

tion center, and the Lawrence Memorial Room. These will be financed by about \$4.5 million from gifts and special funds. The University is currently seeking additional donated funds for construction of a nuclear science hall and a space science hall. Later plans call for a planetary space hall, an auditorium, and six smaller halls for programmed instruction.

Fulbrights for South Asia

Six universities are seeking American guest lecturers in physics in the 1965-66 program of grants under the Fulbright-Hays Act. The openings are in India: Rajasthan University (solid-state physics, statics, and quantum mechanics), and Banaras Hindu University (electron micrology); and in Pakistan: Universities of the Panjab and Peshawar (experimental physics), University of Dacca (experimental nuclear physics), and University of Sind (solid-state physics and thermodynamics). Additional details are available from the Committee on International Exchange of Persons, Conference Board of Associated Research Councils, 2101 Constitution Ave., Washington, D. C. 20418.

ORNL scientists at Tennessee

During the current academic year, a total of thirty specialists from the Oak Ridge National Laboratory will serve as part-time faculty members at the University of Tennessee. The scientists, representing seven fields of study, including nuclear engineering, will teach regular classes on the campus and supervise research projects at Oak Ridge for graduate students. The over-all program was established in 1963 through a \$750 000, ten-year grant from the Ford Foundation, and last year nineteen Oak Ridge scientists spent twenty percent of their time teaching at the University. They were released from a portion of their duties at the Laboratory in order to participate.

Health physics

Opportunity for graduate study in the field of health physics is being offered through two Atomic Energy

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General Dynamics | Astronautics requires MS or PhD degree physicist for an experimental maser/laser development program. Responsibilities will include the study of impurity diffusion, electron injection mechanisms, and crystal growing techniques. Tasks also involve paramagnetic resonance measurements on Indium Antimonide and other intermetallic compounds.

Please send complete resume, plus salary requirements, to Mr. B. L. Dobler, Chief of Professional Placement and Personnel, Mail Zone 130-90, General Dynamics | Astronautics, 5911 Kearny Villa Road, San Diego, California 92112. An Equal Opportunity Employer.

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GENERAL DYNAMICS | ASTRONAUTICS

EPLAB THERMOPILES

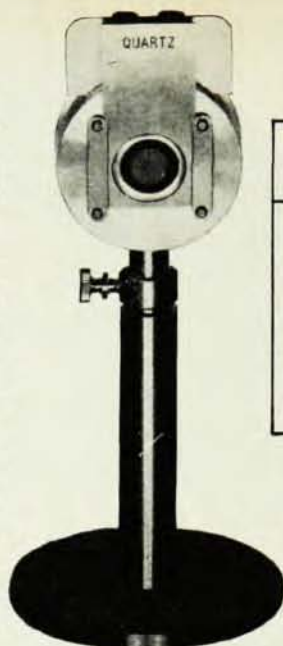
The standard range of Eppley laboratory-type thermopiles covers detectors which extend from single to 16-junction elements in multiples of four. Receiver coatings are generally lampblack (uniform absorptance from the UV region to about $10\ \mu$) and Parsons' black (uniform absorptance from the UV to at least $40\ \mu$). There are two usual configurations of receiver element, circular and linear. These thermopiles can be supplied mounted in three different case designs, air, vacuum and fluid (water) cooled types.

Various window materials (to minimize the effects of air convection) are available, such as crystal quartz, LiF, CaF_2 , NaCl, KBr and KRS-5, etc. These windows are normally mounted in metal slides or inserts, each of which type is interchangeable.

Requests for advice regarding thermopile application and use are invited. Address Department PT-11.

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The general characteristics of the standard models of the Eppley thermopiles are as follows:

Type (circular)	Sensitivity $\mu\text{V}/\mu\text{W cm}^{-2}$	Impedance ohm	Response Time (1/e) sec
1-junction: const-mang	0.005	2	0.1
4-junction: cu-const	0.025	5	0.5
4-junction: bi-ag	0.05	5	0.5
8-junction: bi-ag (linear)	0.10 0.05	10 10	1.0 0.5
12-junction: bi-ag	0.15	15	1.5
16-junction: bi-ag	0.25	50	2.0

These values are typical for use in a standard (air) atmosphere: when employed in vacuum (i.e. torr $< 10^{-4}$), the sensitivity will be increased by roughly $\times 2$ to $\times 3$ and the response time similarly lengthened.

There are two types of thermopile calibration, viz. in air at (a) low intensity ($40\text{--}80\ \mu\text{W cm}^{-2}$ flux density: NBS reference) and (b) high intensity ($10\text{--}100\ \text{mW cm}^{-2}$ flux density: IPS reference). Additional calibrations are available for other flux ranges and in vacuum.

The coefficients of temperature dependence of these detectors range from -0.2 to -0.4% per 1°C rise in ambient temperature. A temperature compensating circuit can be incorporated into the thermopile upon request, e.g. yielding ± 0.5 per cent constancy over a range of -10 to $+40^\circ\text{C}$.

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Commission programs administered by the Oak Ridge Institute of Nuclear Studies.

AEC special fellowships in health physics are open to US citizens, under 35, with a bachelor's degree in physics or other science. Mathematics through calculus and some college-level biology are required. Under this program, students spend their initial academic year taking formal course work at one of the participating universities and then go directly to a government laboratory for three months' on-the-job training. Fellowship extensions for a second and a third year may be granted for completion of MS and PhD degrees. The basic annual stipend is \$2500, an additional \$500 for each dependent, payment of required tuition and fees, and an allowance for travel.

AEC special fellowships in advanced health physics are offered to persons working actively in health physics, with two years experience in the field, exclusive of training. Applicants must be US citizens and preferably under 32. Fellowships are usually granted for one calendar year and may be renewed for up to three years when satisfactory progress has been made, and there is need for further study. The program provides a stipend of \$4000 annually, with \$500 for each dependent, payment of required tuition, fees, and allowance for travel.

Further information and application forms for both programs can be obtained from the Health Physics Fellowship Office, University Relations Division, Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.

Winter school

The Institute for Theoretical Physics of the University of Graz in Austria will conduct a two-week winter school beginning February 25th. The course, which will be jointly sponsored by the International Atomic Energy Agency, the Austrian Federal Department of Education, and the State Government of Styria, will cover the topic of high-energy quantum electrodynamics.

Further information can be obtained by writing to Dr. H. F. K. Zingl, Institute for Theoretical Physics, Universitätsplatz 5, Graz, Austria.



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