



Lopes



Nesvorný

SOUTHWEST RESEARCH INSTITUTE

stellar occultations by solar system bodies led to his confirmation of the atmosphere of Pluto and co-discovery of ring arcs around Neptune." Hubbard is a professor of planetary sciences at the lunar and planetary laboratory of the University of Arizona in Tucson.

The 2005 Harold Masursky Award was presented to **J. Kelly Beatty**, executive editor of *Sky & Telescope* and editor of *Night Sky*, both headquartered in Cambridge, Massachusetts. Beatty received the award for being a "leading communicator and interpreter of planetary science through his writing, editing, broadcasting, and public speaking" and for serving "as a vital link between planetary scientists and the public that supports them."

Rosaly M. C. Lopes, principal scientist at Caltech's Jet Propulsion Laboratory in Pasadena, has received the 2005 Carl Sagan Medal "for her strong dedication to excellence in communicating planetary science to the public."

The 2005 Harold C. Urey Prize was granted to **David Nesvorný**, senior research scientist at the Southwest Research Institute in Boulder, Colorado. He received the award for "his exemplary record of achievement in the study of the dynamical evolution of small bodies in the solar system."

In Brief

An Indian scientist who has made fundamental contributions to understanding the physical forces that turn liquids into solids is one of two recipients of the new Trieste Science Prize. **Tiruppattur V. Ramakrishnan**, Department of Atomic Energy Homi Bhabha Chair and professor of physics at Banaras Hindu University in Varanasi, India, won in the category of physics and astronomy "for his pioneering contributions to condensed matter physics, in particular the theory of liquid-solid transition and of

electron localization in disordered media." The award, administered by the Academy of Sciences for the Developing World and accompanied by a \$50 000 cash prize, was created to give international recognition and visibility to outstanding scientific achievements by scientists living and working in the developing world. The other recipient is not involved in physics-related work.

Richard Green, the former director of Kitt Peak National Observatory, has been named director of the Large Binocular Telescope Observatory, home of one of the world's most powerful ground-based telescopes. The LBT, on Mount Graham near Safford, Arizona, is run by the Large Binocular Telescope Corporation, an international collaboration of astronomical institutions. Green, who will also continue as an astronomer at University of Arizona, began his new position on 1 September. He had been director of Kitt Peak since 1997 and is succeeded there by acting director **Buell Jannuzi**.

The New York Academy of Sciences awarded its Heinz R. Pagels Human Rights Award this year to an eminent physicist and to a science educator. **Herman Winick**, assistant director and professor emeritus at SLAC's Stanford Synchrotron Radiation Laboratory division and professor emeritus in the applied physics department at Stanford University, and **Zafra Margolin Lerman**, Distinguished Professor of Science and Public Policy and head of the Institute for Science Education and Science Communication at Columbia College in Chicago, received the award in a September ceremony "in recognition of [their] tireless and effective work on behalf of dissident scientists throughout the world, particularly in Iran."

John Womersley has joined the Council for the Central Laboratory for the Research Councils in the UK as director of particle physics. Womersley, who began his new post 1 October, is based at the Rutherford Appleton Laboratory in Oxfordshire. For the past year, he was scientific adviser to the associate director of high-energy physics in the US Department of Energy and before that he was at Fermilab in Batavia, Illinois. In his new position he is responsible for the particle-physics research program and will also advise the CCLRC on its future particle-physics strategy.

APS CONGRESSIONAL SCIENCE FELLOWSHIP 2006-2007

THE AMERICAN PHYSICAL SOCIETY is currently accepting applications for the Congressional Science Fellowship Program. Fellows serve one year on the staff of a senator, representative or congressional committee. They are afforded an opportunity to learn the legislative process and explore science policy issues from the lawmakers' perspective. In turn, Fellows have the opportunity to lend scientific and technical expertise to public policy issues.

QUALIFICATIONS include a PhD or equivalent in physics or a closely related field, a strong interest in science and technology policy and, ideally, some experience in applying scientific knowledge toward the solution of societal problems. Fellows are required to be U.S. citizens and members of the APS.

TERM OF APPOINTMENT is one year, beginning in September of 2006 with participation in a two-week orientation sponsored by AAAS. Fellows have considerable choice in congressional assignments.

A STIPEND of \$50,000 is offered in addition to allowances for relocation, in-service travel, and health insurance premiums.

APPLICATION should consist of a letter of intent of approximately 2 pages, a list of key publications, a 2-page resume and three letters of reference. Please see the APS website (http://www.aps.org/public_affairs/fellows.html) for detailed information on materials required for applying and other information on the program.

**ALL APPLICATION MATERIALS
MUST BE POSTMARKED BY
JANUARY 15, 2006 AND
SHOULD BE SENT TO THE
FOLLOWING ADDRESS:**

APS Congressional Science
Fellowship Program
c/o Jackie Beamon-Kiene
APS Executive Office
One Physics Ellipse
College Park, MD 20740-3843

Two astronomy professors are co-recipients of this year's \$1 million Shaw Prize in astronomy. **Geoffrey Marcy**, a professor at the University of California, Berkeley, and director of the campus's center for integrative planetary science, and **Michel G. Mayor**, a professor at Geneva University in Geneva, Switzerland, were awarded the prize for their discovery of more than 110 planets outside our solar system. During a ceremony in September, Shaw Prize officials said the astronomers' work is "revolutionizing our understanding of the processes that form planets and planetary systems." Created in 2002, the Shaw Prize is awarded by the Shaw Prize Foundation in Hong Kong.

Joe C. Campbell, an innovator in electrical engineering and nanotechnology who is credited with developing the laser-light detectors used in fiber-optic systems in telecommunications, has been appointed as the

Lucien Carr III Professor of Engineering and Applied Science at the University of Virginia in Charlottesville. Campbell will join the faculty of the university's Charles L. Brown Department of Electrical and Computer Engineering in January 2006. He is currently the Cockrell Family Regents Chairman in Engineering and professor of electrical and computer engineering at the University of Texas at Austin, where he has served since 1989.

Boris Blinov has been named assistant professor of physics at the University of Washington in Seattle, where he is a member of the atomic physics group working on experimental quantum information and fundamental tests of quantum mechanics. Prior to beginning his new post in September, Blinov was at the University of Michigan's Frontiers in Optical Coherent and Ultrafast Science Center and physics department.

brought about a new discipline, acoustical oceanography. Due to competition between sound-speed increase with hydrostatic pressure and decrease with decreasing temperature, sound speed in the ocean typically has a minimum at a middle to upper depth. Like a particle in a quantum mechanical potential well, acoustic waves are trapped in the vicinity of a sound-speed minimum and are shielded from scattering at the rough boundaries of the ocean surface and bottom. Consequently, the waves can propagate for thousands of miles. This discovery by Leonid in the USSR was independent and almost simultaneous with that by Maurice Ewing and Lamar Worzel in the US.

Leonid left FIAN in 1953 to become the founding director of the Acoustical Institute in Moscow. He formulated the main research directions and supervised the staffing of the new institute, which still exists today. Leonid was among the first to recognize that acoustic methods can play a crucial role in understanding and quantifying physics of the ocean. He established the laboratory of acoustical methods of ocean research at the institute and undertook to design and build two dedicated acoustics and oceanographic research vessels, the *Sergei Vavilov* and *Petr Lebedev*. Under his supervision, those vessels together with four other Soviet research vessels participated in 1970 in the Polygon experiment, which first observed the mesoscale eddies that had been postulated by Henry Stommel in the mid-1960s and that challenged the concept of an ocean dominated by steady, large-scale circulation. Polygon was followed three years later by the Mid-Ocean Dynamics Experiments (MODE) under Stommel and the joint US/USSR POLIMODE experiments. Mesoscale phenomena are now known to account for more than 90% of the ocean's kinetic energy.

Leonid remained director of the Acoustical Institute until 1961 and was a department head there until 1980. In 1980 he moved to the P. P. Shirshov Oceanography Institute, where he organized and led the ocean acoustics department until his death. Leonid was always surrounded by aspiring young scientists. Between 1953 and 1966 he was a professor and department chair at the Moscow State University; between 1975 and 1997 he chaired a department and taught at Moscow Institute of Physics and Technology. From 1969 to 1992 he was a member of the presidium of the USSR Academy of Sciences, where he supervised the academy's research in oceanography, atmospheric physics,

Obituaries

Leonid Maksimovich Brekhovskikh

Leonid Maksimovich Brekhovskikh, the recognized leader in acoustics and physical oceanography research in Russia and the former Soviet Union, died of heart failure on 15 January 2005 in Moscow.

Leonid was born on 6 May 1917 into a peasant family in the village of Strunkino in the Archangelsk region of Russia, just south of the Arctic Circle on the shore of the White Sea. He received his university degree in physics from Perm State University in 1939 and was admitted to the Lebedev Physical Institute (FIAN) in Moscow for postgraduate work under the supervision of Igor E. Tamm, a future Nobel Prize winner. There he worked closely with Mikhail A. Leontovich and met fellow graduate student Alexander M. Prokhorov, another future Nobel laureate, who became Leonid's best friend for life.

In 1941, after Leonid received his candidate of science (PhD) degree in physics for his dissertation on x-ray scattering in crystals, he joined FIAN's acoustics laboratory, headed by Nikolay N. Andreev. There he first entered the field of underwater sound while working on the protection of ships from acoustically triggered mines. Later he



Leonid Maksimovich Brekhovskikh

developed a comprehensive theory of electromagnetic- and acoustic-wave propagation in layered media and was awarded a doctor of physics and mathematics degree from FIAN in 1947. He made fundamental contributions to the theory of diffraction by introducing the concept of diffraction rays and the tangent plane approximation, which describes wave scattering by a surface whose roughness is large compared to wavelength.

In 1946, trying to explain data from an acoustic propagation experiment in the Sea of Japan, Leonid discovered the deep sound channel in the ocean—a discovery that would have far-reaching implications for acoustic research worldwide and that eventually

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