

Proceedings of the American Physical Society

MINUTES OF THE MEETING OF THE NEW YORK STATE SECTION HELD
AT ROCHESTER, NEW YORK, APRIL 2-3, 1943

THE Spring Meeting of the New York State Section of the American Physical Society was held at the Strong Memorial Hospital and at the Memorial Art Gallery, Women's Campus, University of Rochester, on Friday evening, April 2, 1943 and Saturday, April 3, 1943. An attendance of over 100 members and visitors was recorded at each of the sessions.

On Friday evening the Section was guest of the University of Rochester School of Medicine and Dentistry. Dr. Stafford L. Warren discussed the work of the Biophysical Laboratories of the School of Medicine, and after the lecture trips were conducted through the various laboratories.

At the Saturday meeting the following program of invited papers was presented:

Address of Welcome. PRESIDENT ALAN VALENTINE, *University of Rochester.*

Microwaves. GEORGE K. TOWN, *Stromberg-Carlson Manufacturing Company.*

Vacuum Pumps in the Development of Industry. K. HICKMAN, *Distillation Products.*

Resistance of Glass to Thermal and Physical Shock. C. D. OUGHTON, *Bausch and Lomb Optical Company.*

Animal Electricity. W. O. FENN, *School of Medicine and Dentistry, University of Rochester.*

Discussion: Education of Physicists for War and Post-War Conditions.

Colleges and Universities. R. C. GIBBS, *Cornell University.*

Secondary Schools. E. L. MANNING, *State Education Department.*

Industry. J. T. LITTLETON, *Corning Glass Works.*

W. R. FREDRICKSON
Secretary

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MINUTES OF THE MEETING OF THE METROPOLITAN SECTION HELD AT
COLUMBIA UNIVERSITY, NEW YORK, APRIL 2, 1943

A MEETING of the Metropolitan Section of the American Physical Society, being the only one for the season 1942-1943, was held on Friday, April 2, 1943 at Columbia University. The meeting began with dinner in the Men's Faculty Club. The session for the presentation of papers was held in the Pupin Physics Laboratories beginning at eight o'clock. The following papers were presented:

Contributed Paper: Formation of Centers of Condensation in Supercooled Phases. PETER G. BERGMANN (Abstract below).

Invited Paper: The Elasticity of High Polymers as Bearing on the Synthetic Rubber Problem. HERMANN MARK (Introduced by Karl K. Darrow).

The following officers were elected for the season 1943-1944: *Chairman:* HELEN A. MESSINGER; *Vice Chairman:* L. H. GERMER; *Secretary-Treasurer:* W. S. GORTON; *Elected Members of the Executive Committee:* W. E. LAMB, JR., C. M. SLACK.

W. S. GORTON
Secretary-Treasurer

The Formation of Centers of Condensation in Supercooled Phases. PETER G. BERGMANN, *Lehigh University*.—In the investigation of the spontaneous formation of a more stable phase in the interior of a supersaturated or supercooled phase, it is usually assumed that a count of the centers of condensation which become visible per unit time furnishes us directly with the rate at which new centers are being formed. This assumption is objectionable, because new centers will not necessarily continue to grow, but may redissolve before they become visible. In fact, it is well known that for every degree of supercooling, there exists a "critical" size below which the droplet is more likely to

dissolve than to grow. To overcome this difficulty, the author has considered the change to which an arbitrary size distribution of droplets or crystals is subject in the course of time. If the number of droplets containing between μ and $\mu+d\mu$ moles at the time t is $Z(\mu, t)d\mu$, then Z satisfies the equation

$$\frac{\partial Z}{\partial t} = \frac{1}{N^2} \frac{\partial}{\partial \mu} \left[v(\mu) \left(\frac{\partial Z}{\partial \mu} + \frac{Z}{kT} \frac{df(\mu)}{d\mu} \right) \right],$$

where $v(\mu)$ is the rate at which droplets of size μ annex or drop one molecule, and $f(\mu)$ is the free energy per droplet. It is proposed to discuss this equation with the help of Heaviside calculus.

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MINUTES OF THE MEETING OF THE SOUTHEASTERN SECTION HELD AT
AUBURN, ALABAMA, APRIL 2-3, 1943

THE ninth annual meeting of the Southeastern Section of the American Physical Society was held at the Alabama Polytechnic Institute, Auburn, Alabama, on Friday and Saturday, April 2-3, 1943. Approximately sixty-five members and guests attended the meeting. Local arrangements were made by a committee headed by Fred Allison.

The regular program consisted of eight papers, abstracts for five of which are appended hereto. Abstracts of other papers will be found in the June issue of the *American Journal of Physics*. Additional features of the program were a talk by M. H. Trytten on "The Manpower Situation in the Profession of Physics" and a panel discussion on "Physics and the War Emergency," led by A. E. Ruark.

At the business meeting the election of the following officers for the year 1943-44 was announced: *Chairman*, C. W. Edwards; *Vice Chairman*, R. C. L. Mooney; *Secretary*, E. Scott Barr; *Treasurer*, C. B. Crawley; and *Member of the Executive Committee*, K. L. Hertel.

The invitation extended by the University of Tennessee to hold the 1944 meeting of the Section in Knoxville, Tennessee, was accepted.

E. SCOTT BARR, *Secretary*

ABSTRACTS OF CONTRIBUTED PAPERS

1. The Single Scattering of Fast Electrons in Light Gases. T. N. GAUTIER,* *University of North Carolina*.—The single scattering of RaE electrons has been studied in air, hydrogen, and argon. The scattering angles were mainly between 10° and 30° and the primary energies were between 200 kev and the upper limit of the RaE spectrum. Compared to the scattering in argon, the scattering in hydrogen and air was found to agree with the predictions of the Mott formula for nuclear scattering and the Möller formula for electronic scattering, within the limits of instrumental and statistical error. The probable error was about 5 percent for the hydrogen-argon comparison, and about 2 percent for air-argon comparison.

* Now at the National Bureau of Standards.

2. Measurement and Analysis of Noises by an Improved Method. DANIEL S. ELLIOTT AND JOHN L. McLUCAS, *Tulane University*.—In a previous paper an improved method for studying noises was outlined. This method consists primarily of two parts: (1) a device for tabulating rapidly varying intensities so as to determine the manner in which the intensities are dispersed; and (2) facilities for recording noise samples on a phonograph disk "in the field" and subsequently reproducing them in the laboratory to be analyzed by means of a commercial sound analyzer. In the present study a number of noises of various kinds have been analyzed by this method. Furthermore a modification has been made in the apparatus which now makes possible studies where the ordinary commercial