97CH36103

international ELECTRON DEVICES meeting

1997

WASHINGTON, DC
DECEMBER 7–10, 1997

TECHNICAL DIGEST

Sponsored by Electron Devices Society of IEEE

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IEDM

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WELCOME FROM THE GENERAL CHAIR

Ken Galloway
General Chair

On behalf of the 1997 IEDM Committee, I would like to welcome you to the 1997 International Electron Devices Meeting in Washington, DC. The 1997 IEDM continues a long tradition as the premier forum for the presentation of the latest research and development in the area of electron devices and their applications. The strong international nature of our industry is evident with invited speakers and contributed papers from major semiconductor centers from around the world.

Two short courses are scheduled for Sunday. These are designed for broad appeal to the IEDM participants including those unfamiliar with the topics. The courses are entitled "Giga-Scale CMOS Technology" and "Trends in RF Devices for Wireless Applications". These courses have been organized and will be presented by active researchers who are experts in these fields.

Pierre Woerlee
Technical Program Chair

The plenary talks on Monday will feature presentations on chipcards; on the impact of multimedia on semiconductor technology; and on the limits of optical lithography. Speakers from North America, Europe and Asia will be features.

The IEDM Luncheon speaker this year will be Jim Early. Jim has had a long and distinguished career, first at Bell Labs and then at Fairchild. Dr. Early's talk is entitled ". . . out to Murray Hill to play!—An Early History of Transistors". I believe that this will be both informative and entertaining. I recommend that you not miss it.

On Tuesday night, panel sessions are planned on two important and potentially controversial topics: "Manufacturing in the Next Millennium: The Emerging Role of Foundries in Silicon Technologies" and "Lithography for 100 nm Device Fabrication".

This year we are continuing two new features to improve accessibility to the information in the IEDM abstracts. We have included 50 word abstracts on the IEDM home page which are available now (please visit our site at http://www.ieee.org/conference/iedm. We are also providing the digest in a CD-ROM version that will be distributed along with the technical digest.

Gary Bronner
Technical Program
Vice Chair

On behalf of the IEEE Electron Devices Society, which sponsors the IEDM, Pierre Woerlee, Technical Program Chair and Gary Bronner, Technical Program Vice Chair, I wish to express my sincere appreciation and congratulations to the members of the IEDM committee for the outstanding job they have done in planning and organizing the 1997 meeting. The authors are to be commended for their efforts in preparing and presenting the high-quality papers that form the foundation of the IEDM

It is with great pleasure that I extend a warm welcome to them and to all the attendees of the 1997 IEEE International Electron Devices Meeting.

AWARD PRESENTATIONS

PLENARY SESSION
Monday, December 8

1996 Roger A. Haken Best Student Paper Award:
To: Jan De Blauwe, IMEC, Leuven, Belgium

For the paper entitled: "A New Quantitative Model to Predict SILC-Related Disturb Characteristics in Flash-E^2 PROM Devices"

Paul Rappaport Award
To: Chris Diorio, Paul Hasler, Bradley Minch and Carver Mead, TRW, Inc., Georgia Institute of Technology, Cornell University and Cal Tech.

For the paper entitled: "A Single-Transistor Silicon Synapse"

EDS Distinguished Service Award
To: George Smith
Bell Labs (retired), Barnegat, NJ

"To recognize and honor outstanding service to the Electron Devices Society"

J. J. EBERS Award
To: Marvin White
Lehigh University, Bethlehem, PA

"For outstanding technical contributions to electron devices"

IEDM LUNCHEON
Tuesday, December 9

1997 IEEE Cledo Brunetti Award
To: Dieter Kern (M'IEEE), Eberhard-Karls-Universitat Tubingen, Tubingen, Germany and George Sai- Halasz (F'IEEE), IBM/ TJ Watson Research Center, Yorktown Heights, NY and Matthew Wordeman (SM'IEEE), IBM Microelectronics, Hopewell Junction, NY

"For the development of sub-0.1 micron MOSFET devices and circuits"

1997 IEEE Jack A. Morton Award
To: Chenming Hu (F'IEEE), University of California, Berkeley, CA

"For outstanding contributions to the physics and modeling of MOS device reliability"

IEEE Undergraduate Teaching Award
To: Chand Viswanathan (LF'IEEE), University of California, Los Angeles, CA

"For inspirational undergraduate teaching and curriculum development in solid-state electronics"

LUNCHEON PRESENTATION

". . . out to Murray Hill to play!, An Early History of Transistors" a presentation by James M. Early

CONFERENCE HIGHLIGHTS

Date	Time	Place	Event
12/7	9:00 a.m. - 5:30 p.m.	International Ballroom Center & East	Short Courses
12/8	9:00 a.m. - 12:00 p.m.	International Ballroom Center	Plenary Session
12/8	6:00 p.m. - 7:30 p.m.	International Ballroom Center	Reception
12/9	9:00 a.m. - 12:00 p.m.	Monroe Room	Emerging Technologies Session
12/9	12:20 p.m. - 2:00 p.m.	International Ballroom West	Luncheon
12/9	8:00 p.m. - 10:00 p.m.	International Ballroom Center & East	Panel Sessions

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Ken Galloway, *General Chair*
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Nashville, TN

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1997 IEDM Conference and Program Committee

Seated from left to right: Judy Hoyt, Short Course Vice Chair; Lalita Manchanda, Short Course Chair; Gary Bronner, Technical Program Vice Chair; Ken Galloway, General Chair; Pierre Woerlee, Technical Program Chair; Ilesanmi Adesida, Emerging Technologies Chair; Sophie Verdonckt Vandebroek, Publicity Vice Chair; First row standing from left to right: Joel Hartmann, European Arrangements Co-Chair; Taylor Efland, Subcommittee Chair, Solid State Devices; Seiichiro Kawamura, Subcommittee Chair, Device Interconnect Technology; Pallab Bhattacharya, Subcommittee Chair, Quantum Electronics and Compound Semiconductors; Savvas Chamberlain, Subcommittee Chair, Detectors, Sensors and Displays; Guido Groeseneken, Publicity Vice Chair; Werner Weber, European Arrangements Co-Chair; Mark Law, Publicity Chair; Dick Klaassen, Subcommittee Chair, Modeling and Simulation; Shih-Wei Sun, Asian Arrangements Co-Chair; Jack Sun, Subcommittee Chair, CMOS Devices and Reliability; Morgan Thoma, Subcommittee Chair, Integrated Circuits; Second row standing from left to right: Phyllis Mahoney, Conference Manager; Melissa Widerkehr, Conference Manager; Shuji Ikeda, Asian Arrangements Co-Chair

SUBCOMMITTEE ON CMOS DEVICES AND RELIABILITY

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Kawasaki, Japan

Richard K. Williams
Siliconix, Inc.
Santa Clara, CA

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Jerry Hynecek, Texas Instruments, Inc.

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Co-Chairs: Connie Chang-Hasnain, University of California
John Zavada, Army Research Office

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Co-Chairs: Kaizad Mistry, Digital Equipment Corp.
Atsushi Hori, Matsushita Electronics Corp.

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