

be the first in a series of reference books, a manual called *English Language Skills for the Global Nuclear Industry*. Other planned programs will look to preserve the knowledge of the existing generation of nuclear workers before they retire. "There will be no actual campus, as we can make use of existing academic infrastructure," says Ritch.

By 2011, the supply of nuclear engineers in the US will fall short of demand by 50%, says Melanie Lyons, spokesperson for the Washington, DC-based Nuclear Energy Institute. Similar shortages are predicted to occur in many countries that use nuclear reactors. "Germany needs an additional 6000 skilled nuclear staff and so does France," says Helmuth Böck, a professor of reactor physics at the Atomic Institute in Vienna, Austria.

The projected worldwide shortages would arise even if the nuclear industry did not expand much beyond the 440 existing power plants (see the story on page 34). However, the WNA anticipates a high rate of reactor construction as energy-generation costs and environmental concerns increasingly favor nuclear over fossil fuels, says Ritch. An increased demand for new workers, he adds, will underscore the need for setting international education standards.

Another WNU role arises from the recent call by IAEA Director General Mohamed ElBaradei for a fundamental review of the entire fuel cycle of the nuclear industry worldwide. Instead of national facilities for uranium fuel enrichment and spent fuel reprocessing, he suggests studies directed toward placing a limited number of facilities under full multinational control. The aim would be to eliminate any opportunity for nuclear weapons proliferation. He also suggests that countries collaborate more on waste disposal. Already these ideas are topics of WNU working groups. "In the future," says Ritch, "we hope the WNU will become a vibrant symbol of a nuclear technology that is green and indispensable."

Paul Guinnessy

Physics in the Life Sciences Is Focus of Industrial Physics Forum

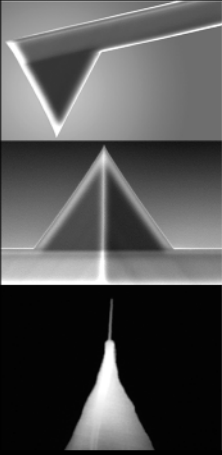
Nanoscale photosynthesis, molecule cascades, and the ribosome as a protein-producing nanomachine, were just some of the life sciences-oriented topics presented at the 2003 Industrial Physics Forum and its academic-industrial workshop, held

26–28 October in San Jose, California.

Hosted by the Palo Alto-based Agilent Technologies, the annual meeting was sponsored by the Corporate Associates of the American Institute of Physics, the *Industrial Physicist*, and the American Physical Society's Forum on Industrial and Applied Physics. Participants in the preconference workshop focused on the roles of industry, government, and academia in cultivating new scientists through undergraduate research.

The workshop opened with an overview of why some undergraduate physics departments thrive. The discussions, which included case studies from Rutgers University in New Jersey and Bryn Mawr College in Pennsylvania, focused on the importance of involving undergraduates in research. The National Task Force on Undergraduate Physics, which conducted site visits at 21 "thriving" physics departments, provided data for the workshop (see PHYSICS TODAY, September 2003, page 38).

The forum's theme, "Physics in the Life Sciences," underscored the increasingly intertwined nature of physics and biology. The tour of Agilent Technologies included visits to labs for research in such areas as proteomics, nanopore detection, and DNA micro-



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A scientist explains a MEMS micro-mover to forum attendees in one of twelve research labs on the Agilent Laboratories tour.

arrays. The forum's science session included Stanford University physicist Steven Chu's talk on how the ribosome produces proteins, while the policy session was highlighted by a presentation on the future of Silicon Valley by E. Floyd Kvamme, one of the founders of National Semiconductor and cochair of the President's Council of Advisors on Science and Technology.

At the forum, AIP presented its Industrial Applications of Physics Prize to Rangaswamy Srinivasan, formerly at IBM Research, for "discoveries, inventions, and promotion of ablative photodecomposition for medical and materials applications." Srinivasan, who now heads UVTech Associates in Ossining, New York, is credited with creating the field of laser eye surgery. Next year's forum will be hosted by IBM's T. J. Watson Research Center in New York.

Jim Dawson

News Notes

Chinese science prize. China now has its first seven-figure science prize. Hong Kong-based billionaire Run Run Shaw has established three \$1 million prizes to be awarded annually to scientists in astronomy, mathematics, and life and medical sciences.



Shaw

found impact on mankind."

The first of the Shaw Prizes will be awarded in June 2004, and "it is possible, and probable, that we may in-

clude prizes in other fields in the future," says Koon-Fai Chor, secretary general of the Shaw Prize Foundation, which administers the awards.

"Societal progress has always depended on the tireless efforts of men and women of great talent," he says. "The Shaw Prize is established as a tribute to these pioneers and an encouragement to men and women dedicated to the advancement of civilization." Further information can be found at <http://www.shawprize.org>. **PKG**

Physics server adds biology. One of the oldest and most popular physics preprint servers has created a new section for quantitative biology at <http://arXiv.org/archive/q-bio>. Before arXiv.org launched q-bio, roughly 40 submissions per month were related to biology. Those papers were split between the existing physics, computer science, nonlinear sciences, and mathematics subdisciplines hosted by arXiv.org. Since the launch of q-bio—which incorporates the existing biological content in the archive—biology-related submissions have increased by a factor of two, says arXiv.org founder Paul Ginsparg of Cornell University.

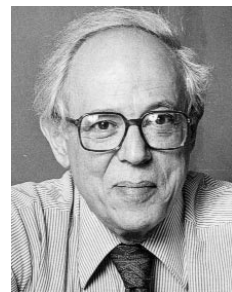
The drive to create the new preprint section came from pressure within the quantitative biology community to have a centralized archive to share their results, say q-bio coordinators Terry Hwa of the University of California, San Diego, and Michael Lässig of the University of Cologne in Germany. "The hope is that concentrating them in one place will facili-

tate the growth of this community and perhaps attract readers and ultimately submitters from conventional areas of biology," adds Ginsparg. **PKG**

History prize honors Pais. The American Physical Society and the American Institute of Physics have established the Abraham Pais Award for the History of Physics. The award will be bestowed annually in recognition of "outstanding scholarly achievements in the history of physics." Open to scholars worldwide, the award will be shared by up to three people in any given year. Winners will split the \$5000 purse and receive travel funds to deliver an invited talk at an APS meeting.

A renowned theoretical particle physicist and historian of physics, Pais is best known among historians for his book, *Subtle is the Lord: The Science and the Life of Albert Einstein* (American Philosophical Association, 1982), which won the 1983 American Book Award in Science. Pais died in 2000 (see the obituary in *PHYSICS TODAY*, May 2001, page 79).

The first Pais award will be announced in 2005. Nominations are due by 1 May 2004. For additional information, see <http://www.aps.org/units/fhp/pais>. **TF ■**



Pais

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WEB WATCH

<http://www.exploratorium.edu/marsrover>

By agreement with NASA's Jet Propulsion Laboratory, the Exploratorium will show live webcasts beamed down from the Martian surface by NASA's Spirit rover. The webcasts begin on 4 January 2004; the Exploratorium's **Exploring Mars** exhibit kicks off a month earlier on 1 December.



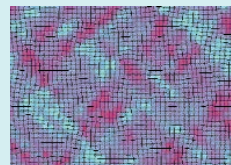
<http://www.stonehengelaserscan.org>



At **Stonehenge Laser Scans** you can learn what three-dimensional laser scanning has revealed about the mysterious 4300-year-old relic. In particular, the Web site describes the discovery, thanks to the scans, of carvings too faint to see with the naked eye.

http://www.lassp.cornell.edu/sethna/Tweed/What_Are_Martensites.html

What are Martensites? If you don't know, or would like to know more about the phase-hopping, industrially important materials, then visit the illustrated online tutorial put together by Cornell University's Jim Sethna.



To suggest topics or sites for Web Watch, please visit <http://www.physicstoday.org/suggestwebwatch.html>.

Compiled and edited by Charles Day