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Preface

The International Symposium for Testing and Failure Analysis, ISTFA, is the premier forum for information on all aspects of microelectronic device failure analysis. The symposium has consistently provided attendees with the latest analysis techniques necessary to obtain accurate and timely information on device-related issues for their customers. While the direct corporate financial benefit may be difficult to quantify in some cases, the beneficial impact of failure analysis (FA) on device quality and reliability has proven itself to the community for decades.

This ISTFA marks the beginning of the new millennium. The state of the art in microelectronics technology greatly exceeds the predictions made just a short time ago. The rapid development of microelectronics has enabled us to reach levels of integration, operating speed, reliability, and even cost that were not imagined a generation ago.

In the FA community, this rapid technology development has forced us to develop advanced techniques. Perhaps the most amazing capabilities are those that allow us to localize faults in deep sub-micron integrated circuits through the silicon substrate. As the ability to test many modern integrated circuits (ICs) is destroyed by removing them from their packages, non-destructive techniques for flip-chip technologies are essential.

This ISTFA Proceedings presents readers with a collection of the best in FA research in the industry today. As with past Proceedings, this issue will become the latest addition to the technical libraries of many laboratories and will be used frequently. The nature of the evolution of IC technology presents many of us with similar technologies and their associated problems. This commonality allows us to draw from collective research to help reduce the time and expense associated with FA.

In the future, we should see a more diverse technology base at ISTFA. The current trend is toward high performance silicon-based devices coupled or integrated with compound semiconductor optoelectronic (OE) devices and microelectromechanical systems (MEMS) devices to make integrated micro systems. Much of this trend has developed from the needs of the internet and the desire to transfer huge amounts of data at blinding speeds.

In the FA industry, the use of OE and MEMS technologies along with silicon ICs will increase the demands for analysts with broader backgrounds and more diverse training. ISTFA has been presenting material on compound semiconductor, OE, and MEMS devices for years but in the background of the larger silicon industry. Future events will see growth in size to allow these technologies the same coverage presently found in silicon. We (the ISTFA Organizing Committee), ASM, and, the members of EDFAS, look forward to the future of failure analysis.

Daniel L. Barton, Ph.D.
Sandia National Laboratories
ISTFA 2000 General Chairman
bartondl@sandia.gov

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