



8th annual proceedings

reliability physics

Las Vegas, Nevada, April 7-10, 1970

J. B. Morris
Editor

Sponsored by
the IEEE Electron Device Group and
the IEEE Reliability Group
Las Vegas, Nevada

IEEE Catalog No. 70 C 59-PHY

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ELECTRON DEVICES AND RELIABILITY GROUPS
OF THE
INSTITUTE OF ELECTRICAL AND
ELECTRONICS ENGINEERS, INC.

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Price is \$8.00 for first copy and \$12.00 for each additional copy for IEEE members; \$12.00 per copy for NON-IEEE members.

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Foreword

This volume contains the papers presented at the eighth annual Reliability Physics Symposium which was held at the Stardust Hotel and Casino in Las Vegas on 7-10 April 1970, and was co-sponsored by the IEEE Professional Groups on Electron Devices and Reliability.

The objective of this conference was: (1) to bring into focus the problems of device and systems reliability that we are facing today, (2) to provide a forum in which the designers, manufacturers, and users of modern electronic equipment can exchange their opinions, define important areas, and give guidance to the scientific community as to the relative importance of the various problems, and (3) to exchange information on fundamental physical and chemical processes which contribute to degradation, aging, and failure of electronic components and materials. This objective is, in part, reflected in the comprehensive technical program in which many timely topics of the reliability physics field are covered: silicon interfaces, degradation in III-V electroluminescent diodes, reliability of plastic encapsulated devices, electromigration, step coverage, metallization, bonding, reliability testing, failure analysis, and radiation effects.

Some of these topics are old, some are new for this conference. Thus, it is interesting to see that, even though MIS physics seemed to have reached maturity around 1967, silicon interfaces are still a very lively topic, with ion migration, other insulators, and Si-gates taking up our opening session. Other recurring topics that seem of importance are metallization, contacts, bonds, electromigration, and radiation effects. New topics are the degradation of light-emitting diodes and plastic encapsulation, indicating that such effects have obtained industrial importance.

The organization of the papers in these Proceedings corresponds to their order of presentation at the nine technical sessions of the conference. The few papers for which manuscripts were not available for publication are represented by abstracts only.

The program committee, made up of highly competent and busy colleagues from industry and the government, had the difficult task of selecting, from the many abstracts submitted, a limited numbers of papers which they felt would be of most general interest to the audience and would comprise a balanced selection of subject matter. The members of this committee, as well as the other session chairmen, have given unstintingly of their time and energy to organize RPS 70 and to review the papers presented here. The excellent technical program, the outstanding success of the meeting, attended by almost 500 people, and the quality of the papers published in these Proceedings are a tribute to their effort.

Chairman, Technical Program Committee
K. H. ZAININGER

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