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 SiO_2

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-SiO_2 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 SiO_2

Chairmen: P. S. Winokor, Harry Diamond Laboratories and P. Dressendorfer, Sandia Laboratories.

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 SiO_2 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/SiO_2 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-SiO_2 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 $In_{1-x}Ga_xAs_yP_{1-y}$ 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

5.4 *Effects of Low Energy Ion Processing on Silicon* by R. Singh, S. Fonash, S. Ashok, Pennsylvania State University, M. Hage-Ali, J. Ponpon, Center for Nuclear Research, France, A. Rohatgi, Westinghouse, and T. P. Chow, G.E.

5.5 *Threshold Stability in Small Channel-Length $TaSi_2/n^+$ 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