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

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Maurice René Georges Jacob

CERN testing of interpretations, and debates over the next steps. His lecture notes and conference reports disseminated well beyond CERN the excitement and puzzles of the ISR experiments. He was an exceptional editor, bringing his acute judgment to *Physics Letters* and serving as a founding editor of *Physics Reports*, which he quickly brought to the first rank of review journals. He edited or co-edited numerous volumes, including *Infinitely CERN*, a collection of memories from the lab's first 50 years of research, 1954 to 2004.

Maurice provided inspired leadership to the CERN theory division from 1982 to 1988, and during the 1990s he took responsibility for CERN's relations with its member states. Despite his illness, he continued to write and participate in CERN affairs long after his official retirement in 1998.

A zealous advocate for CERN and for European science, Maurice was a dedicated internationalist with loyal friends in every region. He was much in demand as a lecturer around the world. His membership on the advisory committee of *PHYSICS TODAY* from 1996 to 2002 illustrates his commitment to the worldwide physics community. Maurice was president of the French Physical Society in 1985 and of the European

Physical Society from 1991 to 1993, and he served on the scientific advisory committee of the European Space Agency in the 1990s. Maurice was a chevalier of France's Legion of Honor and a member of the French Academy of Sciences, the Royal Swedish Academy of Sciences, and Academia Europaea. He received the Médaille d'argent of the CNRS in 1967.

A lover of the outdoors, Maurice was a wonderful companion on a mountain path and an avid observer and commentator on the flora, whether a common gentian or the rare *génépi*. He was extremely fond of his family vacation place in the southern Alps near Briançon, where he could hike and ski. He was a generous spirit and full of wisdom and empathy. We remember with affection his joy in science, his pedagogical gifts, his concern for institutions and individuals, and the pleasure he found in encouraging others. His scientific legacy lives in CERN's bright future and in the outlook of many physicists influenced by his optimism, broad vision, and abiding curiosity.

J. David Jackson

University of California, Berkeley

Chris Quigg

Fermi National Accelerator Laboratory

Batavia, Illinois ■

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