nology for their discoveries and achievements. Awards were presented during an April ceremony at the Franklin Institute in Philadelphia. Of the nine receiving awards this year, four do physics-related work.

Norman R. Augustine, retired CEO and chairman of Lockheed Martin Corp, received the Bower Award for Business Leadership. He was selected "for his leadership of Lockheed Martin, his extensive public service, and implications for economic competitiveness driven by innovation and improved science and math education." Augustine is an author of the 2005 National Academy of Sciences report *Rising Above the Gathering Storm* (see PHYSICS TODAY, December 2005, page 25).

Taking home the Benjamin Franklin Medal in Earth and Environmental Science was **Steven W. Squyres**, Goldwin Smith Professor of Astronomy at Cornell University. He was selected for his "discovery of water on Mars through 'robotic geologists,' the Mars Exploration Rovers, which have led to a greater understanding of the potential for life on other planets and life's evolution on Earth."

Arthur B. McDonald and **Yoji Totsuka** were corecipients of the Benjamin Franklin Medal in Physics "for their discovery that the three known types of elementary particles called neutrinos change into one another when traveling long distances, and that neutrinos have mass." McDonald is the Gordon and Patricia Gray Chair in particle astrophysics and the director of the Sudbury Neutrino Observatory Institute at Queen's University in Ontario, Canada; Totsuka is Special University Professor Emeritus at the University of Tokyo and former director of KEK, Japan's high-energy accelerator research organization.

Awards were presented during an April ceremony at the Franklin Institute in Philadelphia.

in brief

Astrophysicist **France A. Córdova**, former chancellor of the University of California, Riverside, assumed a new post last month as the 11th president of Purdue University. Córdova had served at Riverside since 2002; prior to that post she was at UC Santa Barbara, where she had been vice chancellor for research and a professor of physics for six years. She was the youngest person to hold the position of NASA chief scientist, working from 1993 to 1996 on projects that included the *Hubble Space Telescope*. Purdue selected Córdova in May following a seven-month search for a successor to Martin C. Jischke, who retired in June.

obituaries

To notify the community about a colleague's death, subscribers can visit http://www.physicstoday.org/obits, where they can submit obituaries (up to 750 words), comments, and reminiscences. Each month recently posted material will be summarized here, in print. Select online obituaries will later appear in print.

Pierre-Gilles de Gennes

Pierre-Gilles de Gennes, winner of the 1991 Nobel Prize in Physics, left us on 18 May 2007. On 5 June the French Academy of Sciences organized a national homage to him at the Palais de la Découverte (Palace of Discovery) in Paris in the presence of President Nicolas Sarkozy.

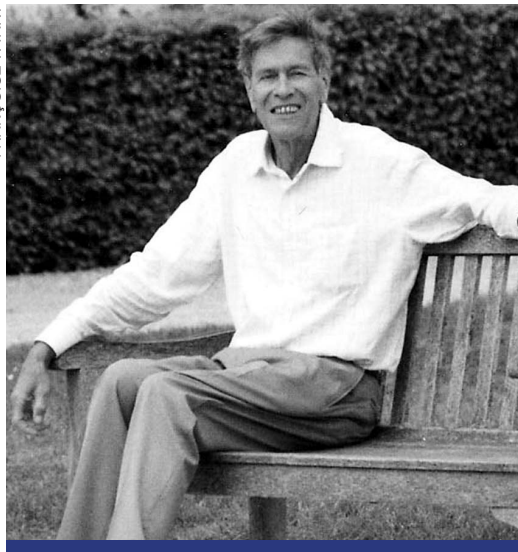
PGG, as he was affectionately called by his students and coworkers, was born on 24 October 1932 in Paris. His postsecondary studies began in 1951 at the École Normale Supérieure, where he and Philippe Nozières were classmates. At that time in France, the teaching of modern physics, quantum mechanics, and relativity were nonexistent; physics had not yet recovered from the war years. Not until 1953, at a two-month summer school organized at Les Houches by Cécile de Witt, were the young stars-to-be introduced to those subjects by prominent physicists, including Rudolf Peierls and William Shockley.

For the next few years, PGG was at Saclay at the Atomic Energy Commission, where he completed his thesis with J. Yvon and A. Herpin on the scattering of neutrons by critical-point fluctuations in a ferromagnet in the vicinity of the Curie temperature. Critical-point fluctuations, in various different contexts, were a recurrent theme throughout his career.

In 1958, before fulfilling his military service in the French navy, PGG spent six months at the University of California, Berkeley, as a postdoc with Charles Kittel. This was an important period in the evolution of PGG's approach to science. He was strongly influenced by Kittel's insistence on the importance of physical reasoning as an adjunct to formal manipulations and calculations. PGG approached his subsequent work with the conviction that at least qualitatively, everything can be explained in simple terms accessible not only to his fellow theorists but also to experimentalists, chemists, industry people, and even nonspecialists: He was always looking for explanations with the least possible mathematical formalism. It was also at Berkeley that PGG began to immerse himself in learning about superconductivity, at both the microscopic Bardeen-Cooper-Schrieffer level and the more coarse-grained approach of the Russian school. That effort soon resulted in the famous Orsay Superconductivity Group.

By then, Anatole Abragam and Jacques Friedel had recognized the unusual talent of PGG. In 1961 they arranged for him to have a position of maître de conférence (assistant professor) with André Guinier, Raymond Castaing, and Friedel at the then-new Orsay campus of the University of Paris. PGG stayed at Orsay for 10 years, where he organized and led two teams

FRANÇOISE WYART



Pierre-Gilles de Gennes

Recently posted death notices at http://www.physicstoday.org/obits:

Vincent Z. Peterson
18 June 1921 – 17 May 2007

John Morgan Eargle
6 January 1931 – 7 May 2007

Heinz Wolfram Kasemir
30 August 1930 – 1 May 2007

John David Fox
8 December 1929 – 11 March 2007

Hans-Jürgen Treder
4 February 1928 – 18 November 2006

of physicists and chemists combining experiment and theory, first on superconductivity and later on liquid crystals. The deep analogy between the physics of superconductors and of smectic liquid crystals remains one of his most well-known ideas. The close-knit interdisciplinary team approach was then revolutionary in academic physics and allowed Orsay to achieve an international stature with considerably fewer resources than larger academic and industrial laboratories. During those years PGG produced two books, *Superconductivity of Metals and Alloys* (W. A. Benjamin, 1966; based on lecture notes for a course at Orsay) and *The Physics of Liquid Crystals* (Oxford University Press, 1974; rewritten and expanded with Jacques Prost in 1993), which continue to have considerable influence. Toward the end of the Orsay years, PGG began his interest in macromolecules. One of us (Pincus) recalls having discussions with him in building 510 and working with pieces of thread to try to understand the nature of entanglements and knots in polymer solutions.

A major shift occurred in the early 1970s when PGG was approached to replace Hendrik Casimir as director of the Philips Research Laboratories in Eindhoven, the Netherlands. This turbulent period in PGG's life resulted in his declining the Philips post and staying in France to be the prestigious condensed-matter physics chair at the Collège de France. Once again he assembled an outstanding team of chemists and physicists. Over two decades, he invented a new area of condensed-matter physics now known as soft condensed matter. He started studying disordered systems—polymers, colloids, surfactants, microemulsions—that were not considered noble enough by physicists and thus were left to chemists and physical chemists to research. He also revived old areas of 19th-century physics such as wetting and capillary adhesion and made them the bases of the constantly renewed lectures that he taught for 33 years at the Collège de France. Many of his ideas during those years emerged directly from questions asked by either chemists or industrial colleagues, and on several occasions his ideas had direct impact on industrial issues. During that period he wrote another important tome, *Scaling Concepts in Polymer Physics* (Cornell University Press, 1979), which had a major impact on polymer science and engineering.

In 1976 PGG accepted the directorship of the École Supérieure de Physique et de Chimie Industrielles in Paris, which he held simultaneously with his chair at the Collège de France until his retirement in 2005. At ESPCI he was able to pursue his long-standing interest in pedagogy. He organized a tutorship system that emphasized an observational and experimental approach to science education rather than the more traditional formal French training. Many who worked with him heard PGG remark, "The transistor was not invented with theorems!" He received the Nobel Prize in Physics in 1991 "for discovering that methods developed for studying order phenomena in simple systems can be generalized to more complex forms of matter, in particular to liquid crystals and polymers." Afterward he worked at trying to convey his passion for science to high-school students. During a four-year period, he visited more than 200 high schools. With Jacques Badoz, he summarized those meetings in a book, *Les objets fragiles* (Plon, 1994; English translation, *Fragile Objects: Soft Matter, Hard Science, and the Thrill of Discovery*, Springer, 1996).

After his official retirement from ESPCI and the Collège de France, PGG joined the biomedical campus at the Curie Institute, where he pursued problems related to brain research, including olfaction and neuron function. However, he maintained his extremely broad interests in condensed-matter physics; as of last summer, when he gave a lecture series at the University of California, Santa Barbara, he was thinking deeply about the role of defects in supersolid helium, quantum theory of dislocations, and heterogeneities in high-T_c superconductors. Quoting Etienne Guyon, his PhD student and former director of the École Normale Supérieure, "He continued his research activities up to the end with a remarkable courage and discretion."

As emphasized by Nozières at the June homage, the de Gennes style of research was characterized by elegance—of exposition, in avoiding heavy formalism, and in creativity of ideas. Nevertheless, PGG was not an "ivory tower" scientist. He firmly believed that an important role of science is to enhance the life experience of all humanity.

The de Gennes legacy will continue to have major influence for years to come. We have lost a marvelous scientist, mentor, and friend.

Jean-François Joanny
Curie Institute
Paris
Philip A. Pincus
University of California, Santa Barbara

Maurice René Georges Jacob

Maurice Jacob, a world-renowned theoretical physicist and longtime pillar of CERN, died unexpectedly in Geneva, Switzerland, on 2 May 2007 after a decade of chronic illness. Immensely enthusiastic and energetic, able to juggle research, lecturing, editorial duties, and community service with uncommon ease, Maurice was a dynamo who left an indelible impression on the worldwide particle-physics community.

The son of a noted French science educator, Maurice was born on 28 March 1933 in Lyon, France. He studied physics at the École Normale Supérieure and received his doctorate from the University of Paris in 1961. He wrote his thesis, "Formal Theory of Collisions and Helicity Eigenstates," with Francis Perrin and Gian Carlo Wick as advisers.

His research interests were in theoretical particle physics, close to experiment. In collaboration with Wick, he wrote perhaps his most broadly influential paper, "On the General Theory of Collisions for Particles with Spin" (*Annals of Physics*, volume 7, page 404, 1959), while visiting Brookhaven National Laboratory as a student. The paper's helicity-amplitude formalism, widely used in the 1960s and 1970s and a fixture today among experimenters, is enjoying a revival among quantum-chromodynamics (QCD) and string theorists.

Maurice made major contributions to our understanding of hadronic collisions at high energies through his studies of inclusive reactions, scaling, two-particle correlations, resonance production, heavy-particle production, and large-transverse-momentum jets. He and his colleagues interpreted the data through the quark–parton model and QCD. The flavor of that work can be sampled in *The Quark Structure of Matter* (World Scientific, 1992), a collection of eight of his publications. In the late 1980s, his interests turned to radiation problems and beam–beam disturbances in electron–positron colliders, and he began working with Tai Tsun Wu. He was among the first to recognize and pursue the potential of relativistic heavy-ion collisions. Maurice wrote extensively on the history of the physics at CERN's Intersecting Storage Rings (ISR) and on the future prospects for CERN's succession of colliders, including the Large Electron–Positron Collider and the Large Hadron Collider.

Maurice was a member of the Center for Nuclear Studies in Saclay from 1961 to 1967. He joined the theory division at