

Pass It On: Spread Physics Awareness in 2005

Stage a trivia contest. Screen a film. Open your lab to tours. Post science facts in shop windows. Whatever it is, do something to show the public how physics is relevant in everyday life. That's what physics organizations everywhere are exhorting their members to do in 2005, the World Year of Physics.

Next year is the centenary of Albert Einstein's "annus mirabilis," when he published his pioneering papers in special relativity, quantum mechanics, and Brownian motion. Celebrating Einstein's achievements and their impact on society "was the ideal choice" for a World Year of Physics, says Martial Ducloy, chair of the project's international steering committee and past president of the European Physical Society.

The idea grew out of a conversation Ducloy had in late 2000 with Nobel laureate Claude Cohen-Tannoudji and a few other physicists. "2000 was the World Mathematical Year, and naturally we came to the idea that a World Year of Physics should be organized as well," says Ducloy. The aim, he adds, is to raise awareness about physics in the general public and in educational systems. "We hope there will be many events in many countries."

With only loose coordination, activities for the World Year of Physics are being planned around the globe. Events are aimed variously at the wider public, schoolchildren, college students, women, and people in developing countries. Like its counterparts around the world, says Alan Chodos, associate executive officer of the American Physical Society, "the APS is doing a lot to stimulate physicists to participate. In some ways that is the most important thing we can do. Our bottom-line goal is for people to notice that the Year of Physics happened."

To attract media attention, a January kickoff event featuring high-profile politicians and scientists is planned at the Paris headquarters of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Many events will tie in to the World Year of Physics, including a conference in Durban, South Africa, on physics and sustainable development, and one in Bern, Switzerland, that will focus on the public understanding of physics and on a histori-

cal overview of Einstein's life and achievements and their legacy for today's physics challenges.

The events planned by APS, many in collaboration with the American Institute of Physics and the American Association of Physics Teachers, depend on getting funding. They include traveling physics shows; an experiment in which high-school students measure the radius of Earth; and a treasure hunt in which a fictional "secret section" of Einstein's will challenge middle-school children to perform experiments that yield clues about the location of a buried prize.

The UK's Institute of Physics will launch the year with some sort of mass participation experiment—for which a competition is in progress.

Among other activities the IOP is arranging are a dance based on Einstein's theories, a pantomime performance that takes audiences on a voyage through the universe, and parties around the UK to celebrate Einstein's birthday. In France, various activities for the public are being organized along four themes: the universe, energy and environment, physics and life sciences, and light and communications. One example is laser cleaning of monuments. The Korean Physical Society plans to hold an exhibition in Seoul highlighting relativity and Einstein's other work. And in Pakistan, radio and television programs on science will be aired in local languages. That's just a taste of what's taking shape in these and other countries.

On a global scale, activities will include shining lasers in relay around the planet; scouting for 2005 youths who are talented in physics; creating physics toys; and highlighting physics advances over the past 4000 years with a traveling exhibition that covers



Proposed Tuition Sparks Marathon Physics Lecture

Across Europe, student strikes over the past few months have disrupted university classes. In Berlin, Germany, they also led to a new world record for the longest-ever physics lecture.

The strikes are to protest budget cuts and the introduction or raising of tuition fees. In the case of Berlin, the local government wants to cut its universities' budgets by a total of €75 million (\$100 million) over five years, slash 200 academic posts, and, for the first time, charge students—between €400 and €2000 per semester. Besides fighting tuition fees—which are currently banned by German federal law—the city's students are demanding an increase from 85 000 to 135 000 undergraduate slots.

In addition to standard forms of protest such as making barricades, storming city hall, and marching, students and professors drew attention to their plight by staging a 72-hour physics lecture last December on Potsdamer Platz, one of the busiest public squares in central Berlin. In two-hour shifts, they spoke on everything from buckyballs to the theory of relativity. "When I lectured on laser optics at 3 AM, all seats were taken, with dozens of students listening from outside even though it was freezing," says Paul Fumagalli, chair of the physics department at Berlin's Free University. Berlin students are planning other public physics lectures as the strike continues.

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everything from ancient methods of timekeeping to Einstein's merging of space and time. Particle physics labs worldwide are collaborating on a physics comic book for adults.

The World Year of Physics gained visibility in fall 2002, when it was endorsed by the International Union of Pure and Applied Physics. UNESCO signed on a year later, and initiatives are under way for the US Congress and the UN to declare 2005 the World Year of Physics.

For a schedule of events during the World Year of Physics and information about how to participate, see <http://www.wyp2005.org> and <http://www.physics2005.org>.

Toni Feder

NSF Launches Large-Scale Network for Small-Scale Science

Thirteen universities are participating in NSF's National Nanotechnology Infrastructure Network, which aims to link user facilities for a broad spectrum of nanoscience research, including biology, chemistry, geoscience, materials, engineering, and physics.

Launched last month as an extension of NSF's earlier 10-year National Nanofabrication Users Network, the NNIN branches out to include characterization, modeling, educational outreach, and the impact of nanotechnology on society. NSF is funding NNIN with at least \$70 million over five years.

The NNIN dovetails with, and is to be funded by, the Nanotechnology Research and Development Act signed on 3 December 2003 by President Bush. That act requests \$849 million for fiscal year 2004 and has as a goal the establishment of a national network of advanced technology user facilities. "In effect we have presaged this," says Lawrence Goldberg, NSF program officer for the NNIN. "NSF is the lead agency in the federal government's investment in nanotechnology."

NNIN's capabilities include expertise in semiconductor electronics, molecular electronics, optics, microelectromechanical systems, nanofluidics, and computation; tools for making nanotubes, nanowires, porous materials, self-assembled and patterned materials, nanocomposites, biological templates, and other structures; and a host of microscopy techniques for characterizing nanoscale creations. NNIN facilities are open to international researchers from all R&D sectors.

"By assembling and offering to share our specialized resources with any and all qualified users, we have created the world's largest, most comprehensive, and accessible nanotechnology laboratory," says NNIN director Sandip Tiwari, a Cornell University electrical engineer.

Coordinating NNIN work on the implications of nanotechnology for society is Bruce Lewenstein, a professor of science communication at Cornell. Nanotechnology will impact workforce productivity, equity, privacy,

the environment, and global competitiveness, he says. "For example, we may have injectable devices floating around in our bloodstreams monitoring cholesterol or sugar levels. If I am walking down the street, can anybody with the right receiver—or my employer—check my blood chemistry? What are the implications for privacy?" At NNIN, Lewenstein adds, "our goal is to build the capacity of all users to be able to address social and ethical issues. We will do that through materials, speakers, access to resources, and making tools available."

In addition to Cornell, the NNIN partners are the Georgia Institute of Technology, Harvard University, Howard University, North Carolina State University, Pennsylvania State University, Stanford University, the University of California at Santa Barbara, and the universities of Michigan, Minnesota, New Mexico, Texas at Austin, and Washington.

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News Notes

Antiterrorism research center. The US Department of Homeland Security (DHS) has chosen the University of Southern California as the site for the first of what are expected to be several science and technology "centers of excellence" for antiterrorism research. The USC center, called the Homeland Security Center for Risk and Economic Analysis of Terrorism Events, is slated to receive \$12 million during the next three years. USC was selected from 70 applicants.

Randolph Hall, chairman of the university's School of Engineering, and Detlof von Winterfeldt of the School of Policy, Planning, and Development, will jointly head the center. Researchers will "address both the targets and means of terrorism, with emphasis on protecting the nation's critical infrastructure systems, such as electric power, transportation, and telecommunications," according to a USC statement.

USC researchers, who have extensive experience in how to respond to natural disasters such as earthquakes, will involve the school's advanced computer modeling and cybersecurity experts in the center. Representative Christopher Cox (R-CA), chairman of the House Committee on Homeland Security, applauded the selection of USC, saying, "The USC team is uniquely qualified to enhance homeland security as a result of the



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Clean rooms are just a part of the National Nanotechnology Infrastructure Network launched in January by NSF.