

sunshine. After incubation, the soil would be analyzed in a simple pyrolytic gas chromatograph for the presence of organic compounds labeled with carbon-14. If the level of radioactive carbon exceeded a predetermined background level, it would show that there had been organic synthesis during incubation. The Viking craft, finally launched in 1976, landed at two sites, Chryse Planitia and Utopia. Although several samples were tested at both sites, all the results were negative, as were those for the other life-detection instruments on board. “Horowitz’s work was important in a negative way,” said Baltimore at the service. “He showed that life really couldn’t exist on the surface of Mars—but we’re still looking beneath the surface and hoping for the best.”

Returning to Caltech in 1970, Horowitz started to look for mutations that would enable *Neurospora* to live with less water. None were found, but his research led to the discovery of some interesting growth factors—chelating agents called siderophores that were involved with iron uptake. Out of this work grew the important realization that iron in our bodies has to be kept very closely “locked up” by proteins to stop harmful organisms from getting at it with their chelating agents.

In 1998, the Genetic Society of America awarded Horowitz its highest honor, the Thomas Hunt Morgan Medal. He was a member of the National Academy of Sciences and the American Academy of Arts and Sciences, and the holder of a NASA Public Service Medal.

But Horowitz was not concerned with gaining honors. “My father always felt that he had been incredibly lucky to have landed at the right place at the right time, which for him was Caltech at the dawn of the era of biochemical genetics,” said his daughter,

Elizabeth, at the memorial service. “He was very modest about his achievements and had absolute integrity in his approach to science, untainted by self interest or the desire for personal gain.” Son Joel talked about his father’s love of classical music and opera, and how he played the piano every evening and tended his roses. He also enjoyed hiking and camping in the mountains.

His great generosity to Caltech resulted in part in the George Beadle Professorship of Biology (Meyerowitz is the second holder of that chair) and the Norman Horowitz lecture series. After the death of his wife in 1985, he set up the Pearl S. Horowitz book fund in the biology division in her honor. According to Meyerowitz, he also left the Institute a very valuable gift in his will—his house in Altadena. The proceeds of the sale of the house will supplement the Horowitz lecture fund, with the balance used to assist graduate students in the Division of Biology.

In his 1986 book, *To Utopia and Back: The Search for Life in the Solar System*, Horowitz concluded: “The failure to find life on Mars was a disappointment, but it was also a revelation. We are alone, we and the other species, actually our relatives, with whom we share the earth. If the explorations of the solar system in our time bring home to us a realization of the uniqueness of our small planet and thereby increase our resolve to avoid self-destruction, they will have contributed more than just science to the human future.”

Horowitz was predeceased by two brothers who were also scientists, one a petroleum engineer, the other a chemist. He is survived by his daughter, Elizabeth; his son, Joel; and two grandchildren.

□—BE



Tom Apostol and Mamikon Mnatsakanian.

### THREE MATH PAPERS . . .

Who says mathematicians do their best work before the age of 30? Eighty-two-year-old Tom Apostol, professor of mathematics, emeritus, and director of Project MATHEMATICS!, along with 63-year-old project assistant Mamikon Mnatsakanian, received this year’s Lester R. Ford Award of the Mathematical Association of America.

The award is for “an article of expository excellence” published in *The American Mathematical Monthly* or *Mathematics Magazine*, but in 2004, each of the three articles Apostol and Mamikon published was a worthy candidate, and the judges couldn’t decide

between them. They solved the dilemma by awarding the prize to all three papers—a first in the history of the Association.

The articles, entitled “Isoperimetric and Isoparametric Problems,” “A Fresh Look at the Method of Archimedes,” and “Figures Circumscribing Circles,” give classical geometry a modern twist and modern geometry a classical twist, said the citation, producing new and surprising results in areas that have been mined for centuries.

We featured some of this innovative work in *E&S*, No. 3, 2000. □—BE

## . . . AND A NEW DIRECTOR FOR IST



Michael R. Hoffmann

Michael R. Hoffmann, the Irvine Professor of Environmental Science, has been reappointed dean of graduate studies for a further three years. He has been dean since 2002, prior to which he served for six years as executive officer for environmental engineering science. He was also a multi-year chair of the freshman admissions committee. □

## Two AVPs . . .



Caltech has appointed two new assistant vice presidents: **Richmond Wolf**, for technology transfer; and **Denise Nelson Nash**, for public events.



Richard Murray, professor of control and dynamical systems, is to be director of Caltech's Information Science and Technology (IST), the first initiative in the country that combines research and teaching, from the fundamental theoretical underpinnings of information to the science and engineering of novel information substrates, biological circuits, and complex social systems (see *E&S*, No. 1/2, 2005).

Conceived as an organization that would support multiple centers, each focused on a particular aspect of information science, the current configuration includes the Center for Mathematics of Information (CMI), the Center for the Physics of

Information (CPI), the Social and Information Sciences Laboratory (SISL), the Center for Biological Circuit Design (CBCD), the Lee Center for Advanced Networking, and the Center for Neuromorphic Systems Engineering (CNSE).

Murray succeeds Professor Jehoshua "Shuki" Bruck, the founding director of IST, and will start full time in April 2006. Professor of Computer Science Leonard Schulman, the new associate director of IST and head of CMI, will manage the day-to-day activities until then.

Murray, who retired as chair of the Division of Applied Science and Engineering on September 1, will lead IST as it creates national visibility for Caltech in Information Science and Technology; and will develop and implement a plan for graduate and undergraduate curricula related to IST and oversee the construction of the Walter and Leonore Annenberg Center for Information Science and Technology.

Since its inception, IST has received almost \$50 million from the Gordon and Betty Moore Foundation, the Annenberg Foundation, and Howard Oringer. □

## HONORS AND AWARDS

**David Anderson**, Sperry Professor of Biology and investigator with the Howard Hughes Medical Institute, has received a Humboldt Research Award from Germany's Alexander von Humboldt Foundation.

**Fred Anson**, Gilloon Professor of Chemistry, Emeritus, has received the Hans Fischer Career Award in Porphyrin Chemistry from the Society of Porphyrin and Phthalocyanines.

**James Beck**, professor of applied mechanics and civil engineering, has been awarded the Senior Research Prize in the area of Computational Stochastic Mechanics by the International Association for Structural Safety and Reliability.

**Marc Bockrath**, assistant professor of applied physics, has been selected by the Office of Naval Research to receive a Young Investigator Award, which provides up to \$100,000 per year for three years.

**Charles Elachi**, Caltech vice president, director of the Jet Propulsion Laboratory, and professor of electrical engineering and planetary science, has been selected by the American Astronautical Society (AAS) to receive its 2005 Space Flight Award, the AAS's highest honor.

**David Goodstein**, Caltech's vice provost, professor of physics and applied physics, and Gilloon Distinguished Teaching and Service Professor, has had his book *Out of Gas: The End of the Age of Oil* (W. W. Norton & Co., 2004)

selected by the National Academies Keck Futures Initiative as one of the two finalists for the National Academies Communication Award in the book category.

**Tracey Ho**, assistant professor of electrical engineering, has been named one of the nation's top 35 innovators under age 35 by MIT's Technology Review magazine.

**Hans Hornung**, Johnson Professor of Aeronautics, Emeritus, has been elected a fellow of the American Association for the Advancement of Science.

**Matthew Jackson**, Wasserman Professor of Economics, has been named a Fellow of the John Simon Guggenheim Memorial Foundation.

**David MacMillan**, Anthony Professor of Chemistry, has been named a corecipient of the 2004 Corday-Morgan Medal and Prize by the Royal Society of Chemistry. He has also been selected to receive the 2005 Elias J. Corey Award for Outstanding Original Contribution in Organic Synthesis by a Young Investigator.

**Richard Murray**, professor of control and dynamical systems, **Kenneth Pickar**, visiting professor of mechanical engineering, **Yu-Chong Tai**, professor of electrical engineering, **Michael Vivic**, lecturer in chemical engineering, and **Alan Weinstein**, professor of physics, have been named as faculty recipients of 2005 ASCIT (Associated Students of Caltech) Teaching Awards. Graduate Student Council Awards went to **Ali Hajimiri**, associate profes-

sor of electrical engineering (Teaching Award) and **Oskar Painter**, assistant professor of applied physics (Mentoring Award).

**Mitchio Okumura**, professor of chemical physics, has been elected a fellow of the American Association for the Advancement of Science.

**John Preskill**, MacArthur Professor of Theoretical Physics, has been invited by Harvard University to be a Morris Loeb Lecturer this spring. He will give a series of lectures on quantum information science.

**Ares Rosakis**, von Kármán Professor of Aeronautics and Mechanical Engineering and director of the Graduate Aeronautical Laboratories, has been selected by the Society for Experimental Mechanics to receive its 2005 W. M. Murray Medal.

**Athanassios Siapas**, assistant professor of computation and neural systems, has received a McKnight Scholar Award to support his work in cortico-hippocampal interactions and memory formation. The award is granted by the McKnight Endowment Fund for Neuroscience.



Athanassios Siapas

**Christina Smolke**, assistant professor of chemical engineering, has been named the recipient of a 2005 Beckman Young Investigator Award.

**Brian Stoltz**, assistant professor of chemistry, has been selected by the American Chemical Society to receive the 2006 Arthur C. Cope Scholar Award.

**Keith Taylor**, a member of the professional staff, Caltech Optical Observatories, has been awarded the Royal Astronomical Society's Jackson-Gwilt medal for his role in developing world-class instrumental facilities for astronomers.

**Eric Van de Velde**, director of library information technology, has been named a recipient of a 2005 Meritorious Service Award by the American National Standards Institute (ANSI).

**Alexander Varshavsky**, Smits Professor of Cell Biology, has been elected to the Academia Europaea.

**Yuk Yung**, professor of planetary science, has been elected a fellow of the American Association for the Advancement of Science.

**Ahmed Zewail**, Pauling Professor of Chemical Physics and professor of physics and recipient of the 1999 Nobel Prize in chemistry, has been awarded the Grand Gold Medal by Komensky University in Slovakia. □

PICTURE CREDITS:  
42-44 — Bob Paz