

Research Scientists

FOR BASIC & APPLIED RESEARCH AT

Sylvania's Research Laboratories

Significant expansion of company-supported research in solid state physics, physical electronics, metallurgy and physical chemistry has created a number of exceptional opportunities at several levels, up to Senior Scientist or Section Head. Inquiries are invited from persons with appropriate training and experience who would be interested in participating in one of the following programs:

REFRACTORY METALLURGY

Theoretical and experimental investigations of all phases of the metallurgy of refractory metals and alloys including process, fabrication, physical and mechanical metallurgy.

ELECTRONIC MATERIALS

Synthesis and evaluation of materials and studies of the basic mechanisms involved in magnetics, ferrites, phosphors and dielectrics.

ELECTRONIC COMPONENTS

Investigations of techniques and materials involved in microminiaturization and integrated circuits.

ANALYTICAL CHEMISTRY

Analysis of ultra-trace impurities in electronic materials, semiconductors and metals including the development of new analytical techniques.

THERMIONIC EMISSION

Studies of the basic mechanisms of electron emission from high and low temperature surfaces; experimental evaluation of emission properties of base alloys, films and matrix forms.

MICROWAVE & ULTRA-MICROWAVE ELECTRONICS

Theoretical and experimental investigations of Maser-like devices and parametric amplifiers, including microwave spectroscopy studies of paramagnetic crystals.

SEMICONDUCTOR DEVICES

Theoretical and experimental studies of new devices and device concepts, new fabrication techniques and the applications of new semiconductor materials and phenomena.

SEMICONDUCTOR MATERIALS & POLAR CRYSTALS

Studies of the basic phenomena and properties of existing and new materials with these characteristics.

Modern, fully equipped laboratories; considerable scientific freedom, and association with staff members of established scientific prestige afford realistic opportunities for professional growth and recognition.

Please submit resume in confidence to Mr. A. E. Powell, Dept. S-12

RESEARCH LABORATORIES



Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

Bayside, Long Island, New York

dominantly alpha activity. The system records alpha activity, beta-plus-gamma activity, and ratio of beta-gamma to alpha. (Nuclear Measurements Corp., Dept. Sci263, 2460 N. Arlington Ave., Indianapolis 18, Ind.)

■ **FUEL-GAGE TESTER** contains a pair of three-terminal air capacitors, one to simulate the jet fuel compensator, the other, in conjunction with fixed capacitors, to simulate the main sensing capacitor of a fuel gage. Capacitor scale length is 19.2 ft, and settings are accurate to 1 in 25,000. Capacitors are enclosed, with a removable desiccant cartridge. (General Radio Co., Dept. Sci262, West Concord, Mass.)

■ **TUBE-TRANSISTOR BRIDGE** with amplification factor range of 0.001 to 10,000 can be used to measure low-frequency dynamic coefficients of transistors and tubes over wide ranges of values. The bridge is designed to operate in the 270 to 400 or 1000 cy/sec range. Vacuum-tube measurements can be made on forward and reverse amplification factor, resistance, and transconductance. In transistor applications the bridge can be used to determine short-circuit conductance parameters and the forward- and reverse-voltage ratios. Dynamic-plate-resistance range is 50 ohm to 20 megohm. Transconductance range is 0.02 to 50,000 μ mho. Maximum plate current is 400 ma; maximum voltage is 1500 v. (General Radio Co., Dept. Sci265, West Concord, Mass.)

■ **IONIZATION DETECTOR** for gas and vapor chromatography is nonradioactive. Electrons for ionization are supplied by emission, and ionizing energy is controllable. The detector is suitable for use with either capillary or packed columns. Helium and argon are the preferred carrier gases. Small changes in temperature or pressure are said to have no adverse effect on operation. Flow is held constant during an analysis. (Burrell Corp., Dept. Sci268, 2223 5th Ave., Pittsburgh 19, Pa.)

■ **SYNCHRONOUS MOTOR** runs at 72 rev/min without gear reduction with 60 cy/sec input. Clockwise or counterclockwise rotation with rapid reversing is possible. Start or stop time is less than 0.025 second, or 5 deg of shaft rotation. Torque is 150 oz/in. Starting current and running current are nearly identical. The motor may also be used as a d-c stepping motor for incremental positioning with either 200 or 400 increments for one shaft rotation. Rated torque is maintained for all stepping positions. (Superior Electric Co., Dept. Sci270, 83 Laurel St., Bristol, Conn.)

JOSHUA STERN

National Bureau of Standards,
Washington, D.C.