Antonio J. Busalacchi became the director of the Earth System Science Interdisciplinary Center at the University of Maryland, College Park, in September. He previously was chief of the Laboratory for Hydrospheric Processes at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

At its 15th annual conference in Barcelona, Spain, this past September, the International Mass Spectrometry Society presented Thomson Medals to **John Fenn**, **Donald F. Hunt**, and **Alan G. Marshall** for "achievement in and service to international mass spectrometry," according to the awards citation. Fenn is a research professor of chemistry at the University of Virginia, Hunt is a research professor of chemistry at Virginia Commonwealth University, and Marshall is Kasha Professor of Chemistry at Florida State University and director of the ion cyclotron resonance program at the National High Magnetic Field Laboratory in Tallahassee. The Thomson Medal is named for J. J. Thomson, who discovered the electron in 1897.

This past August, the Combustion Institute presented the Ya. B. Zeldovich Gold Medal to the first woman to be awarded this medal since its inception in 1990—**Elaine S. Oran**, a senior scientist for reactive flow physics with the Naval Research Laboratory. The citation acknowledged Oran for her "outstanding contributions to the theory of combustion and detonation." The medal, prepared by the Russian Academy of Sciences, was given at an international symposium on combustion in Edinburgh, Scotland.

With the May/June issue of *The Bulletin of the Atomic Scientists*, **Mike Moore** retired as editor, a position he's held since 1991. Moore will continue with the magazine part time as senior editor; however, his main activity will be to write books on topics in atomic science. His successor is **Linda Rothstein**, who previously served as the magazine's managing editor.

Peter Böni joined the Technical University of Munich this past June as a chair in experimental physics with the physics department. He was formerly deputy director of the Laboratory for Neutron Scattering at the Paul Scherrer Institute in Villigen, Switzerland.

OBITUARIES

Norman Austern

Norman Austern, a major contributor to the theory of direct reactions, died on 15 May in Pittsburgh, Pennsylvania, after a long struggle with complications from Parkinson's disease.

Born on 23 February 1926 in New York City, Austern graduated from Cooper Union College in 1946 with a BS in electrical engineering. He completed his PhD in physics at the University of Wisconsin in 1951.

Austern's first paper, published in 1947 while he was at Wisconsin, was with Julian Mack on Lamb shift spectroscopy experiments, but his interest soon shifted to theoretical nuclear physics. He worked with Robert Sachs on the effects of meson currents to explain neutron–proton and neutron–deuteron capture cross sections and angular distributions in deuteron photodisintegration. As a postdoctoral appointee at Cornell University from 1951 to 1954, he investigated the effects of the 3,3 pion nucleon resonance in deuteron photodisintegration and helped design the first synchrotron using strong focusing. He began a long-lasting collaboration with Stuart Butler, first on deuteron stripping and later generalized to other direct reactions in collaboration with Hugh McManus. Since Austern's work at that time, the explosion of spectroscopic information made possible by direct reactions has truly revolutionized our knowledge of nuclear structure.

NORMAN AUSTERN

After a year working with Jerome Percus on many-megaton shockwaves, Austern returned to nuclear physics, joining the University of Pittsburgh as an assistant professor in 1956. He organized the 1957 Pittsburgh Conference on Nuclear Physics, whose speakers included Hans Bethe, Victor Weisskopf, Rudolph Peierls, and Keith Brueckner.

Austern spent 1957–58 in Australia preparing a review article on direct nuclear reactions, which converted him—despite his misgivings about their computational complexity and the use of ill-justified cutoffs at the time—into a proponent of distorted-wave Born approximation (DWBA). He developed finite range corrections to DWBA in collaboration with Ray Satchler, Richard Drisko, and Edith Halbert. With his student Ernest Rost, Austern showed that, contrary to the then-current thinking, DWBA was applicable to reactions involving strong surface absorption.

From 1961 to 1962, Austern lived in Copenhagen. There, he wrote a paper with John Blair on elastic and inelastic scattering with strong absorption. In 1962, Austern presented a series of lectures on direct reactions at a summer school in Czechoslovakia; he later (in 1970) produced a book on that subject. In 1963, he was a co-initiator of the series of Gordon research conferences on nuclear structure.

From 1970 on, Austern focused on three-body corrections to DWBA, and also made frequent excursions into medium-energy physics. His studies of knockout (with Stuart Pittel) and pion–nucleus scattering (with Mike Silver and Korshed Kabir) used three-body models to estimate corrections to the impulse approximations. Three-body models of deuteron breakup yielded corrections to DWBA for deuteron stripping. Austern liked to devise elegant approximate methods, simple enough to yield insight into underlying mechanisms and facilitate routine applications. His "quasiadiabatic" treatment of deuteron breakup contributions to stripping reduced a complicated calculation to the solution of a simple inhomogeneous Schrödinger radial equation.

Austern was impatient with needlessly abstract mathematics. His last paper, written in 1996 with M. Kawai and M. Yahiro, insightfully related the Bencze-Birse-Redish distorted-wave connected-kernel three-body method

both to the standard Faddeev method and to the conceptually simpler continuum discretized coupled channels method. Characteristically, Austern, in that paper, directly examined coordinate-space boundary conditions rather than resort to the more usual complete-continuity arguments.

Austern once described his main interests as physics, family, hiking in the mountains, and music. Highly intellectual, he communicated easily and comfortably with people on all levels. Always outgoing, he maintained personal contact with a worldwide circle of professional colleagues. He was a master at making theory understandable to experimental physicists, and his teaching was creative and responsible. He disdained being competitive rather than cooperative in science or in personal life, and he did not seek recognition. Apart from his scientific legacy, many of us owe him a great deal for his generous help and wise mentoring.

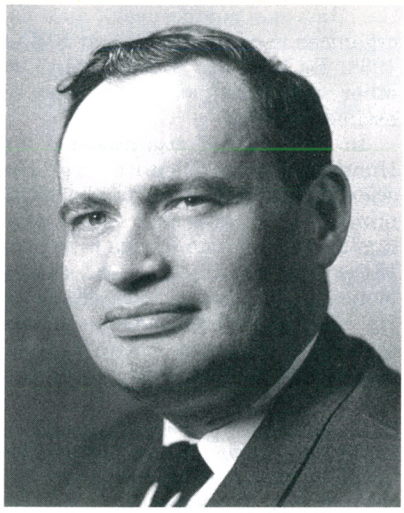
Bernard L. Cohen
C. Martin Vincent
University of Pittsburgh
Pittsburgh, Pennsylvania

Simon Larach

Simon "Si" Larach, a solid-state chemist and physicist who was instrumental in the development of modern color television phosphors, electroluminescent phosphors, and various radiological medical technologies, died on 20 January in Baltimore, Maryland, of complications from a stroke.

Born in Brooklyn, New York, in 1922, Larach graduated from the City College of New York in 1943 with a BS in chemistry. During World War II, he conducted medical research on antimalarial drugs. He also served in the US Army Air Corps as a radar officer after taking military electronics courses at Harvard and Yale universities. In 1946, he joined the David Sarnoff Research Center of the Radio Corporation of America (RCA) in Princeton as a research chemist. He spent 41 years at the center, the last 20 of which he was a fellow of the technical staff.

In 1955, Larach received his PhD in chemistry from Princeton University. During the 1950s and 1960s, he led a research team at RCA that was instrumental in creating a new red-emitting, rare-earth phosphor for color television. This family of phosphors—rare-earth oxysulfides—has many applications, such as in cathode-ray tubes and x-ray intensification screens, and the red emitter europium-doped yttrium oxysulfide is still used in color television tubes worldwide. Larach also helped design the US solid-state physics exhibit for the 1958 Brussels World Fair.



Simon Larach

During the 1960s and 1970s, Larach was a visiting professor at Princeton. A proponent of industry–academic collaboration, he worked with researchers in both arenas during those years to study electron paramagnetic resonance. From 1969 to 1970, Larach was a visiting professor of chemistry at Hebrew University in Jerusalem, where he helped to establish the graduate school of applied science. Throughout his career, he periodically returned to Jerusalem to teach; he also lectured at institutions in the US, Europe, and Asia.

In 1974, Larach began applying his knowledge of phosphors and wave propagation to medical technologies. He was appointed as an adjunct professor of radiology at MCP Hahnemann University in Philadelphia in 1975 and at Columbia University in 1979, while retaining his position at RCA.

Following his retirement from RCA in 1987, Larach formed a consulting firm that helped the US Army develop new phosphors and phosphor technologies for use in "heads-up" military displays, in which the image is projected on windshields.

A recipient of more than 50 patents, Larach served on President Lyndon B. Johnson's Commission on Laboratory Safety and, in 1966, was awarded the David Sarnoff Medal, given by the Society of Motion Picture and Television Engineers for outstanding technical and scientific achievement. From the 1960s into the 1980s, he was an editor for the *Journal of the Electrochemical Society* and a contributing editor to the Van Nostrand science encyclopedia.

Larach was a congenial person who inspired and encouraged others to create and try out new materials and synthesis techniques.

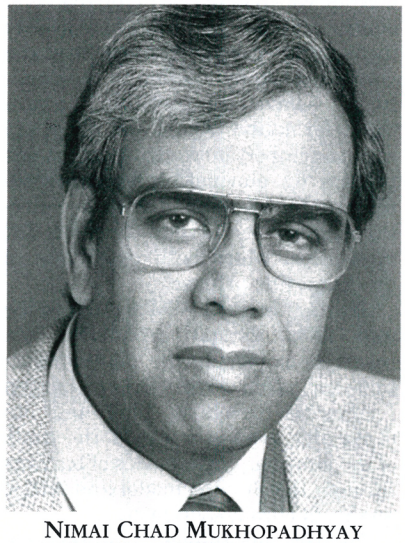
P. N. Yocom
Princeton, New Jersey

Nimai Chad Mukhopadhyay

Nimai Chad Mukhopadhyay, a professor of physics at Rensselaer Polytechnic Institute (RPI), died at home in Loudonville, New York, on 15 May after a long and courageous battle with a deadly illness.

Nimai was born in Maharampur (near Calcutta), India, on 17 January 1942. In 1963, he earned a BSc in physics from the University of Calcutta. He began graduate school at the University of Chicago in 1968, having already received conventional training in low-energy nuclear physics and several years of research experience. He earned both an SM (in 1970) and a PhD (in 1972) in theoretical nuclear physics. He chose to enter the then-fledgling field of high-energy nuclear physics. Nimai clearly grasped the importance of his newly chosen field, so he made certain that he received a thorough grounding in particle physics and quantum field theory.

Beginning with his PhD thesis and continuing with research from about 1972 to 1981 at the University of Maryland, College Park, and the Swiss Institute of Nuclear Research (now known as the Paul Scherrer Institute) in Villigen, Nimai focused



Nimai Chad Mukhopadhyay