Introduction

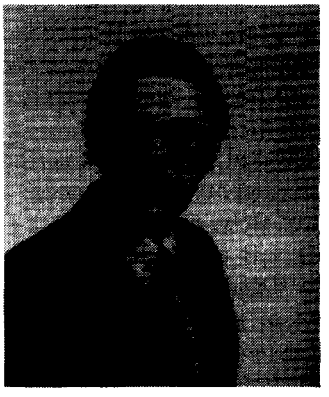
THIS SPECIAL ISSUE of the TRANSACTIONS is devoted to topics concerned with device reliability. And, appropriately, most of the papers in this issue were first presented at the 1978 International Reliability Physics Symposium held in San Diego, CA, during April 1978.

Some of the topics addressed at the Symposium and in this issue are new and the results unexpected. For readers whose interests tend toward dynamic memories, CCD's and low-power integrated circuits, I especially commend "Alpha-Particle-Induced Soft Errors in Dynamic Memories" by T. C. May and M. H. Woods, and "Alpha-Particle Tracks in Silicon and their Effect on Dynamic RAM Reliability" by D. S. Yaney, J. T. Nelson, and L. L. Vanskike. For those who may occasionally search for intermittent opens by spraying components with canned coolants, I suggest you read "A New Electrostatic Discharge Failure Mode" by M. H. Woods and G. Gear. If you have been concerned with electromigration of aluminum, then you will be intrigued by "The Reduction of Au-Al Intermetallic Formation and Electromigration in Hydrogen Environments" by D. Y. Shih and P. J. Ficalora.

More familiar topics also receive their share of attention. For example, the continuing concern about component failures due to temperature-humidity accelerated electrolytic conduction is treated in "New Acceleration Factors for Temperature, Humidity, Bias Testing" by N. L. Sbar and R. P. Kozakiewicz.

To continue in this vein would soon have me recommending every paper for your reading. In fact, I do. But, I must conclude these remarks or I risk just the sort of long introduction I so dislike. However, before closing I want to extend my sincere thanks 1) to the reviewers who read and constructively criticized the papers appearing in this issue, 2) to the authors who cheerfully revised their manuscripts and returned them promptly, and 3) to Mrs. Joann Matla who provided invaluable aid with the correspondence.

G. T. CHENEY
Guest Editor



G. T. Cheney received the A. B. degree in physics in 1960 and the M.S. degree in physics in 1964, both from San Diego State College, San Diego, CA.

He was with Convair Astronautics from 1957 to 1964, with General Atomic from 1960 to 1964, and since 1964 he has been with the Bell Laboratories, Allentown, PA. Early in his career he worked on the development of new measurement techniques for determining the thermal properties of refractory materials. He also studied the thermionic properties of reactor materials and investigated radiation-induced conductivity in plastic films. Since joining the Bell Laboratories, he has primarily been concerned with the design and development of MOS integrated circuits. Recently he has been involved with the design of MOS dynamic random access memories. His current assignment is Supervisor, Memory Design I Group at Bell Laboratories in Allentown, PA.

Since 1976, he has been active in the IEEE-sponsored International Reliability Physics Symposium. He was the Technical Program Chairman for the 1978 Symposium, and he is currently the Vice-General Chairman.

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