

OBITUARIES

William H. Radford

The director of Massachusetts Institute of Technology's Lincoln Laboratory, William H. Radford, died on 9 May in Cambridge. He was 51 years of age.

Radford was born in Philadelphia and earned his BS from Drexel Institute in 1931. After receiving an MS in electrical engineering at MIT the following year, he joined the EE department there as a research associate. By 1951 he had risen to the rank of full professor. That same year Lincoln Laboratory was organized by MIT as a special Air Force research operation to study communication problems that arose when the first large-scale radar-picket networks were established after World War II. Radford, who had been associate director of MIT's radar school from 1941 to 1947, became the first head of the Laboratory's communication and components division. He was charged with developing new radio techniques for the DEW line and the SAGE system. He later directed the planning of the Millstone Hill Radio and Radar Communications Facilities and did other important work on satellite communications, reentry physics and techniques for distinguishing between earthquakes and underground explosions. He was named associate director of Lincoln Laboratory in 1957 and director in 1964.

Alan T. Wager

The first chairman of the physics department at Arizona State University, Alan T. Wager, died in Tempe on 17 May at the age of 61. Wager headed the Arizona department from its inception as a separate entity in 1957 until 1963, when he relinquished the post to work on a series of programs for science teachers supported by the National Science Foundation.

Born in Veteran, N.Y., Wager took his BS at Hobart College and his MA at Cornell University. After some years of teaching at Hobart and other

small colleges he went to the University of Chicago, where he received his PhD in 1948. He went to Arizona State the following year, after serving as professor of physics at Birmingham Southern College.

When the physics and astronomy department was created at ASU, Wager was elected chairman. Starting with a small teacher-training-oriented department, Wager quickly established a modest but full-scale graduate program. A PhD program was authorized in 1961, and by the end of the 1963-64 academic year it had produced four degrees. When the National Science Foundation's institutes for science teachers became more extensive a few years ago, Wager became heavily involved as the program's associate director. At the time of his death he was heading a program for training science and mathematics teachers that was supported by \$249 000 for the past academic year and its summer extension.

Wager was a member of the American Physical Society and the American Association of Physics Teachers.

Irvin Lee Sparks

The director of the division of pre-engineering studies at Eastern Illinois University, Irvin Lee Sparks, died on 15 Nov. 1965.

Sparks was born in Kingsville, Mo., in 1920, and did his undergraduate work at Central Missouri State College. He was awarded his MA and PhD by the University of Missouri while he was a fellow in an Office of Naval Research program. In 1944 he received a certificate in meteorology from the University of Chicago.

Sparks joined the Eastern Illinois faculty in 1951 as an assistant professor of physics. He was promoted to professor in 1960 and made head of the preengineering division in 1962. He was a member of the American Physical Society and the American Association of Physics Teachers. His research interests were mainly in electronics and solid-state physics. □

NEW

ALL SOLID STATE

**active
TUNABLE
BANDPASS FILTER**



from
\$335

**high performance
at lowest cost**

INNOVATION FROM SPECTRUM . . . the astounding new Type BB4-1! First of a family of completely transistorized, compact tunable Analog active networks! Packs in features never before obtainable! And at a price lower than bulky vacuum tube designs it obsoletes!

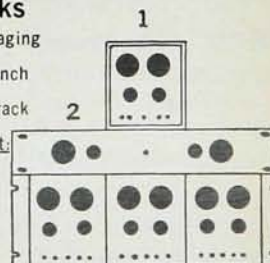
- Behaves as cascade of low- and high-pass 4-pole Butterworths • High and low cutoff frequencies independently and continuously variable • May be tuned to pass any band of frequencies from 20-200,000 c/sec • Normal pass band gain is unity • Both high and low stop bands attenuate at rate of 24 db/octave • High input impedance, low output impedance avoids impedance matching problems of passive devices • Low power draw completely ends cooling considerations.

compact modular building blocks

permit flexible packaging for bench or rack.

- (1) Portable basic bench unit (7 1/4" h x 6 1/4" w x 8 1/4" d). (2) Single rack unit, only 3 1/2" high. (3) Multiple rack unit: 3 bandpass filters in only 7" panel height.

SEND FOR
DETAILED
DATA



SPECTRUM Analog
tunable electronic filters

SPECTRUM INSTRUMENTS, inc
P.O. BOX 474 • TUCKAHOE, N. Y. 10707
(914) 779-8111