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## obituaries

In spite of his time-consuming work as the key man of French science, he maintained a personal interest in CERN and in activities directed towards international cooperation in science. In 1975 he was chosen to be the chairman of the Division of Particles and Fields of the International Union of Pure and Applied Physics and also served as the chairman of the newly founded International Committee of Future Accelerators. Only weeks before his death, Gregory was elected chairman of the CERN Council, the decision-making body of the Laboratory.

Everyone who had the opportunity to work with Gregory was struck by his simplicity and modesty. He had a rare gift of cool, rational, cartesian thinking in matters where others might react emotionally or impulsively. This trait made him an extraordinary coordinator and administrator. At the same time he had a deep love for simple, elegant physics.

Above all, he was a wonderful human being; without him it will be difficult to continue the drive towards European and world collaboration in science to which he devoted so much of his life.

RONALD R. RAU

Brookhaven National Laboratory
VICTOR F. WEISSKOPF
Massachusetts Institute of Technology



Reuben S. Title, research physicist at the IBM Thomas J. Watson Research Center, Yorktown Heights, New York, died suddenly at the age of 47 on 28 November 1977. His work in electron spin resonance is well known to solid-state physicists and chemists.

He was born in Toronto, Canada, in 1930 and received BA and MA degrees in physics from the University of Toronto in 1951 and 1952. After studying on an 1851 Exhibition Scholarship, he was awarded the PhD degree from Cambridge University in 1956. After one year at the National Research Council of Canada and another at the Bell Telephone Laboratories, he joined the IBM Research Division in 1958 as a research physicist and later became manager of the Electronic Properties of Materials group. He returned to the Cavendish for a sabbatical year in 1973–74.

Title began his scientific career in atomic beams, but soon made the transition to electron spin resonance, a subject in which he made many important contributions. He saw spin resonance as a powerful tool in obtaining specific and unique structural information about materials and was usually one of the first to obtain samples of new materials in order to see what useful information about them he could uncover.



TITLE

Title was one of the earliest workers to use the technique of photoexcitation to produce or change epr spectra in luminescent materials, especially in rare-earth phosphors and II-VI materials. He also wrote a definitive survey of paramagnetic resonance in II-VI materials.

He and his co-workers were the first to report the characteristic epr signal of amorphous silicon and germanium. Their interpretation in terms of "dangling bonds" has provided the basis for many further developments. His studies on ion-implanted silicon crystals led to useful models for the formation of continuous amorphous layers and for the kinetics and annealing of ion damage.

Title also investigated various III-V semiconductor materials. Some of his last experiments were on superionic conductors, where the paramagnetic ion itself may be in motion.

In his years at IBM he helped to establish a sense of cooperation and of mutual interest and support within the laboratory. His advice and expertise were highly valued by all his colleagues. He will be greatly missed.

A. H. NETHERCOT IBM Corporation Yorktown Heights, N.Y.

## **Richard Roberts**

On 17 January Richard W. Roberts, age 43, died suddenly at his home in Wilton, Connecticut. He had become widely known and admired as an administrator and manager of research organizations in both private industry and the Federal government. All who knew him had high expectations for his future.

He graduated in chemistry from the University of Rochester (BS in 1956) and from Brown University (PhD in 1959), and spent a year as a National Academy of Sciences postdoctoral fellow at the National Bureau of Standards, an organization to which he would later return as director.

After joining the General Electric Research and Development Center in 1960,

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