1982 IEEE-SISC Technical Program

Technical Program Chairman:

Edward H. Nicollian
Bell Laboratories
600 Mountain Avenue
Murray Hill, New Jersey 07974

8:45 a.m. - Thursday, December 9, 1982

Session I  Hot Carrier Effects in SiO₂

Chairmen: F. T. Feigl, Lehigh University; and P. V. Gray, General Electric

1.1 The Role of Chlorine in Oxide Charge Generation by S. L. Titcomb, F. J. Feigl, and S. R. Butler, Lehigh University

1.2 Generation of Interface States in the Si-SiO₂ System by Electrons Photoinjected at High Electric Fields by D. Sola and S. Lyon, Princeton University.

1.3 High Speed Measurement of Tunnel Current Through Insulators and its Application to Non-Volatile Memory Devices by T. Kaga, T. Hagiwara, Y. Yatsuda, M. Horiuchi, and S. Asai, Hitachi, Japan

Session II: Ionizing Radiation Effects in SiO₂


2.1 Some Aspects of the Physical and Chemical Structure of Semiconductor Interfaces and Their Relation to the Electronic Behavior by J. Maserjian, Jet Propulsion Laboratory

2.2 Generation-Annealing Kinetics and Atomic Models of New Donor States on Thermally Oxidized Silicon by C. T. Sah, J. Y. C. Sun, and J. J. T. Tzou, University of Illinois

2.3 Interface-State Generation by Ionizing Radiation in Thick SiO₂ Layers by H. E. Boesch, Jr., Harry Diamond Laboratories

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Session II: Continued

2.4 MOS Oxide Charge and Interface States Relationship After Tunnel Injection and Ionizing Radiation by M. Knoll, D. Braunig, and W. R. Fahrner, Hahn-Meitner Institute, Germany

2.5 Interfacial Charge Build-up in MNOS Devices During Irradiation by R. C. Hughes, Sandia Laboratories
2.6 Gate-Width Dependence of Radiation Induced Interface Traps in MOS Devices by T. P. Ma and M. R. Chin, Yale University

Session III: Interface Characterization and Modeling (I)
Chairmen: A. K. Sinha, Bell Laboratories and E. A. Irene, University of North Carolina

3.1 Current Trends in Thermal Oxidation in VLSI by B. E. Deal, Fairchild
3.2 Silicon Oxidation Kinetics and Mechanical Stress Effects in the Thin Oxide Regime (<500Å) by H. Z. Massoud, C. P. Ho, J. D. Plummer, Stanford University; E. A. Irene, University of North Carolina; and E. Tierney, IBM.
3.3 Process Dependence of Si/SiO₂ Interface Charges by A. I. Akinwande, C. P. Ho, and J. D. Plummer, Stanford University

One Mans View of Electronics in China

by R. C. Barker, Yale University

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Session III: Continued

3.4 Studies of the Metal/Oxide/Silicon Interface by Inelastic Tunneling Spectroscopy by I. Bencuya and R. C. Barker, Yale University
3.5 An Electron Spin Resonance Study of the Effects of Radiation and High Field Stressing on MOS Devices by P. M. Lenahan and P. V. Dressendorfer, Sandia Laboratories
3.6 Accurate MOS Capacitor Measurement of Band Bending, Interface Trap Density, Doping Profile, and Oxide Charge Density by E. H. Nicollian and J. R. Brews, Bell Laboratories
3.7 Characterization of Si-SiO₂ Interface States with Admittance Measurements on a Surface Potential Controlled (SPC) MOS Capacitor by A. R. Agarwal, F. M. Rhodes, and M. H. White, Lehigh University

Session IV: Interface Characterization and Modeling (II)
Chairmen: A. M. Goodman, RCA and J. A. Cooper, Jr., Bell Laboratories
4.1 Recent Advances in the Understanding of Metal Semiconductor Interfaces by J. M. Poate, Bell Laboratories
4.2 Dependence of Schottky Barrier Height on Thin Film Microstructure of Platinum Nickel Silicide by R. C. Ellwanger, Signetics; A. E. Morgan, W. T. Stacey and Y. Tamminga, Phillips Laboratories
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Session IV: Continued

4.3 *Recombination at Free Surfaces of In$_{1-x}$Ga$_x$As$_y$P$_{1-y}$ Alloys Lattice Matched to InP* by B. F. Levine, C. G. Bethea, R. A. Logan, D. E. Aspnes, J. P. Harbison, and A. A. Studna, Bell Laboratories.

4.4 *Semi Empirical Formula for Si MOSFET Channel Mobility* by S. A. Schwarz and S. F. Dussek, Bell Laboratories

4.5 *Physical and Chemical Characterization of Thin (10nm) Thermally Nitrided SiO$_2$ Films* by T. W. Ekstedt, Y. E. Strausser, J. Amano, S. S. Wong, F. A. Ponce, and H. R. Grinolds, HP

Session V: Advanced Fabrication Technology and Device Structures
Chairmen: B. E. Deal, Fairchild and B. Hoefflinger, University of Minnesota

5.1 *Research and Development in Semiconductor Surface Devices in Europe* by M. Schulz, University of Erlangen, Germany

5.2 *The Role of Native Oxides on the Behavior of III-V Compounds* by D. Lecrosnier, CNET, France

8:45 a.m. - Saturday, December 11, 1982

Session V: Continued

5.3 *Recent Advances in Submicron Device Technology* by M. P. Lepselter, Bell Laboratories


5.5 *Threshold Stability in Small Channel-Length TaSi$_x$/n$^1$ Poly Gate MOSFETs* by L. Manchanda, Bell Laboratories

5.6 *Redistribution of Phosphorus Across the Interface in Polysilicon/Tantalum Silicide System at High Temperatures* by S. Luryi and N. Lifshitz, Bell Laboratories

5.7 *Quantizing Effects in Submicron Field Effect Transistors* by R. G. Wheeler, Yale University

5.8 *The Adjustable Threshold MTOS Optical Detector* by C. Teng and R. C. Barker, Yale University