

use of a deflecting magnet to bunch the pulses and thereby increase the beam current was reported by R. C. Mobley, of Duke. The associated scattering and detecting assemblage for the above two schemes was presented. A setup similar to that used at Westinghouse was described by C. W. Snyder, of Oak Ridge. The problem of obtaining pulsed neutrons from the Cornell cyclotron by means of time bunching was discussed by J. E. Draper. K. Boyer, of Los Alamos, proposed the use of phase bunching to produce short pulses from a cyclotron.

The design of a He³ proportional counter for use as a neutron spectrometer was described by B. J. Toppel, of Brookhaven. A study of lithium containing solid scintillating phosphors has been carried out at Oak Ridge. J. Schenck reported that only a few were promising. The best results were obtained with lithium iodide activated with europium. The use of a diffusion type cloud chamber for survey work in inelastic scattering was discussed by W. B. Fowler, of Brookhaven. A resolution of 30% was obtained.

An application of the new alternating-gradient strong-focusing principle at Minnesota was described by J. H. Williams, who concluded that the principle was easy to apply and worked beautifully. D. A. Cowan, of Vanderbilt, suggested the use of the Ranger method of Hill as a low efficiency, low background neutron spectrometer.

A complete account of the proceedings of the conference can be found in the Brookhaven Conference Report, BNL-224.

Murrey D. Goldberg
Brookhaven National Laboratory

Ionizing Radiations

Seminar at Evans Signal Lab

A Seminar on the Effects of Ionizing Radiations, sponsored by the Nucleonics Branch of the Signal Corps Engineering Laboratories, was held at Evans Signal Laboratory, Belmar, New Jersey, on April 2-3, 1953. Approximately one hundred persons, including representatives from various governmental agencies and investigators sponsored by governmental research and developmental contracts, heard a series of fifteen papers on various phenomena produced by nuclear radiations. The lively discussions which followed each paper indicated that the purposes of the seminar (to correlate research in allied fields and to provide an opportunity for the interchange of ideas) were well met.

After a brief discussion of the theme of the seminar by P. Shapiro, chairman, I. Greenberg of Evans Signal Laboratory presented "A Review of the Effects of Ionizing Radiations." Past developments in this field were summarized with particular emphasis upon the primary process involved in the interaction of radiation and matter, the production of excited atomic states.

Three papers followed on the electrical effects of ionizing radiations. J. R. Parker of Radio Corporation of America, in a paper entitled "Ionization of Nitrogen and the Rare Gases by 0.06 to 1.25 Mev Gamma Radia-

POSITIONS OPEN

PHYSICIST

We are looking for a man with sound scientific training, preferably a Ph.D. degree, who combines imagination with good commercial judgment to join a small advance development group. He will be associated with physical chemists, electronic and mechanical engineers and will be called upon to present and evaluate ideas for development into commercial products. Mental flexibility and broad general interest will be important requisites. The person we are looking for must be capable of presenting his thoughts well either in reports or oral form.

Please send us a resume of your qualifications, experience and salary expected. Replies will be treated confidentially.

CLEVITE BRUSH DEVELOPMENT COMPANY

Division of Clevite Corporation
3311 Perkins Avenue
Cleveland, Ohio

Operating Units of Clevite Corp. are Cleveland Graphite Bronze Company, Brush Electronics Company (formerly Brush Development Company), Harris Products Company, Transistor Products, Inc.

PHYSICISTS

Research assistantships in optical spectroscopy open to graduate students. Work is acceptable as Ph.D. thesis. Stipend about \$2500.00 per year for halftime appointment. Write to Physics Department, University of Southern California.

SPECTROGRAPHER

Chemistry or physics major or equivalent. To do quantitative spectrographic analysis on metals and isotopic analysis on enriched uranium and uranium alloys. Must be able to set up procedures for quantitative work. Thorough background essential. Salary open. Location, New England. Box 653, 57 East 55 Street, New York 22, New York.

ENGINEER, for acoustic and audio research laboratory of progressive manufacturer located in pleasant New York suburban area. Must have good background in loudspeakers, microphones, transducers, and physics of moving systems. Challenging opportunity and attractive salary commensurate with experience and past achievements. Box 653E, 57 East 55 Street, New York 22, New York.

POSITION WANTED

PHYSICIST-OPTICS

Design and computation of optical devices. Research in photography and motion picture optics. Twenty years exp., papers and patents, outstanding record and ability. Available on month's notice. Write Box 653A, 57 East 55 Street, New York 22, New York.

tion," discussed the influence of applied voltage, gas pressure, dose rate, and gamma energy on the behavior of various gases in terms of a "specific ionization factor." F. Muller of Federal Telecommunications Laboratories, Inc. spoke on "Electrical Conductivity Induced by Ionizing Radiation in Some Polymeric Materials." He presented data showing that upon irradiation, the conductivity increased to a maximum in a time which is longest for nonpolar and shortest for polar polymers. In some cases, the conductivity later decreases. A theoretical interpretation based upon the solid electrolysis of univalent ions aids in explaining the phenomena. The next speaker, R. Lichtenstein of the General Electric Corporation, discussed "Crystal Conduction Dosimetry". He described the measurement of total dose by determining the charge produced when potassium bromide crystals, previously exposed to gamma radiation, were illuminated with light.

Four papers were given on physico-chemical effects resulting from gamma irradiation. The first, "Features in the Development of a Two-Phase Water and Chloroform Dosimeter," by J. C. Swartz of Consolidated Vacuum Corporation, discussed the release of hydrochloric acid from alkyl halides and the measurement of the acid concentration by both conductivity and Q measurements on the aqueous phase. J. Steigman of Brooklyn Polytechnic Institute, in a paper entitled "Chromophore Groups on Polymer Chains and Their Use in Radiation Studies," then described the attachment of the colored *p*-dimethylamino-*p*-diazocyanide-azobenzene onto a polystyrene chain. Colorimetry was then used to study the reaction of such compounds with free radicals. I. A. Berstein, who followed, presented the results of investigations conducted at Tracerlab, Inc. on "The Gamma Radiation Induced Polymerization of Acrylonitrile". The data indicate a strong dependency of both the rate of polymerization and the degree of polymerization on the intensity of the radiation. H. Linschitz, Syracuse University, spoke on "Ionization and Recombination Phenomena in Irradiated Glasses". Evidence was presented that certain absorption bands in illuminated organic glasses are due to solvated electrons. These electrons recombine with radical-ions when the glass is softened to form excited triplet states of the molecule, thereby emitting light. The use of this technique in studying radiation-induced processes was discussed.

The last phase of the seminar, under the chairmanship of I. Greenberg, included six papers on the optical effects of nuclear radiations. "Formation of 'Foreign Atoms' in Glasses," by W. Weyl, Pennsylvania State College, showed that glasses are inherently less sensitive to ionizing radiations than crystals because of their ability to incorporate foreign atoms into their loose structure. Recent experiments on the effects of radiation on glasses containing noble metals were discussed. This was followed by "Radiation Induced Coloration in Solids," by L. Reiffel, Armour Research Foundation, who sketched the behavior of vitreous and crystalline material under high-energy gamma-ray bombardment.

The result of introducing long-range order in random glass networks on the coloration produced was interpreted in terms of energy transfer efficiency. H. Hoerlin of the Ansco Corporation then spoke on "The Response of Photographic Systems to Ionizing Radiations". He showed, with the aid of electron micrographs of the latent image in silver halide grains, that the intrinsic grain sensitivity and the mass absorption determine the over-all response of photographic systems. The next presentation was "Fluorescent Efficiency of Organic Compounds and Their Chemical Structure," by H. Kallmann of New York University. He compared the gamma-ray induced fluorescence of numerous aromatic compounds to show that systematic increases and decreases in fluorescent efficiency can be produced by particular side groups. These differences in efficiency can be correlated to two factors, the true probabilities of radiationless transitions and for radiation production.

"Thermoluminescent Dosimetry" was discussed by F. Daniels, University of Wisconsin, who discussed the release of light from lithium fluoride crystals previously exposed to nuclear radiations, when these were heated. The application of this phenomena to the development of an energy independent dosimeter was described. The final paper, by W. Ramm, Evans Signal Laboratory, "The Energy Dependence of Dosimetric Systems," reviewed the important factors which influence the response of radiation sensitive systems to gamma rays of varying energies.

Philip Shapiro

Signal Corps Engineering Laboratories

American Physical Society

Southeastern Section Meeting

The Southeastern Section of the American Physical Society held its 1953 Meeting jointly with other divisions of the APS at Duke University and the University of North Carolina on March 26, 27, and 28. The total attendance was more than 800. Members of the Section contributed to the program of research papers and to the session on the teaching of physics which was sponsored by the Section. During the meeting the Section elected Alvin Nielson of the University of Tennessee as chairman for 1953-54. The other officers are Sherwood Haynes, Vanderbilt, vice chairman; Dixon Callihan, Oak Ridge National Laboratory, secretary; and Robert Lagemann, Vanderbilt, treasurer. New members of the Executive Committee are Scott Barr and A. E. Ruark of the University of Alabama. Walter Gordy of Duke is the retiring chairman. The 1954 meeting of the Section will be held in Oak Ridge, Tennessee, April 1-3.

AIEE Summer Meeting

At Atlantic City this Month

The Summer General Meeting of the American Institute of Electrical Engineers is to be held this year in Atlantic City from June 15 to 19. Expected to be the