

In Brief

Effective the first of this month, **Daniel S. Goldin** takes his post as Boston University's ninth president and succeeds **John Silber**, NASA's administrator from April 1992 to November 2001, Goldin most recently was a visiting fellow at the Neurosciences Institute in San Diego, California.

The National Institutes of Health has appointed **Jeremy Berg** as director of the National Institute of General Medical Sciences (NIGMS) in Bethesda, Maryland, effective this month. For the past 13 years, Berg directed the department of biophysics and biophysical chemistry at the Johns Hopkins University School of Medicine.

On 2 September, astrophysicist and astronaut **John Mace Grunsfeld** took over the reins of the NASA science program as chief scientist at NASA Headquarters in Washington, DC. A veteran of four space shuttle flights, including two missions to service the Hubble Space Telescope, Grunsfeld says that he is joining the agency "at a time when the space science, Earth science, and biological and physical science enterprises are providing a wealth of scientific data and discoveries." He adds that, as part of his new duties, he will "confront the ensuing debate about the relative merits of robotic spacecraft and human exploration." He replaces **Shannon Lucid**, who has returned to NASA's Johnson Space Flight Center in Houston, Texas.

The Physical Society of Berlin presented its 2003 Karl Scheel Prize to **Francesca Moresco** for her research on single molecules using scanning tunneling microscopy. Moresco, scientific assistant at the Free University of Berlin's Institute for Experimental Physics, received a medal and a €5000 cash award (about \$5700) at a ceremony held in Berlin, Germany, last spring.

In May, **J. Lawrence Katz** joined the University of Missouri–Kansas City as the Distinguished Research Professor of Biomedical Engineering and Oral Biology. He was a professor of biomedical engineering at Case Western Reserve University in Cleveland, Ohio.



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In September, **Thomas George** became the chancellor of the University of Missouri–St. Louis. George, who has a doctorate in theoretical chemistry, had spent the previous six years as the chancellor of the University of Wisconsin–Stevens Point.

Robert Hwang, formerly manager of the thin film and interface science department at Sandia National Laboratories in Livermore, California, joined Brookhaven National Laboratory last spring as director of the Center for Functional Nanomaterials.

Obituaries

Marx Brook

Marx Brook, a longtime professor of physics and an atmospheric physics researcher at the New Mexico Institute of Mining and Technology (New Mexico Tech), died on 3 September 2002 in Albuquerque, New Mexico, during recovery from surgery.

Born in New York City on 12 July 1920, Brook received his BS in physics from the University of New Mexico in 1944. He then attended UCLA, where he earned his MA (1949) and PhD (1953), both in physics. There, he worked with his former UNM professor Robert Holzer and subsequently with Joseph Kaplan on spectroscopic studies of NO and N₂.

In 1954, another of Brook's UNM professors, E. J. Workman, recruited him to New Mexico Tech, where he began a long and distinguished career of studying lightning and the electrification in thunderstorms. He initially collaborated with Steve Reynolds in observations of the onset of electrification in storms and laboratory studies of rebounding collisions between ice crystals and hail as the potential cause of the electrification. After Reynolds became the state engineer in 1956, Brook steadily expanded his research to include time-resolved photographic and electrical investigations of lightning and the development of special radars for observing storms.

Brook was a master at designing and building equipment and instruments for observational studies. He also recognized the value of joint research. In 1958, he began the first of several collaborations with Japanese scientists for electric field and optical measurements of lightning. In the initial study, he and Nobu Kitagawa obtained the first detailed measurements of cloud-to-ground and intracloud lightning, in which they cleverly used a specially designed camera to capture microsecond time-resolution oscilloscope traces on moving film. Subsequently, Brook and Toshio Ogawa obtained more detailed observations of the elusive and poorly understood intra-



Marx Brook

cloud lightning discharge.

Those studies led Brook and the author to perform multistation electric field and radar measurements of lightning charge centers in New Mexico from 1968 to 1971, and then to conduct more detailed lightning charge and radar studies of thunderstorms from 1976 to 1978 at NASA's Kennedy Space Center in Florida. The KSC studies, a collaboration with Roger Lhermitte of the University of Miami and other researchers, resulted from Brook's investigation, with New Mexico Tech colleagues Charles Moore and Charles Holmes, of the lightning incident triggered by Apollo 12 in 1969. The New Mexico and Florida observations showed that the main negative charge region in thunderstorms is distributed horizontally through the precipitating part of the storm and tends to be at similar temperature levels in the two locations, despite significant differences in the storms' vertical depth and moisture content.

Brook studied volcanic lightning with Moore and Sveinbjörn Björnsson

during the eruption on Iceland's Heimaey Island in 1973. He also conducted pioneering studies of the newly discovered positive polarity cloud-to-ground lightning discharges during winter storms in Japan in 1976 and 1977. With long-time colleague Bernard Vonnegut, he followed up on the KSC studies with investigations of lightning for NASA from U-2 aircraft above thunderstorms and from the space shuttle. Brook had a career-long interest in using radar to study storms and pioneered the use of broadband noise transmissions for suppressing clutter fluctuations from storms. He implemented the noise transmission technique first in the "red ball" fast-scanning radar in the early 1970s and then in a larger and more versatile dual-polarization radar beginning in the late 1970s. The dual-polarization radar was used in 1991 to study electrical alignment of ice crystals at KSC and in the late 1990s to develop the simultaneous horizontal and vertical (H-V) polarization transmission technique for dual-polarization measurements of precipitation.

Brook was chairman of the New Mexico Tech physics department from 1968 to 1978 and subsequently directed Tech's research and development division until his retirement in 1986. As research director, he established the Center for Explosives Technology Research and recruited Per-Anders Persson as the center's director.

In retirement, Brook continued to be an active researcher, extending his winter storm lightning studies at SUNY Albany in 1987 and 1988 and studying rocket-triggered lightning at KSC during the Convective and Precipitation/Electrification (CaPE) project in 1991. He was set back by two strokes in early 1992 and late 1993 but subsequently remained as active as possible. He oversaw measurements of lightning during NASA's Tropical Ocean Global Atmospheres/Coupled Ocean Atmosphere Response Experiment (TOGA/COARE) project in the western Pacific in 1992 and subsequently made key observations of energetic narrow-bipolar lightning discharges and of charge transfer during sprites.

Brook found time to be an accomplished woodworker and photographer and enjoyed entertaining his family with the mandolin. In 1980, he took a colleague, Rit Carbone, on a European odyssey in search of the twin to a lost mandolin. They didn't succeed in finding it, but the trip was characteristic of Brook's zeal and determination. (For