Mathematics People

Dantzig Prize Awarded

The Dantzig Prize, presented by the Mathematical Programming Society and the Society for Industrial and Applied Mathematics, is awarded to one or more individuals for research which, by virtue of its originality, breadth, and depth, is having a major impact on the field of mathematical programming. The prize is named for George B. Dantzig of Stanford University, whose leadership in recognizing the central importance of linear programming in efficient allocation of resources and in developing an efficient algorithm (the simplex method) for its solution led to the current significant role of mathematical programming in applied mathematics. Dantzig also made many important contributions to the solution of large-scale models arising in planning and to methods and theory extending linear programming to integer and nonlinear optimization and complementarity problems. He is a member of both the National Academy of Sciences and the National Academy of Engineering.

During the opening ceremonies of the 15th International Symposium on Mathematical Programming, the 1994 prize was awarded to CLAUDE LEMAR CHAL of Institut National de Recherche en Informatique et en Automatique (INRIA), Paris, and ROGER J.-B. WETS of the University of California, Davis, for their outstanding contributions to nonsmooth optimization and to stochastic programming. The prize committee judged their broad contributions to theory, computation, and applications to be in the finest tradition of mathematical programming, as exemplified by the work of George Dantzig. The prize committee consisted of M. Groetschel, E.L. Johnson, R.T. Rockafellar, and M.J. Todd (chair).

The committee was particularly impressed by the fact that, in addition to their own path-breaking research, both Lemaréchal and Wets have very successfully nurtured and inspired their areas, encouraging and working with younger scientists, organizing conferences, editing proceedings, and writing survey papers introducing the field to other researchers. Both nonsmooth optimization and stochastic programming have substantial literatures from Eastern Europe, and Lemaréchal and Wets have done much to make this work known and appreciated in the West through conferences, joint authorship or editing, their extended participation in the programs of the International Institute for Applied Systems Analysis, and their extensive visits throughout the world.

The individual prize citations are given below:

Citation—Claude Lemaréchal

"Claude Lemaréchal is the individual most responsible for the state of the art in computational nonsmooth optimization. This is a significant area not only because of the existence of nondifferentiable functions arising directly in applications, but also because decomposition methods for solving very large-scale smooth problems (for example, those treated by stochastic programming) lead directly to the need to solve lower-dimensional nonsmooth problems. The tools of convex and more generally nonsmooth analysis are necessary to study such problems, but also numerical methods that try to emulate the attractive behavior of methods for smooth optimization need to be devised. Lemaréchal initiated or participated in most of the significant developments in this area, especially in the algorithmic sector, and particularly with respect to the bundle concept, which is the basis for most efficient codes (by Lemaréchal and others) for nonsmooth optimization. He clearly realized that 'second order elements' (whatever this means for nondifferentiable functions) are necessary for any further substantial computational progress and has written a series of papers devoted to this subject. Lemaréchal has also been concerned with creating a library of computational methods and test problems and with

solving real-world problems arising in fields as diverse as flight trajectories, transonic fluid mechanics, meteorology, and molecular biology."

Citation—Roger J.-B. Wets

"Roger J.-B. Wets is recognized as the leading figure in the area of stochastic programming. His research on the theoretical underpinnings of the subject include fundamental studies of the geometry of the solution set, the properties of the value function, conditions for existence and stability of optimal solutions, and the structure of dual problems. One of the key insights is that stochastic programs have an additional multiplier type that does not arise in deterministic models. On the algorithmic side, his contributions include the basic and fundamental L-shaped method, a very efficient method for the simple recourse problem, and the recent progressive hedging algorithm. These methods have been used effectively in a variety of applications, and their use is expanding as computational power to handle such large models grows. The last method mentioned exhibits considerable scope for exploiting parallelism. Through the analysis of statistical properties of optimization problems depending on random variables, including generalized laws of large numbers, he has laid a foundation also for solution methods that rely on sampling. One of the techniques he devised for approximating infinite-dimensional problems (the concept of epi-convergence) is emerging as a basic tool in areas like semi-infinite programming and optimal control with complicated dynamics. He has also been very active in applications ranging from the environment (lake pollution) to finance (asset/liability management)."

—Dantzig Prize Committee

Fall Prize of the Mathematical Society of Japan

The Mathematical Society of Japan has awarded its 1994 Fall Prize to HITOSHI ISHII of Chuo University. He was honored for his outstanding contributions to the theory of viscosity solutions of nonlinear partial differential equations.

—Publicity Committee of the MSJ

VPW Awards Announced

The National Science Foundation has announced awards for fiscal year 1994 in its Visiting Professorships for Women (VPW) program. The program, which allows female scientists, mathematicians, and engineers to conduct research at academic institutions of their choice, is intended to highlight the accomplishments of women researchers and facilitate their becoming role models for other women. VPW awardees are expected to spend about 30 percent of their time interacting with students—lecturing, mentoring, and working collaboratively on research.

Among the twenty-three awardees in fiscal year 1994 were five in the mathematical sciences. The following lists their names, affiliations, and the institutions they will be visiting (in parentheses).

Jane Cullum, IBM Research Division (University of Maryland); Anne Greenbaum, Courant Institute for Mathematical Sciences, New York University (Cornell University); Jennifer D. Key, Clemson University (University of Nebraska); Maura B. Mast, University of Northern Iowa (Northeastern University); and Jane F. Pendergast, University of Florida (University of Iowa).

—from NSF News Release

Chandrasekar Receives Newkirk Medal

SRINIVASAN CHANDRASEKAR of Purdue University has received the Burt L . Newkirk Medal of the American Society of Mechanical Engineers (ASME). The award was established in 1975 to honor individuals under the age of thirty-five who have made notable contributions to the field of tribology in research and development, as established by papers accepted for publication in the ASME's *Journal of Tribology.*

Chandrasekar received the award for contributions to the grinding and lapping of Ferrites for use in magnetic-recording equipment and for studies of surface integrity, lubrication, and temperatures involved in the grinding of ceramic metals.

Chandrasekar received his bachelor's degree (1981) in mechanical engineering from the Indian Institute of Technology in Madras, India, and his M.S. (1983) and Ph.D. (1985) in the same area from Arizona State University. He is a member of the AMS and the Mathematical Association of America.

—from ASME News Release

Visiting Mathematicians

Supplementary List

Mathematicians visiting other institutions during the 1994–1995 academic year have been listed in recent issues of the *Notices*: May/June 1994, pp. 533–534; July/August 1994, p. 704; September 1994, p. 870; October 1994, p. 1036; November/December 1994, p. 1215.

Tianxin Cai (People's Republic of China), California State University at Fresno, Number Theory, 1/95–6/95.

Roman T. Srzednicki (Poland), SUNY at Buffalo, Dynamical Systems, 8/94–8/95.

Obituaries

Shimshon Avraham Amitsur
1921-1994

Professor Shimshon A. Amitsur, one of the preeminent algebraists of the last forty-five years, died unexpectedly on September 5, 1994, in Jerusalem, Israel.

S. A. Amitsur was born in Jerusalem on August 26, 1921. After four years of service during World War II in the British army and two years in the Israeli army during the War of Independence, he received his Ph.D., under the direction of J. Levitzki, in 1950 at the Hebrew University of Jerusalem.

Of Amitsur's many important and fundamental contributions, two areas stand out: rings satisfying a polynomial identity (PI) and division algebras. Amitsur was one of the pioneers in PI theory—his first major result, with Levitzki, is one of the foundation stones of the theory. Later, in 1971, using PI theory, he constructed a finite-dimensional algebra that is not a crossed product, thus solving a problem that had been around since the early years of the century.

Professor Amitsur's contributions extend beyond mathematical research. He played a crucial role in mathematics education in Israel by developing curricula, consulting on high school texts, and advising the government.

For his achievements, Professor Amitsur received many honors, among them the Israel Prize (with J. Levitzki) in 1953 and the Rothschild Prize in 1969. He was also a member of the Israel Academy.

S. A. Amitsur was a frequent visitor to the United States, beginning with a visit to the Institute for Advanced Study during 1952-1954. He later visited Notre Dame University; University of Chicago; Yale University; University of California, Los Angeles; University of Texas at Austin; and University of California, San Diego. He was a long-time member of the AMS.

Those who were privileged to know and work with Professor Amitsur will cherish—and miss—his optimism, both mathematical and spiritual.

—Lance W. Small, University of California, San Diego

Abraham Gelbart
1911-1994

Abraham Gelbart, internationally known for his work in complex analysis and partial differential equations, died on September 7, 1994.

Gelbart conceived and founded the Belfer Graduate School of Science at Yeshiva University, serving as its dean from 1958 to 1968. He developed the school into an internationally known center for mathematics and science. In 1990, Bar-Ilan University in Tel-Aviv named its Institute for Mathematical Sciences after him.

Born in Paterson, New Jersey, on December 2, 1911, Gelbart showed an interest in mathematics and science from an early age, when his father read him newspaper accounts about Einstein and the theory of relativity. Although he had to quit school at age fourteen to support his family, Gelbart continued to study mathematics on his own at the New York Public Library. He befriended Jekutiel Ginsburg, who was chairman of the Mathematics Department at Yeshiva and who became Gelbart's personal tutor. At twenty-three, Gelbart entered Dalhousie University in Halifax, Nova Scotia (no American college would accept him without a high school diploma). He finished his bachelor's degree there in 1938 and two years later received his doctorate from the Massachusetts Institute of Technology under the direction of Norbert Weiner.

Gelbart's research ranged from the theory of (one or several) complex variables to the theory of partial differential equations and fluid dynamics. His greatest impact in research was his founding, with Lipman Bers, of the theory of pseudoanalytic functions. The basic idea was to construct a theory similar to complex function theory for the solutions of a system of generalized Cauchy-Riemann equations arising in the mechanics of continua.

Gelbart was an instructor at North Carolina State College (1940–1942), a research associate at Brown University (1942), an associate physicist at NASA at Langley Field (1942–1943), a professor at Syracuse University (1943–1958), and a member of the Institute for Advanced Study (1947–1948). In 1958 he accepted the position of director of mathematics at Yeshiva University, a post left vacant by the death of his mentor Ginsburg. While at Yeshiva, he edited *Scripta Mathematica* and introduced a government-sponsored program to improve the background and motivation of high school science and mathematics teachers in the New York City area. Gelbart also made efforts to convince government bodies and the general public about the need for basic research and for support of mathematics.

After retiring from Yeshiva, Gelbart was a Distinguished Professor at Bard College (1979–1992). Beginning in 1982, he served as a trustee of Bar-Ilan University. He received honorary degrees from Dalhousie University (1972) and Bar-Ilan (1985). In 1981 he was awarded the Bard Medal and in 1986 a medal for distinguished service from the University of Pennsylvania Nursing School.

—Allyn Jackson

Deaths

Emile Bertin, Professor Emeritus of Utah State Unviersity, died on December 9, 1993. He was born on December 11, 1907 and was a member of the Society for 45 years.

Neville C. Hunsaker, of Utrecht University, the Netherlands, died on March 23, 1994. He was born on August 13, 1931 and was a member of the Society for 15 years.

Steve Y. Murakami, of Colorado Springs, Colorado, died on September 28, 1994. He was born on September 15, 1950 and was a member of the Society for 5 years.