Foreword

THE 1987 IEEE Microwave and Millimeter-Wave Monolithic Circuits Symposium was held on June 8–9, 1987, in conjunction with the IEEE MTT-S International Microwave Symposium. The Technical Program consisted of 32 papers, a growth of 50 percent relative to prior years, even though the paper acceptance ratio continued to be held below 50 percent. Attendance also reflected the rising interest in monolithic circuits, increasing over 25 percent to 950.

This Special Issue provides authors of papers presented at the Symposium an opportunity to expand and publish a more detailed description of their work than is possible in the Symposium Digest. This publication also reaches a much broader audience than can attend any symposium. The Technical Program Committee extends our appreciation to the authors who have submitted their work for review and inclusion in this issue.

This year's Technical Program consisted of 30 contributed and two invited papers, presented over two days in seven sessions. Two of the sessions ran in parallel on the first day, due to the growth in size of the Symposium. Sessions on the second day were sponsored jointly with the IEEE MTT-S International Microwave Symposium.

The Technical Program began with an invited presentation by Dr. Peter Asbeck of Rockwell Science Center on "Heterojunction Bipolar Transistors for Microwave and Millimeter-Wave Integrated Circuits," which generated a great deal of interest and discussion. The rest of the morning session dealt with other advanced devices and millimeter-wave techniques, along with broad-band amplifiers and mixers in the 2–20-GHz frequency range. One of the two parallel afternoon sessions covered millimeter-wave receiver and control components; the other focused on microwave control components and reliability.

The second day's sessions began with an invited paper by Dr. Donald Estreich of the Hewlett-Packard Microwave Technology Division on "Nonlinear Modeling for MMIC's," which emphasized the need for improved nonlinear, distributed circuit modeling capability. Further papers on nonlinear and power circuits were followed in the afternoon by sessions on low-noise techniques and MMIC manufacturability.

Overall, this year's Symposium presentations represented a continuing push to higher performance/integration, as exemplified by results on 44-GHz HEMT amplifiers, dc–40-GHz SPDT switches, and 8–15-GHz receiver chips, to name but a few examples. In addition, however, the full session on manufacturability and the reliability papers indicate increased concern for production issues on MMIC's.

For further information on papers other than those expanded upon in this Special Issue, order the Symposium Digest, IEEE Catalog No. 87CH2478-6, from the IEEE Service Center, 445 Hoes Lane, Piscataway, New Jersey 08855–1331.

Many people worked to make this year's Symposium an outstanding success. The Monolithic Symposium Technical Program Committee and the Steering Committee, headed by General Chairman Yalcin Ayasli, deserve much of the credit. The cooperation of the MTT-S Symposium Committee, including Chairman Steve March, Technical Chairman Reynold Kagiwada, and Local Arrangements Chairman John Owens, is very much appreciated. I am grateful as well to the many others who have helped make this year's Symposium possible.

Finally, I would like to thank Russell Gilson for an excellent job organizing this Special Issue on monolithic circuits.

DERRY HORNBUCKLE
Technical Program Chairman

Wave Integrated Circuits.

Derry Hornbuckle (M'80) received the B.S. degree in engineering from the California Institute of Technology in 1970 and the M.S. degree in electrical engineering from the University of California, Berkeley, in 1976.

From 1968 to 1973 he was employed by Executone of Southern California, serving as Chief Engineer at the time he left to return to school. At the University of California, Berkeley, he studied fabrication and microwave applications of Josephson junctions. He has been with Hewlett-Packard, Santa Rosa, CA, since 1974 in both instrument and technology development roles, and has worked on GaAs IC's since 1977. He is currently R&D Manager of the HP Microwave Technology Division.

Mr. Hornbuckle is the General Chairman of the 1988 IEEE Microwave and Millimeter-Wave Monolithic Circuits Symposium, and is a member and past chairman of the MTT-6 Technical Committee on Microwave and Millimeter-