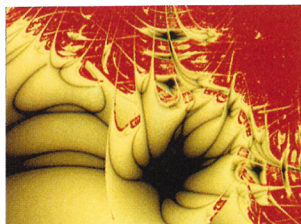
Broadcast in Canada during the 1970s, the children's television series entitled *The Hilarious House of Frightenstein*, featured **The Professor**, a manic figure who demonstrated physics experiments. In fact, the Professor was played by a real-life physics educator, Julius Sumner Miller (his obituary appeared in *PHYSICS TODAY*'s November 1987 issue, page 144).



<http://www.lboro.ac.uk/departments/ma/gallery>

From the department of mathematical sciences at Loughborough University in England comes **The Gallery of Mathematics**.

Molecular dynamics simulations are among the exhibits on display, as are Lyapunov pictures and so-called self-referential sentences that make true statements about their alphabetical contents.



To suggest topics or sites for Web Watch, please contact ptwww@aip.org by e-mail.

Compiled by CHARLES DAY