



## THE LAWRENCE RADIATION LABORATORY in the San Francisco Bay Area

*is operated by the University of California for  
the United States Atomic Energy Commission.*

### **THEORETICAL and EXPERIMENTAL PHYSICISTS**

All degree levels needed for applied research in experimental hydrodynamics, equation of state, energy transport, numerical analysis, development of calculational codes, photo emission, neutronics of subcritical systems by pulsed and steady state techniques, neutron spectroscopy fast counters, scintillators, photo multipliers, semiconductor properties and other advanced topics in applied mathematics, nuclear physics and instrumentation.

**PHYSICIST OR CHEMIST** To work in a Heavy Elements group studying the chemistry of alpha radioactive elements, neutron cross-sections and nuclear spectroscopy. B.S. or M.S. Degree in Chemistry with experience in radiochemistry of the heavy elements or rare earths and an understanding of radioactive hazards.

**CHEMIST** For research and development in the operation of analysis of gaseous radioactive species such as Krypton, Xenon Carbon 14, etc. M.S. or Ph.D. Degree in Chemistry with emphasis in radiochemistry, geochemistry or gas chromatography.

*Please send written inquiries to:*

Personnel Department

**LAWRENCE RADIATION LABORATORY**

P.O. Box 808 M-82

Livermore, California

*U. S. Citizenship Required*

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spite the fact that the prevailing belief and standard treatises had considered the two phenomena to be incompatible. Both the remnant magnetism and the diamagnetic screening currents have been observed at the same temperature and magnetic fields for solutions of Gd in La,  $\text{GdOs}_2$  in  $\text{YOs}_2$ , and  $\text{GdRu}_2$  in  $\text{CeRu}_2$ . The dilute ferromagnetism which occurs in these systems is itself quite new. The strong interactions, sometimes favorable for the occurrence of superconductivity and other times not, that Matthias discovered between magnetic ions in superconductors led him to postulate there may be mechanisms other than the accepted phonon-electron interaction which can give rise to superconductivity. His intuitive view has been given added support by his recent collaborative discovery that the isotope effect (dependence of transition temperature upon isotopic mass), which heretofore had been considered a universal property of superconductivity, does not exist in the elements Ru and Os. These findings are proving to be important challenges for modern solid-state theory.

"Matthias has also made important contributions in the field of ferroelectricity. This activity has continued in parallel with his work in superconductivity. He and his colleagues have published more than 25 papers on ferroelectricity and have discovered unexpected new classes of ferroelectrics such as triglycine sulfate, guanidine aluminum sulfate hexahydrate, and simple ammonium sulfate. These surprising results have shown that the ferroelectric state which had previously been thought to be rare is actually quite common and has stimulated research by many other workers in fields of chemistry and biochemistry as well as in physics."

Dr. Matthias is currently serving both as a staff member at Bell Laboratories and as professor of physics at the University of California at La Jolla. He is a fellow of the American Physical Society.

### **Tillyer Medal**

During the spring meeting of the Optical Society of America in Jacksonville, Fla., in March, the Society presented its Edgar D. Tillyer Medal for 1963 to Clarence H. Graham, professor of psychology at Columbia University. Established by the Society ten years ago, the medal is bestowed biennially for accomplishment in the scientific understanding of human vision.

Professor Graham received his PhD in psychology from Clark University and served in the Psychology Departments at Temple, Clark, and Brown Universities prior to joining the Columbia faculty in 1945. In his more than seventy publications, he has contributed to many areas of physiological optics and vision. He was awarded the Warren Medal of the Society of Experimental Psychologists in 1941 for studies of the intensity-time and area-intensity relations in visual perception. During World War II, he directed several projects dealing with visual problems in the design of optical instruments and served on the Applied Psychology Panel of the National Defense Research Committee.