

Calendar of events

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JUST PUBLISHED

A definitive new work on the theory and relative merits of the travelling-wave tube, and its importance to present-day communications and the entire field of microwave electronics.

TRAVELING WAVE TUBES

By J. R. PIERCE, Ph.D.
Member of the Technical Staff
Bell Telephone Laboratories, Inc.

BEGINNING with a clear and simple description of the traveling-wave tube and a simple exposition of its theory, this book treats in a unified manner problems such as those of circuit impedance, loss, gain, power, and noise in traveling-wave tubes.

In presenting this well-rounded treatment, the author has provided much new material in addition to using previously published information, and he has applied to both a common notation and uniform development.

The first chapter is introductory, showing the nature of traveling-wave tubes, their advantages and disadvantages, and in general their place in present-day communications and the trend of their development. Then follows the description of the tube itself, and a concise, specialized analysis of its operation. Following chapters discuss slow-wave circuits and give a qualitative and quantitative idea of their nature and limitations. Then, simplified equations for the overall behavior of the tube are introduced and solved, and matters such as overall gain, insertion of loss, a-c space-charge effects, noise figure, field analysis of operation and transverse field operation are considered. Power output is discussed, and in the final chapters brief treatments are given of two closely related types of tube—the traveling-wave magnetron amplifier and the double-stream amplifier. Appendices treat various detailed points and contain, in easily usable form, material necessary for calculating gain of traveling-wave tubes. In sum, this book provides the broad coverage of principles and the necessary treatment of details for those planning to work with traveling-wave tubes.



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- August 30–September 6 International Congress of Mathematicians, Cambridge, Massachusetts
- September 3–8 American Chemical Society, Chicago, Illinois
- September 8–9 Symposium on Plasticity (held under the auspices of the Graduate Division of Applied Mathematics of Brown University), Providence, Rhode Island
- September 10–13 American Institute of Chemical Engineers (Regional Meeting), Minneapolis, Minn.
- September 12 Society for Applied Spectroscopy, New York City
- September 13–15 Institute of Radio Engineers (West Coast Convention), Long Beach, California
- September 14–16 Electron Microscope Society of America (Annual Meeting), Detroit, Michigan
- September 14–22 Congrès International de Microscopie Electronique (Sponsored by Société Française de Microscopie Théorique et Appliquée), Paris, France
- September 17–23 Congrès de Chimie Industrielle, Milan, Italy
- September 18–22 American Society of Mechanical Engineers, Industrial Instruments and Regulators Division (5th National Conference), Buffalo, New York
- September 18–22 Instrument Conference and Exhibit (National), Buffalo, New York
- September 18–23 International Conference on Spectroscopy at Radiofrequencies (Sponsored by Netherlands Physical Society), Amsterdam, Netherlands
- September 21–23 Polymer Chemistry as Applied to Plastics Symposium (Sponsored by Society of Chemical Industry), The University, London, England
- September 25–27 National Electronics Conference, Chicago, Illinois
- September 28–October 1 Associazione Italiana di Metallurgia (4th National Congress), Florence, Italy
- September 29–30 American Physical Society, New York State Section, Potsdam, New York
- October 2–5 Technical Association of Pulp and Paper Industry Engineering Conference, Cincinnati, Ohio
- October 3 Society for Applied Spectroscopy, New York City
- October 3–5 American Institute of Electrical Engineers, Middle Eastern District, Baltimore, Maryland
- October 10–12 National Academy of Sciences, Sancti Spiritus, N. Y.
- October 11–14 American Society of Civil Engineers, Chicago, Illinois
- October 14 American Physical Society, Metropolitan Section, New York City
- October 16–20 Society of Motion Picture and Television Engineers, Lake Placid, New York
- October 18–19 Conference on Industrial Hydraulics (Sponsored by Armour Research Foundation), Chicago, Illinois
- October 19–21 Conference on Gaseous Electronics (Sponsored by Electron Physics Division, American Physical Society), New York City
- October 20 National Noise Abatement Symposium (Sponsored by NNA Council and Armour Research Foundation), Chicago, Illinois
- October 20–21 Pennsylvania Conference of College Physics Teachers, Haverford College and Franklin Institute, Philadelphia, Pennsylvania
- October 23–25 Conference on Applications of X-Ray Spectroscopy to Solid State Problems (Sponsored by Office of Naval Research and Wisconsin Alumni Research Foundation), Madison, Wisconsin

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