Meetings

Electromagnetic Scattering

The Second Interdisciplinary Conference on Electromagnetic Scattering, sponsored by the Air Force Cambridge Research Laboratories, was held at the University of Massachusetts at Amherst on 28–30 June 1965. The speakers and participants, numbering 151, represented several disciplines—astronomy, chemistry, engineering, mathematics, meteorology, and physics.

J. Mayo Greenberg (Rensselaer Polytechnic Institute) reviewed scattering from non-spherical systems. He reported on some recent microwave analog experiments with tilted spheroids which were suspended by very thin nylon threads. The emphasis was on total cross-section or extinction measurements, although the theoretical techniques developed are applicable to angular distributions and to particles having anisotropic refractive indices.

Milton Kerker (Clarkson College of Technology) discussed scattering from spherical particles, including concentric spheres. He reported on a computational study of color effects in scattering. Kerker has continued to show remarkable success in determining particle-size distributions for nonabsorbing spheres in the Mie region, provided that the form of the distribution is assumed or known and that the distribution remains narrow; that is, with standard deviations on the order of 10 percent.

The session on non-particulate scattering was introduced by J. A. Prins (Technical Physics, Delft). He provided the basis for papers to follow on the correlation function approach to the explanation of scattering caused by fluctuations in optical density, anisotropy, and absorption.

Porod (Physikalisches Institute, Graz), in a paper on small-angle x-ray scattering from irregular structures, discussed the influence of dense packing and of interparticle interference. He considered both the independent-particle, or "gas-type," model of Guinier and the interparticular interference effects stressed by Kratky. His treatment showed that even with gas-type scattering the usual determination of particle size becomes invalid, and that the one parameter characteristic of the true size of colloidal regions is the mean intersect. (An intersect is a chord cut out of a colloidal system by intersecting straight lines passing at random in all directions through the medium.) His treatment distinguished between globular, fibrillar, and lamellar systems which correspond to three different types of scattering curves.

In the multiple-scattering session, Victor Twersky (Sylvania, California) reported on his automated simulation study of the scattering of millimeter waves by dynamic random distributions of large scatterers. The scattering system consists of a transparent box containing a few thousand styrofoam spheres, generally about 4½ centimeters in diameter, which are kept in motion by a blower. The scattered microwaves are detected and the measured phase quadrature components X and Y of the instantaneous field are fed into a computer. Various products $X^n Y^m$ are obtained electronically and time-averaged for moments of $n + m$ up to 4. In general, the fundamental scattering parameters enter differently into the various moments, which facilitates their separation by measurements.

John Howard (Air Force Cambridge Research Laboratory) gave a talk on the life and work of Lord Rayleigh (John William Strutt, 1842–1919), who was a remarkable combination of thoroughly trained theorist and careful and ingenious experimenter. For the most part, Rayleigh worked alone with homemade apparatus, and designed experiments that verified his theoretical predictions. Although he is best known for the theory of Rayleigh scattering, which explained the blue of the sky, his *Theory of Sound* is still the bible of acoustics; even after his death much of his wave theory was reapplied to quantum and wave mechanics. On display were some of Rayleigh's original papers, notebooks, and notes which appeared remarkably polished in the original draft.

The proceedings of the conference are to be published under the editorship of the conference cochairmen, Richard S. Stein and Robert L. Rowell (University of Massachusetts).

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Forthcoming Events

September

22–24. American Soc. of **Photogrammetry**, 30th semiannual conv., Wright-Patterson AFB, Ohio. (A. J. Cannon, Research and Technology Div., Wright-Patterson AFB)

22–28. **Radiology**, 11th intern. congr., Rome, Italy. (Secretariat, Via Reno 21, Rome)

23–25. French **Medical** Congr., Paris, France. (M. Bricaire, 40 rue Scheffer, Paris 16)

23–25. Society of the **Plastics** Industry, New England sect., 21st annual, Groton, Conn. (The Society, 250 Park Ave., New York 10017)

23–28. **Electronics and Vacuum Physics**, 3rd Czechoslovak conf., Prague, Czechoslovakia. (Organizing Committee, Ke Karlovu 5, Dept. of Electronics and Vacuum Physics, Prague 2)

24–25. **Communications**, 13th conf., Cedar Rapids, Iowa. (Inst. of Electrical and Electronics Engineers, Box A, Lenox Hill Station, New York 21)

25–30. International Soc. of **Nephrology**, 3rd intern. congr., Washington, D.C. (Secretariat, 9650 Wisconsin Ave., Washington, D.C. 20014)

26–29. American Inst. of **Chemical Engineers**, 57th natl., Minneapolis, Minn. (AIChE, 345 E. 47 St., New York 10017)

27. Society for **Pediatric Radiology**, Washington, D.C. (J. L. Gwinn, Children's Hospital, 4614 Sunset Blvd., Los Angeles, Calif.)

27–29. Chemistry of the **Solvent Extraction of Metals**, intern. conf., Atomic Energy Research Establishment, Harwell, England. (F. K. Pyne, B. 329, Harwell)

27–1. **Community Oral Health**, hemispheric conf., San Juan, P.R. (N. O. Harris, School of Dentistry, Univ. of Puerto Rico, San Juan 00905)

27–1. **Urology**, French congr., Paris, France. (J. Michon, French Assoc. of Urology, 47, boul. des Invalides, Paris 7)

28. Society of Austrian **Chemists**, general assembly, Graz, Austria. (The Society, Eschenbachgasse 9, Vienna 1)

28–29. **Electric Heating**, 7th biennial