

WE HEAR THAT

Maple, Dresselhaus, and Ajzenberg-Selove Honored by APS

The American Physical Society has honored **M. Brian Maple** with the 2000 James C. McGroddy Prize in New Materials. According to the award citation, he was recognized for "the synthesis of novel *d* and *f* electron materials and for the study of their physics." Maple is the Bernd T. Matthias Professor of Physics at the University of California, San Diego.

Mildred S. Dresselhaus and **Fay Ajzenberg-Selove** were cowinners of the 1999 Nicholson Medal for Humanitarian Service. Each was honored for "being a compassionate mentor and lifelong friend to young scientists; for setting high standards as researchers, teachers and citizens; and for promoting international ties in science." Dresselhaus is an Institute Professor of Electrical Engineering and Physics at MIT. Ajzenberg-Selove is a professor of physics at the University of Pennsylvania.

These awards were presented at the society's meeting held in Minneapolis in March.

Engineering Academy Elects New Members

The National Academy of Engineering has added 78 new members and eight new foreign associates. Among the new members are the following working in physics-related fields:

David E. Daniel, head of the department of civil and environmental engineering at the University of Illinois at Urbana-Champaign.

Pablo G. Debenedetti, the Class of 1950 Professor in Engineering and Applied Science and chair of the chemical engineering department at Princeton University.

Michael Ettenberg, corporate senior vice-president of Sarnoff Corp in Princeton, New Jersey.

Jean M. J. Fréchet, a professor of chemistry at the University of California, Berkeley.

Charles D. Greskovich, a senior research and development scientist at the General Electric Research and Development Center in Niskayuna, New York.

Larry L. Hench, a professor of ceramic materials at the University of London's Imperial College of Science,

Technology and Medicine.

Norden E. Huang, a research oceanographer at NASA's Goddard Space Flight Center.

Jack L. Koenig, the Donnell Institute Professor in Case Western Reserve University's department of macromolecular science.

William J. Koros, the B. F. Goodrich Professor in Materials Engineering at the University of Texas at Austin.

Frederick J. Leonberger, the vice-president and chief technology officer of JDS Uniphase Corp in Bloomfield, Connecticut.

Y. K. Lin, holder of the Charles E. Schmidt Eminent Scholar Chair in Engineering at Florida Atlantic University and director of the university's center for applied stochastic research.

Noel C. MacDonald, a professor of electrical engineering at Cornell University.

Henry McDonald, the director of NASA's Ames Research Center.

Peter F. Moulton, the chief technology officer and a senior vice-president of Q-Peak Inc in Bedford, Massachusetts.

Alan Needleman, the Florence Pirce Grant University Professor in Brown University's division of engineering.

Donald R. Olander, a professor of nuclear engineering at the University of California, Berkeley.

Franklin M. Orr Jr., dean of Stanford University's school of earth sciences.

Stuart B. Savage, a professor emeritus of civil engineering and applied mechanics at McGill University.

Hratch G. Semerjian, the director of the chemical science and technology laboratory at the National Institute of Standards and Technology in Gaithersburg, Maryland.

Daniel Shechtman, a distinguished professor of materials engineering at the Technion—Israel Institute of Technology in Haifa, Israel.

Marwan A. Simaan, the Bell of Pennsylvania/Bell Atlantic Professor of Electrical Engineering at the University of Pittsburgh.

Robert M. Sneider, president of Robert M. Sneider Exploration Inc in Houston, Texas.

The new foreign members include

Chun-Yen Chang, president of National Chiao Tung University in Hsinchu, Taiwan.

Luis Esteve, a professor of engi-

neering at the National Autonomous University of Mexico, in Mexico City.

Kazuo Inamori, the founder and chief executive officer emeritus of Kyocera Corp in Kyoto, Japan.

Hajime Sasaki, chairman of NEC Corp in Tokyo.

James H. Whitelaw, a professor of convective heat transfer in the mechanical engineering department at Imperial College.

German Societies Present Awards

At its annual meetings in Dresden and Regensburg earlier this year, the German Physical Society presented seven medals and prizes.

The 2000 Max Planck Medal was presented to **Martin Lüscher** for his contributions to the theory of elementary particle physics, especially to the analytic and algorithmic development of the lattice gauge theory. Lüscher is a member of the theory group at the German Electron-Synchrotron (DESY).

The society's 2000 Stern-Gerlach Medal went to **Theodor W. Hänsch**, of the Max Planck Institute for Quantum Optics in Garching and the University of Munich, for his pioneering efforts in the fields of laser spectroscopy and laser manipulation of free atoms. According to the citation, "His significant contributions to the precision spectroscopy of hydrogen, laser cooling, the production of optical lattices, and his innovative contributions to Bose-Einstein condensation have had significant impact on atomic physics and quantum optics."

Gunter M. Schütz received the 2000 Gustav Hertz Prize in recognition of his theoretical work in integrable stochastic multiparticle systems. He is a member of the Institute for Solid State Research at the Jülich Research Center.

This year's Walter Schottky Prize for Condensed Matter Physics was presented to **Clemens Bechinger**, of the University of Konstanz, for the clarification of fundamental questions about structure formation and phase transitions in condensed matter with the examinations of colloidal model systems.

Dietrich Menzel of the Technical University of Munich garnered the Robert Wichard Pohl Prize. He was cited for his multifaceted contributions to the chemical physics of solid-state surfaces.

The French and German Physical Societies together awarded the 2000 Gentner Kastler Prize to **Michel Broyer** in appreciation of his pioneering contributions to the analysis of molecular Rydberg states and to the femtosecond spectroscopy of clusters. Broyer is the director of the ion and molecular spectroscopy laboratory at the Claude Bernard University (University of Lyon I) in France.

The UK's Institute of Physics and the German Physical Society jointly presented this year's Max Born Prize to **Rolf Felst** of the University of Hamburg in January. He was cited "for his outstanding contribution to elementary particle physics, his leading role in the investigation of e^+e^- collisions

with the JADE detector, which led to many important discoveries in the area of strong and weak interaction, and his continuous support of British scientists in their work at the DESY laboratory."

The Rudolf Kaiser Prize was presented to **Lutz Schweikhard** of the University of Mainz for his groundbreaking contributions to the physics of clusters in ion traps.

Also at the Regensburg meeting, the Gaede Foundation of the German Vacuum Society awarded this year's Gaede Prize to **Thomas Michely** of RWTH-Aachen. He was recognized for his pioneering experiments on particle-surface interactions and nucleation processes in the growth of thin layers on the atomic scale.

essential features of much of his research: concern for utmost generality, appeal to the most suitable mathematical tools, and, at the same time, a strong desire not to lose touch with experiment.

The polarization of particles was long a favorite topic of Michel's. Together with Arthur Wightman, he proposed, in 1955, the covariant Dirac projection operator for polarization, which is now standard textbook fare. Equally popular is the Bargmann-Michel-Telegdi (BMT) equation. First introduced in 1958, BMT describes the precession of the polarization of a particle moving in a (weakly and slowly variable) electromagnetic field. BMT has found wide applications in many precision experiments and in accelerator design.

Michel was, at least in Western Europe, the first to realize that parity violation would manifest itself through the longitudinal polarization of β particles. He and his student Bouchiat proposed various ways to detect that effect.

Michel focused next on phenomena that occur when internal symmetries are broken spontaneously. He applied this approach not only to elementary particles, but also to the field of condensed matter, where he developed group-theoretical methods for the topological classification of defects. For the past twenty years, he devoted himself to renewing, by means of the most recent mathematical tools, the description of crystals and pseudocrystals and to specifying, in collaboration with Joshua Zak, the properties of the energy bands that arise from crystal symmetries. His last researches were to form the content of two books, which he nearly finished before he died.

This succinct account of Michel's scientific work affords but an incomplete glimpse of his professional activities. Although, from its impressive scope, his enthusiasm for research can be inferred, it does not reveal his missionary zeal, his optimism devoid of naïveté. Michel attracted students and postdocs from all over the world, who learned from the Master what research could and should be. An irrepressible traveler, he went abroad at least once a year, invited as a visiting professor, lecturing at summer schools, or attending conferences. Through his travels and his early training, he became the most cosmopolitan of French physicists and the most French among the scientists in his chosen field.

Michel's contributions to the

OBITUARIES

Louis Michel

The eminent French theoretical and mathematical physicist Louis Michel died suddenly of an embolism in Bures near Paris on 30 December 1999.

Michel was born on 4 May 1923 in Roanne, France, into a family of modest circumstances. He received his higher education at the selective Ecole Polytechnique in Paris, from which he graduated in 1946.

After working briefly in experimental cosmic-ray research, Michel decided to study theoretical physics. In the years immediately following World War II, theoretical physics enjoyed an enormous rebirth in the US, the UK, and in Italy, but in France it remained in a "disaster area." (Subsequently, as this obituary will recount, Michel played a distinguished role in the reconstruction of French theoretical physics.) Recognizing this state of affairs, Michel went abroad—first to Manchester (1948–50), next to Copenhagen, and then to Princeton. During this exile, he occasionally went back to France, but in 1954 he returned to his native country for good. He occupied various posts in the French academic system until he became, in 1962, a professor at the newly founded private Institut des Hautes Etudes Scientifiques, where he worked until his death.

Michel's very first paper (1949), on the electron spectrum from the decay of a muon into an electron and two neutrinos, brought him immediate international recognition. In that paper, he showed that the spectrum is characterized—for the most general (parity conserving) 4-fermion coupling—by a single parameter, ρ , which

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LOUIS MICHEL

is now universally known as the Michel parameter. Michel's formalism (with its extension to parity violation, done with Claude Bouchiat in 1957) found a brilliant new application after the discovery of the tau lepton in 1975.

Michel was the first to realize, in a 1952 review paper on the coupling of elementary particles, that a coupling could be represented mathematically as the superposition of scalar and pseudoscalar parts. Such a breaking of mirror invariance, he showed, would manifest itself physically through a pseudoscalar combination of the kinematical observables—a remarkable insight.

In a fundamental paper on charge conjugation (1953), he introduced a new quantum number, isotopic parity, which has since been universally accepted under the name G-parity attached to it by Tsao-Dang Lee and Chen-Ning Yang. Michel's masterful doctoral thesis (1953) on the universal Fermi interaction revealed the