

Darwin Chang FREE

Special Collection: [Print Obituaries](#)

Hai-Yang Cheng; George W. S. Hou; Wai-Yee Keung; Lincoln Wolfenstein



Physics Today **59** (6), 77–78 (2006);

<https://doi.org/10.1063/1.2218566>



CrossMark



Measure Ready™

M81-SSM Synchronous Source Measure System

A new innovative architecture for low-level electrical measurements of materials or devices

The M81-SSM system with MeasureSync™ sampling technology synchronizes source and measure timing across all channels in real time, removing the synchronization burden from the user.

Combining the absolute precision of DC with the detection sensitivity of an AC lock-in, the system provides measurements from DC to 100 kHz with sensitivity down to a noise floor of 3.2 nV/√Hz at 1 kHz. It features a flexible remote signal amplifier module architecture (1 to 6 channels) and is simpler to set up and operate than separate source and measure instruments.

See the video at www.lakeshore.com/M81



614.891.2243
www.lakeshore.com

The following newly elected foreign associates are physicists or work in physics-related areas. Their country of citizenship is listed in parentheses.

Chunli Bai, executive vice president of the Chinese Academy of Sciences, Beijing (People's Republic of China)

Vladimir B. Braginsky, visiting associate professor in physics at Caltech and a research professor at Moscow State University (Russia)

Lennart A. E. Carleson, professor emeritus of mathematics at the Royal Institute of Technology and the University of Uppsala (Sweden)

Luiz Davidovich, professor of physics in the Institute of Physics at the Federal University of Rio de Janeiro (Brazil)

Christopher J. R. Garrett, Landsdowne Professor of Ocean Physics at the University of Victoria, British Columbia, Canada (Canada and UK)

Harold W. Kroto, professor in the department of chemistry and biochemistry, Florida State University, Tallahassee (UK)

Tullio Pozzan, professor of general pathology at the University of Padua and scientific director at the Venetian Institute of Molecular Medicine (Italy).

in brief

Jay Marx, an experimental particle physicist who in recent decades has directed several high-profile physics projects around the country, has been named executive director of the Laser Interferometer Gravitational-Wave Observatory (LIGO) at Caltech. Marx succeeds **Barry C. Barish**, the Ronald and Maxine Linde Professor of Physics, Emeritus, at Caltech, who led the LIGO project through its construction and into its first major science runs. Barish has said he will now focus on directing the global design effort for the proposed International Linear Collider, although he will continue to be involved in LIGO research. Marx, who began at his new post on 14 March, had been a senior physicist at Lawrence Berkeley National Laboratory since 1981.

Raymond E. Goldstein has been named Schlumberger Professor of Complex Physical Systems in the applied mathematics and theoretical physics department at the University of Cambridge, UK. A professor of physics and applied mathematics at the University of Arizona, Tucson, since 1996, Goldstein begins on 1 September at his new post, where his research will focus on theoretical and ex-

perimental studies of nonlinear and nonequilibrium systems with particular emphasis on biological physics. At the University of Arizona, where he is also a member of the B105 Institute, he did influential work on biophysical elasticity, the fluid dynamics of collective bacterial swimming, and the dynamics of stalactite growth.

Atsuto Suzuki, vice president of Tohoku University in Sendai, Japan, and director of its Research Center for Neutrino Science, is the new director general of KEK, the Japanese high-energy accelerator research organization. He took over from **Yoji Totsuka** on 1 April and will serve for three years. Prior to joining Tohoku University, Suzuki was involved in underground neutrino experiments at the Kamioka Observatory in Gifu province.

obituaries

PHYSICS TODAY has changed the way it publishes obituaries. Some will continue to appear in print, but most will be available only online (see PHYSICS TODAY, October 2005, page 10). Subscribers can visit <http://www.physicstoday.org/obits> to notify the community about a colleague's death and submit obituaries up to 750 words, comments, or reminiscences. Each month, recently posted material will be summarized here, in print. Select online obituaries will later appear in print.

Darwin Chang

Darwin Chang, a prominent theoretical physicist, succumbed to stomach cancer on 29 December 2005 in Taipei, Taiwan.

Darwin was born on 29 June 1954 in Taichung, Taiwan. After undergraduate study in physics at National Taiwan University, he received his PhD in particle theory from Carnegie Mellon University in 1983 under one of us (Wolfenstein). His creativity, productivity, and passion for physics were already apparent at Carnegie Mellon. He worked so quickly and independently after discussing an idea with Wolfenstein that the two somehow never published together. A paper he authored by himself on spontaneous *CP* violation is well cited.

In 1983 Darwin moved to the University of Maryland in College Park as a postdoc, and he flourished there. In just three years, he published with Rabintra Mohapatra and others more than 30 papers on left-right models, *SO*(10) grand unification, neutrino physics, and numerous other topics. In

Yuri Kovchegov, an assistant professor in the nuclear theory group of the physics department at the Ohio State University, and **Thomas Glasmacher**, professor in the physics and astronomy department and associate director for operations at the National Superconducting Cyclotron Laboratory at Michigan State University, are the recipients of the 2006 Raymond and Beverly Sackler Prize in the Physical Sciences. Kovchegov was selected for "ground-breaking contributions to theoretical understanding of quantum chromodynamics at very high energies and gluon densities," and Glasmacher won for his "development of new sensitive methods of studying nuclear structure, utilizing Coulomb excitation with fast beams of rare isotopes." The prize is administered by Tel Aviv University.

the words of Mohapatra, "It was so much fun and so stimulating to discuss physics with Darwin. He was not only an extremely insightful physicist, but he was among the hardest-working and [most] brilliant collaborators that I have known in my lifetime."

Darwin joined the faculty of Northwestern University in 1986, and in 1987 he received the Outstanding Junior

Recently posted death notices at <http://www.physicstoday.org/obits>:

Yuval Ne'eman

14 May 1925–26 April 2006

Gordon L. Shaw

20 September 1932–25 April 2005

Theodore Prey Jorgensen

1905–04 April 2006

Theodore Prey Jorgensen

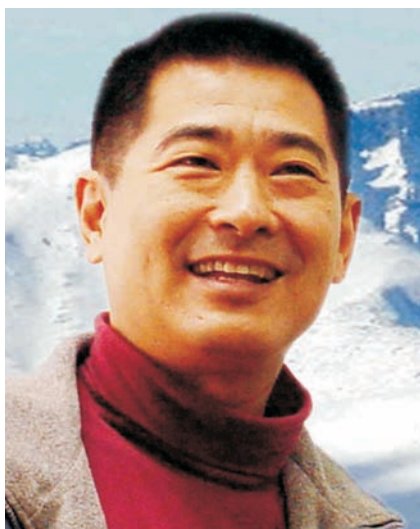
13 November 1905–02 April 2006

Ulrich Wolfgang Arndt

23 April 1924–24 March 2006

Robinson Derry Burbank

03 October 1921–09 February 2006



Darwin Chang

Investigator award from the US Department of Energy. He soon started a lifelong collaboration with one of us (Keung) in which we produced nearly 50 publications.

In 1993 Darwin became a professor of physics at National Tsing-Hua University in Hsinchu, Taiwan. He continued to expand his research interests, which eventually encompassed hyperon weak decay, top-quark spin and CP violation, sand piles, black holes, and even *d*-wave superconductivity. In one notable work with Keung and Apostolos Pilaftsis, he found new two-loop contributions to electric dipole moments, a result that provided one of the most stringent constraints on supersymmetric models.

Darwin was a strong force behind the promotion of fundamental science research in Taiwan. He served as president of the Physical Society of the Republic of China and was instrumental in the establishment of the National Center for Theoretical Sciences in 1997. He set up successful exchange programs between NCTS and other high-energy physics labs, including KEK in Japan, and served as the director of the NCTS physics division in 2004.

Open, honest, and down to earth, Darwin could also be critical in discussions. He always managed a cheerful smile and had a hallmark laugh. His energy and passion for physics was reflected in his skiing style: Regardless of obstacles, charge! Everything under the sun was physics for him; the only question he asked was, Is it interesting? Curiosity was a key word in his life, and adventure took the highest priority. He loved teaching and took great care of his students. Even during his final months, he tried hard to spend

time with them. His presence and insightful comments were always stimulating at seminars. A week before his death, one of us heard him say as he lay in the hospital, "Oh, if I could just go to a seminar. . . ."

Darwin's interests extended to music, sports (swimming and skiing), and poetry. It is fitting to close with a few of his verses:

All my life,
I've been trying to find,
after every beautiful soul
I encountered,
after every unfulfilling dream
I blundered,
a joyful peace in my human
weakness,
to accompany me to my
willing decease.

His decease may not have been willing, but he has now attained eternal peace.

Hai-Yang Cheng

*Academia Sinica
Taipei, Taiwan*

George W. S. Hou

*National Taiwan University
Taipei*

Wai-Yee Keung

University of Illinois at Chicago

Lincoln Wolfenstein

*Carnegie Mellon University
Pittsburgh, Pennsylvania*

Vladimir Konstantinovich Chernyshev

Vladimir Konstantinovich Chernyshev, an understudy to Andrei Sakharov and a leader in magnetic flux compression technology, died of cancer in Moscow on 30 April 2005. Vlad's health had noticeably declined since the passing of his beloved wife, Nina, in September 2003. At the time of his death, Vlad was a deputy scientific leader of the All-Russian Scientific Research Institute of Experimental Physics (VNIIEF) in Sarov—"the Russian Los Alamos"—where the Soviet Union's first nuclear weapons were developed.

Vlad was born on 5 June 1927 in the town of Serpuukhov in the Moscow region of the Soviet Union. When he graduated from the Moscow Engineering Physics Institute in 1949, the Soviet government was recruiting the brightest young people into its nuclear weapons program. At VNIIEF, Vlad became involved in the physics of high explosives. He quickly distinguished himself and was awarded the Stalin Prize in 1953. His work with explosives led to the creation of safe detonators, which was the most

important improvement for nuclear weapons safety. In 1962 he was awarded the Lenin Prize, and in 1970 he received candidate's and doctor's degrees in physics and mathematics.

In the early 1950s, Vlad became enthralled with Sakharov's ideas on magnetic cumulation—the concentration of magnetic energy through explosive-driven magnetic flux compression—and its application to controlled thermonuclear fusion. The achievement of fusion breakeven was a major goal for the remainder of Vlad's career, and he set out to develop the requisite technology.

Vlad's crowning achievements were magnetic flux compression generators that have reached performance levels unmatched by any other pulsed-power system in the world. In 1961 he invented the disk electromagnetic generator, a device that has generated up to 300 MA and 200 MJ in a 12-microsecond pulse. In 1998, he was awarded the Russian Government Prize for the development and scientific applications of the DEMG. Vlad's team developed the Potok series of helical generators and various types of opening switches that shorten a generator's output; with them the team achieved 90-MA pulses in 1 microsecond. At the time of his death, Vlad strongly believed that modern DEMG technology and MAGO (*magnitnoye obzhatiye*, or magnetic compression) plasma-formation systems, which he developed in partnership with one of us (Mokhov), had now made it possible to achieve the scientific breakeven point for fusion without the large initial capital investment that is required by the two more conventional approaches, magnetic confinement fusion and inertial confinement fusion.



Vladimir Konstantinovich Chernyshev