we hear that

electro-optics technology and coherent optics.

At the RCA Laboratories in Princeton, N.J., **David E. Carlson** has been named head, photovoltaic-device development, and **Charles J. Nuese** has become head, semiconductor-research devices.

Richard B. Bernstein has been appointed the Higgins Professor of Natural Science at Columbia University; he was formerly the W. T. Doherty Professor of Chemistry and professor of physics at the University of Texas, Austin.

At the University of South Carolina, **Edwin R. Jones Jr** has been promoted to the rank of professor in the department of physics and astronomy.

Chuck Hardesty, formerly a lens designer at Itek Corp, has joined Space Optics Research Labs (Chelmsford, Mass.) as senior optical scientist.

At CERN, **Erwin Gabathuler** has been appointed leader of the experimental-physics division; he was formerly the project leader of the European muon collaboration.

Formerly assistant professor of physics at Lafayette College (Easton, Penn.), **Theodore H. Ansbacher** has been named education manager at Chicago's Museum of Science and Industry.

Raymond R. Myers, chairman of the Kent State University chemistry department, has been named University Professor; Myers has also been the editor of the *Transactions of the Society of Rheology.*

The first Ludwig Boltzmann Prize of Austria has been awarded to **Victor F. Weisskopf** of the Massachusetts Institute of Technology. The award is intended to honor contributions to Austrian research and research policy.

The Electrochemical Society has presented its Electronics Division Award to **A. Y. Cho** (Bell Laboratories) for his work on the molecular-beam epitaxy process, a method for growing crystals used in transistors, diodes, lasers and other electronic components.

At the Iowa State University, **Sam Legvold,** professor of physics, has been named Distinguished Professor in Sciences and Humanities.

At the California State College, Stanislaus, **Tai L. Chow** has been promoted to full professor of physics.

David B. Beard has been named University Distinguished Professor of Physics at the University of Kansas.

Dave Farrell, formerly a graduate student in the University of Rochester, has joined Burleigh Instruments (East Rochester, N.Y.) as product-line manager.

obituaries

G. Kenneth Green

BNL

GREEN

G. Kenneth Green, a Brookhaven National Laboratory scientist for more than thirty years and one of the world's best known accelerator experts, died 15 August at the age of 66.

Green was born in Illinois in 1911 and his formal educational training was at the University of Illinois, where he received a BS in 1933 and a PhD in 1937. He was a student of P. Gerald Kruger, one of the pioneers in nuclear physics. Together they constructed one of the first cyclotrons and performed some of the early studies on nuclear disintegration.

After receiving his PhD, Green was awarded a National Research Fellowship. With this support he moved to the University of California, Berkeley, where he studied with the group that was headed by Ernest Lawrence and included Luis Alvarez and Edwin M. McMillan. Here, in the birthplace of the cyclotron, he added to his sophisticated appreciation of the accelerator art.

In 1939 he went from Berkeley to the Carnegie Institution's department of terrestrial magnetism. There a program on the development of particle accelerators and their use in nuclear physics had been in progress for almost a decade.

Green immediately became an important member of a team that built a cyclotron whose size made it a major engineering project at the time.

In 1942 he joined the Army Signal Corps, where his understanding of electronics rapidly brought him to the forefront of Signal Corps operations. After World War II he came into brief contact with nuclear weapons when he was made the Army electronics representative and Signal Corps technical head at the Bikini "Operation Crossroads." For his various wartime services, in particular for his development of the proximity fuse, he received the Civilian Distinguished Service Award and the US Army Legion of Merit.

Green came to the newly formed Brookhaven National Laboratory in 1947 and soon became deputy to M. Stanley Livingston, who was organizing Brookhaven's first accelerator project. Green's first major project was the Cosmotron, destined to be the first accelerator in the world to reach energies above one GeV. This was also the world's first proton synchrotron, and it therefore presented an imposing array of unsolved problems. Green's painstaking attention to detail and insistence on perfection in each component ensured the successful final operation—the Cosmotron reached its billion-volt goal in 1952.

During that same year a Brookhaven team developed the principle of strong focussing, which consequently made a 30-GeV machine a possibility. A department to build the new machine—the alternating gradient synchrotron—was formed under Leland Haworth, with Green as deputy. Later Haworth transferred management of the entire project to Green, who brought the machine to successful completion in 1960. Green acted as chairmen of the accelerator department until 1970.

Green took an intense interest in the emerging plans for Isabelle, the colliding-proton-beam storage rings now under design. To provide us with the best available experimental information about proton storage rings, Green spent a year and a half at CERN in Switzerland watching the operation of their 28-GeV proton storage ring. He provided Brookhaven with detailed and cogent information and had been our ultimate authority on what could and could not be accomplished with storage rings.

His most recent project was the National Synchrotron Light Source. He collaborated with Rena Chasman on the project to produce an innovative electron storage ring design. At the time of his death, Green was deeply involved in every detail of the machine's construction—magnet design, vacuum technique, electronics, soil mechanics, building design and staff organization.

Green was skilled as a physicist, both experimental and theoretical, and as an

obituaries

electronic engineer, a power engineer, a mechanical engineer and a civil engineer. He was a man of extraordinary talent with whom it was a delight to associate. Brookhaven will not be the same without him.

JOHN BLEWETT
Brookhaven National Laboratory

Norbert Rosenzweig

PHYSICS TODAY *learned only recently of Norbert Rosenzweig's death last year on 10 October. The following obituary was submitted to us by James E. Monahan of Argonne National Laboratory.*

Born in Vienna, Austria on 6 January 1925, Rosenzweig studied as an undergraduate at Rutgers University and earned his PhD in 1951 from Cornell University.

ROSENZWEIG

He was a member of the physics division at Argonne National Laboratory from 1951 to 1970. During this time his research interests were primarily focussed on the statistical properties of nuclear and atomic spectra. The experimental verification of his derivation of the level-density dependence of a nucleus on its shell structure (the "Rosenzweig effect") was one of the first indications that observable shell effects persist to high excitation energies. He was also one of the principal contributors to the development of the random-matrix model of the nucleus.

In addition to his research, Rosenzweig was genuinely interested in teaching and he was widely recognized to be an outstanding teacher. At various times during his tenure at Argonne he accepted temporary teaching appointments at Brandeis University, State University of New York, Stony Brook, and Northwestern University. In 1970 he became professor of physics at State University of New York, Albany. His most recent research had included studies of the properties of electrons in small metal particles.

Arpad Bardocz

Arpad Bardocz, general director of Physik Instrumente (Munich), died 14 February at the age of 68.

He studied at the Technical University of Budapest and earned his PhD in physics (spectroscopy) there in 1935. His career in spectroscopy began on the faculty of mechanics of the University's Institute of Theoretical Physics, where he earned his *docent* in 1943. He then developed an interest in molecular spectroscopy and made the transition with enthusiasm at a time when scintillation spectroscopy was beginning to blossom as an important new field.

Bardocz continued his active participation in research at the Institute for Plasma Physics of the Max Planck Society in Munich. He was a member of numerous scientific societies and published more than a hundred scientific and technical papers. He held many patents for spectroscopic instruments and also participated in the development of numerous national and international standards. Bardocz had the profound respect of his colleagues and associates.

M. L. MITNYAN
Ecole Polytechnique, Montreal

William P. Bucher

William P. Bucher, a research physicist at the US Army Ballistic Research Laboratory, Aberdeen Proving Ground, Maryland, died in an automobile accident on 11 February at the age of 47.

While Bucher's major research was in experiments on the scattering and polarization of fast neutrons, his interests and contributions encompassed several fields. After receiving a BS in electrical engineering from the University of Maryland, he did graduate work in nuclear physics at the University of Virginia where he earned a PhD in 1959. Bucher continued his research activities in neutron physics at the Bartol Research Foundation of the Franklin Institute, 1959–61. After a year of teaching at North Carolina State College, he spent two years as a guest professor at the University of Hamburg and at DESY.

Bucher had worked since 1965 at the US Army Ballistic Research Laboratory. He had recently completed an extensive set of measurements of the small-angle scattering of 7- to 14-MeV neutrons from medium and heavy-weight nuclei using a new technique that he had developed. □