

Contributors to This Issue

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Andres Albanese, Ingeniero Electricista, 1970, Universidad Central De Venezuela; M.Sc., 1972, University of Texas at Austin; Ph.D., 1976, Stanford University. Instituto Venezolano De Investigaciones Cientificas, 1969–1970; Bell Laboratories, 1975—. Mr. Albanese's current research interests are systems and components for lightwave communications.

H. W. Arnold, B.A., 1965, Occidental College; M.A., 1967, Sc.D., 1971, Columbia University; Bell Laboratories, 1971—. Mr. Arnold has conducted millimeter wave mobile radio propagation experiments and has investigated advanced communications satellite systems. He was involved in the design of the Crawford Hill COMSTAR beacon propagation receivers and is presently performing data analysis from that experiment. Member, IEEE.

Robert H. Brandt, Stevens Institute of Technology; Bell Laboratories, 1944–1977. Mr. Brandt's work in the radio research group was concerned with components for micro-wave radio relay systems, antenna impedance measurements, multiplexing system for light route microwave relay, phase correction and pulse timing circuits, the Project Echo sat-

elite communication experiments, and mobile radio propagation and equipment. Immediately before retiring he was associated with the COMSTAR Satellite Beacon Propagation Experiment.

Ta-Shing Chu, B.S., 1955, National Taiwan University; M.S., 1957, and Ph.D., 1960, Ohio State University; Research Associate, Courant Institute of Mathematical Sciences, New York University, 1961-1963; Bell Laboratories, 1963—. Mr. Chu has been engaged in research on microwave antennas and tropospheric wave propagation for satellite communication and terrestrial microwave network. Fellow, IEEE; member, International Scientific Radio Union, Sigma Xi, Pi Mu Epsilon.

Leonard G. Cohen, B.E.E., 1962, City College of New York; Sc.M., 1964, and Ph.D. (Engineering), 1968, Brown University; Bell Laboratories, 1968—. At Brown University, Mr. Cohen was engaged in research on plasma dynamics. At Bell Laboratories, he has concentrated on optical fiber transmission studies. Member, Sigma Xi, Tau Beta Pi, Eta Kappa Nu; senior member, IEEE.

Donald C. Cox, B.S. (EE), 1959, and M.S. (EE), 1960, University of Nebraska; Ph.D. (EE), 1968, Stanford University; U.S. Air Force Research and Development Officer, Wright-Patterson AFB, Ohio, 1960-1963; Bell Laboratories, 1968—. After coming to Bell Laboratories from Stanford where he was engaged in microwave transhorizon propagation research, Mr. Cox was engaged in microwave propagation research in mobile radio environments and in high-capacity mobile radio systems studies until 1973. He is now doing millimeter wave satellite propagation and systems research. Senior Member, IEEE and member, Commissions B, C and F of USNC/URSI, Sigma Xi, Sigma Tau, Eta Kappa Nu, and Pi Mu Epsilon; Registered Professional Engineer.

F. V. DiMarcello, B.S. (Geochemistry), 1960, Pennsylvania State University; M.S. (Ceramics), 1966, Rutgers, The State University; Bell Laboratories, 1960—. Mr. DiMarcello has worked on various glass and ceramic materials problems including substrates for thin film circuitry, microwave windows for hardened antennae, and glass and ceramic-to-metal seals. He is currently involved in materials and processing aspects of optical waveguides.

N. F. Dinn, B.S.E.E, 1967, Northeastern University; M.S.E.E., 1969, MIT; Bell Laboratories 1967—. Mr. Dinn's initial work was concerned with design and development of adaptive equalization and automatic timing control for digital systems. He subsequently performed the initial systems engineering for T1C. He currently supervises the Radio Characterization Studies Group which has responsibility for designing specialized measurement and data acquisition equipment for characterizing radio propagation and for evaluating general trade digital radio systems. Member, Phi Kappa Phi, Tau Beta Pi, Sigma Xi, and Eta Kappa Nu.

Robert W. England, B.S., 1973, Capitol Institute of Technology; Bell Laboratories, 1973—. Mr. England has worked on microwave antennas for satellite communication. He was involved in the measurement of the Crawford Hill 7-meter antenna and the development of an earth station receiver for the ATS-6 satellite.

James Flanagan, Sc.D. Electrical Engineering, 1955, Massachusetts Institute of Technology; Bell Laboratories, 1957—. Mr. Flanagan has worked in voice communications, acoustics, and digital techniques for signal coding and transmission. He is head of the Acoustics Research Department. Fellow, IEEE; fellow, and currently president-elect, Acoustical Society of America, Sigma Xi, Tau Beta Pi.

James W. Fleming, B.S., 1970 and M.S. 1971 in Cer. E., University of Missouri at Rolla; Research Associate University of Missouri, 1971-1972; Bell Laboratories 1972—. Mr. Fleming has worked on the design and properties of PTCR thermistors and other polycrystalline materials for communication applications. Since 1973, he has been developing techniques for the preparation of high melting oxide glass compositions such as those used in lightguides and examining the properties of these glasses. He is currently involved in analysis of dispersion in optical materials and characterizing lightguide core composition profiles. Mr. Fleming is pursuing a Ph.D. in Cer. Sci. at Rutgers University and is a member of the American Ceramic Society.

William G. French, B.A., 1965, University of California, Riverside; Ph.D., 1969, University of Wisconsin; Bell Laboratories, 1969—. Mr. French has worked on fundamental studies of glass as well as glass purification techniques and the development of low loss optical fiber materials. His present interests are concerned with vapor deposition methods for the fabrication of low loss fibers with low dispersion char-

acteristics. Member, Optical Society of America, American Chemical Society, and American Ceramic Society.

David J. Goodman, B.E.E., 1960, Rensselaer Polytechnic Institute; M.E.E., New York University; Ph.D. (E.E.), 1967, Imperial College, London; Bell Laboratories, 1967—. Mr. Goodman has studied various aspects of digital communications, including analog-to-digital conversion, digital signal processing, assessment of the quality of digitally coded speech, and error mechanisms in digital transmission lines. He is Head, Communications Methods Research Department. In 1974 and 1975, he was a Senior Research Fellow at Imperial College, London, England. Member, IEEE.

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Harold H. Hoffman, New York University; Bell Laboratories. Mr. Hoffman has worked on micro-wave radio relay systems, cordless telephone, satellite orientation, mobile radio and millimeter wave propagation. As a member of the Satellite Systems Research Development, he is presently concerned with the COMSTAR Satellite Beacon Propagation Experiment.

David A. Kleinman, Sc.B. (chemical engineering), 1946, and S.M. (mathematics), 1947, Massachusetts Institute of Technology; Ph.D. (Physics), 1952, Brown University; Brookhaven National Laboratory 1949-1953; Bell Laboratories 1953—. Mr. Kleinman has worked on semiconductor devices, the infrared optical properties of semiconductors, lasers and nonlinear optics, optical telephone receivers, and most recently on electron spin polarization and optical pumping of semiconductors.

Robert P. Leck, A.A.S.E.E., 1968, Middlesex County College; 1969, Rutgers College of Engineering; 1972—, Monmouth College; Bell Laboratories, 1972—. From 1969 to 1972 Mr. Leck was engaged in the design of both digital and analog measurement systems. Since joining Bell Laboratories, he has participated in mobile radio experiments, has done

work on experimental linear amplifiers, and was involved with the design and assembly of the electronics used in the COMSTAR Satellite Beacon Propagation Experiments. He is presently involved in the reduction of data obtained from that experiment, microcomputer-based measurement and control systems, and phase-locked-loop frequency multiplier design. Member, Eta Kappa Nu.

W. E. Legg, Rutgers University, 1945–1949; Bell Laboratories, 1945—. Mr. Legg has worked on dielectric lenses and microwave antennas for radio relay systems. He was involved in the development of Project Echo and Telstar tracking equipment and participated in mobile radio telephone experiments. He is presently engaged in antenna measurements for satellite communication and terrestrial microwave repeaters in the Radio Research Laboratory.

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Erwin E. Muller, B.S., 1952, Stevens Institute of Technology; M.S., 1954, University of California; Bell Laboratories, 1954—. Mr. Muller has worked on design of ballistic missile-guidance computers, single-sideband long-haul radio systems, and satellite communications systems. He is head of the Transmission Systems Characterization Department, concerned with describing the operational environment of radio and wire-pair transmission systems. Senior member, IEEE.

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Peter Noll, Dipl.-Ing., 1964, Dr.-Ing. (Electrical Communication Engineering), 1969, Habilitation, 1974, Technical University of Berlin, Germany; Heinrich-Hertz-Institut Berlin-Charlottenburg, 1964–1976. Mr. Noll was initially concerned with the development of electronic telephone exchanges. Since 1970, he has been engaged in research on speech coding and communication theory. During the summers of 1974 to 1977 he was on the Technical Staff of Bell Laboratories. Since 1976, he has been a member of the University of Bremen, Germany, as a Professor of Electrical Engineering and Statistical Communication Theory. Member, Nachrichtentechnische Gesellschaft (NTG), and Verein Deutscher Elektrotechniker (VDE), Germany. Senior member, IEEE.

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David Slepian, M.A., 1946, Ph.D., 1949 (theoretical physics), Harvard University; Bell Laboratories, 1950—. Mr. Slepian is Head of the Mathematical Studies Department within the Mathematics and Statistics Research Center. He has worked in a variety of areas of applied mathematics and has served as a consultant on many Bell System projects. His main fields of applied interest are information theory and applications of probability theory to communication engineering. He is currently also Professor of Electrical Engineering at the University of Hawaii, Honolulu, where he periodically spends time on leave from the Laboratories. Member, National Academy of Sciences, National Academy of Engineering, and Society for Industrial and Applied Mathematics. Fellow, IEEE, the Institute of Mathematical Statistics, and American Association for the Advancement of Science.

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Martin F. Wazowicz, RCA Institute; Western Electric; Bell Laboratories, 1951—. Mr. Wazowicz has worked on such projects as Mark IV, Essex, "X" Band radio propagation experiments, mobile radio, and satellite receiver projects.

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Robert W. Wilson, B.A. (Physics), 1957, Rice University; Ph.D. (Physics), 1962, California Institute of Technology; Bell Laboratories, 1963—. At Bell Laboratories Mr. Wilson has made radio astronomical and propagation measurements. In radio astronomy his work includes measurements of the disk component of the galaxy and absolute fluxes of radio sources, discovery of the cosmic background temperature, and discovery and measurement of carbon monoxide and other molecules in interstellar clouds. His propagation measurements include measurements of 10μ and the short centimeter region. He is presently working in both fields. Member, American Astronomical Society, American Physical Society, International Scientific Radio Union, Sigma Xi, Phi Beta Kappa.

G. A. Zimmerman B.S.E.E., 1958, University of Wisconsin; M.S.E.E., 1960, New York University; Bell Laboratories, 1958—. Mr. Zimmerman's work has centered on design of specialized measurement and data acquisition equipment for characterizing radio transmission phenomena and determining their impact on existing and proposed radio telephone equipment. In particular, the detailed data regarding multipath induced amplitude and phase variations obtained from this equipment have impacted FM, single-sideband AM, and digital radio design, engineering, and protection. Member, Eta Kappa Nu, Tau Beta Pi, Phi Kappa Phi, and IEEE.

