

gram encouraged both outside and inside investigators to function symbiotically. As associate group leader of Tandem Van de Graaff research (1971-78) and as physics department deputy chairman for nuclear physics (1978-81) he devoted himself to the growth of both the in-house and outside facets of BNL's nuclear program.

In the latter period, and as chairman of the physics department (1981-87), he led the effort to reorient the BNL nuclear program and to devise an opening into the new frontier of relativistic heavy-ion studies. Indeed, it was Schwarzschild's suggestion that a transfer line could be used to inject heavy ions from a BNL nuclear accelerator into the Alternating Gradient Synchrotron, and so make a relativistic heavy-ion facility more immediately available. He also played an important role in the successful LEGS proposal, whereby gamma rays with energies up to 300 MeV are produced by backscattering laser light from relativistic electrons at the National Synchrotron Light Source.

He served the nuclear community as a member of committees of the division of nuclear physics of The American Physical Society, of advisory committees to various institutions, and of the DOE-NSF Nuclear Science Advisory Committee.

Schwarzschild fought against his cancer with the same positive spirit that characterized him as a physicist, and brought to the physicians who treated him that scientific curiosity and helpful interaction that also marked him as a scientific leader with his colleagues. His resignation as chairman preceded his death by only a short time; he had hoped, if time were to be made available to him, to tackle one of the formidable puzzles of present-day nuclear physics: the sharp positron lines emitted in very-heavy-ion reactions. He lived as a scientist to the very end.

PETER BOND

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Nelson Stein

Nelson Stein died suddenly in Santa Fe, New Mexico, on 23 April 1987, bringing to a premature end a productive career in experimental nuclear physics. Stein was born in New York City on 23 July 1936. He received a BS from the City College of New York in 1957 and obtained a PhD in nuclear physics from the University of Illinois in 1963. He did his thesis work in

photon scattering from lead and bismuth nuclei under the direction of the late Peter Axel.

After receiving his doctorate, Stein spent three years as a postdoctoral fellow at the University of Washington in Seattle, where he used cyclotron and tandem Van de Graaff accelerators to study proton-transfer reactions and isobaric-analog spectroscopy.

Stein joined the physics staff at Yale University in 1966 as a research associate and became an assistant professor in 1968. He taught physics courses at both the undergraduate and graduate level, and became well known for his experimental work on isobaric-analog states and the structure of nuclei in the lead region.

In 1972 Stein left Yale to spend the summer as a NATO senior postdoctoral fellow at the Center for Nuclear Research in Strasbourg, France, and that fall he took a position as staff physicist at Los Alamos National Laboratory. At Los Alamos his research interests spanned a wide range of topics including multinucleon transfer reactions, neutron pairing and Gamow-Teller strength in nuclei. Stein eventually broadened his field of research to include spectroscopy and mechanisms in heavy-ion-induced reactions, and he spearheaded the development and use of heavy-ion beams at the Los Alamos tandem Van de Graaff accelerator, where his group performed the first C^{14} -induced reactions. Recently he had begun evaluating the use of kaon beams to probe nuclei. He also served for five years on the Los Alamos postdoctoral committee—two years as chairman.

Stein's colleagues knew him as a diligent scientist whose experimental work was characterized by care and precision. We will all miss the penetrating questions he invariably contributed to any discussion on any topic. *Shalom*, Nelson.

JEN-CHIEH PENG

JULES W. SUNIER

RONALD E. BROWN

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Abraham Goldberg

Abraham Goldberg, a staff physicist at Lawrence Livermore National Laboratory and an adjunct professor at the department of applied science of the University of California, Davis, died suddenly on 20 March 1987. He was 54 years old. He earned his BA in physics from New York University in 1955 and his PhD from Stanford

University in 1961. Goldberg, a theoretical physicist, had numerous publications in nuclear scattering theory and plasma spectroscopy. His last work included an elaborate computer algorithm that bypasses the sometimes tedious Racah algebra and gives a direct accounting for all the term energies and oscillator strengths for a spectral array. This method proves to be very useful for predicting spectral characteristics of hot plasmas.

Goldberg was an excellent teacher, a valuable student adviser and a very thorough researcher. His colleagues enjoyed working with him, and his zesty personality lent a lively atmosphere to physical discussions. He will be missed by his colleagues, students and friends.

BALAZS ROZSNYAI

STEWART BLOOM

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Richard H. Howe

Richard H. Howe, associate professor emeritus of Denison University in Granville, Ohio, passed away on 5 November 1986.

He was born in central Ohio in 1898 and was a 1920 graduate of Denison University. He began his teaching career following graduation, retiring in 1963 after 43 years of service including a term as department chairman. Following his retirement, he was involved with the physics program at the Newark campus of Ohio State University in 1964 and 1965.

He was a very early radio amateur (call letters W8YM), having received his license in 1916. For years he sponsored an amateur radio station at Denison University. In 1922 he founded the first radio broadcast station in central Ohio, WJD.

A longtime member of the American Association of Physics Teachers, he wrote the chapter on electronics in *The Taylor Manual* of advanced undergraduate experiments. Howe was an avid creator of lecture demonstrations dealing with electricity and electronics, and during the 1950s developed a prizewinning set of demonstrations on antennas, which he presented at numerous locations around the country.

During World War II Howe was a civilian employee of the government's Underwater Sound Laboratory in Boston, Massachusetts, and in Key West, Florida.

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