

## 1987 IEEE - SISC TECHNICAL PROGRAM

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Thursday Morning (8:30-12:00), December 3, 1987

Session I: Characterization of SiO<sub>x</sub> and Interfaces

Chairmen: G. Rubloff, IBM, G. Brown, TI, and C.R. Helms, Stanford

- I.1 (Invited) Characterization of SiO<sub>x</sub> on Si by STM: Identification of Individual Trapping Sites, R. Koch, IBM
- I.2 Process-Dependent Morphology of the SiO<sub>2</sub>/Si Interface Characterized by Scanning Tunnel Microscopy, L. Bell, W. Kaiser, M. Hecht, and F. Grunthaner, CalTech
- I.3 Effect of Substrate Orientation and Processing on the Distribution of Sub-oxide Species at SiO<sub>2</sub>/Si Interfaces, R. Vasquez, P. Grunthaner, F. Grunthaner, and M.H. Hecht, CalTech
- I.4 Electrical and Ellipsometric Characterization of the Removal of Surface Damage and Contamination Resulting from Plasma Processing, E.A. Irene, University of North Carolina
- I.5 A Structural and Electrical Comparison of the Interfacial Region of Thin SiO<sub>2</sub> Films on Silicon Grown by Plasma Anodization, Rapid Thermal Processing, and Furnace Oxidation, S. Nelson, H. Hallen, and R. Buhrman, Cornell University
- I.6 Deep Level Transient Spectroscopy (DLTS) on Single Isolated Interface Traps in MOSFETs, A. Karwath and M. Schulz, University of Erlangen

Thursday Afternoon (2:00-5:30), December 3, 1987

Session II: Radiation and Hot Carrier Effects (I)

Chairmen: J.T. Clemens, AT&T Bell Laboratories, and J. Benedetto, Harry Diamond Laboratories

- II.1 (Invited) Interface Damage in MOS Structures due to Radiation and Hot Carriers, J.T. Nelson, AT&T Bell Laboratories
- II.2 On the Equivalence between MOS Interface Traps Generated by Radiation Damage and Hot Electron Injection, Y. Nishioka, E. da Silva, and T-p. Ma, Yale University
- II.3 Time Dependence of Interface State Formation Following Pulsed Irradiation, N.S. Saks, C.M. Dozier, H.L. Hughes, D.B. Brown, and R. Stahlbush, NRL
- II.4 Radiation Response of MOS Capacitors with Oxides Grown in O<sub>2</sub> + TCA, Y. Wang, Y. Nishioka, T-p. Ma, and R.C. Barker, Yale University
- II.5 A Study of Radiation-Induced Interface States using DLTS Quasi-Static and MOS Transistor Measurements, C. Barnes, T. Zietlow, and M. Newton, The Aerospace Corporation

Thursday Evening (6:00-7:30), December 3, 1987

Session III: POSTER SESSION (posters on display Thursday afternoon through Friday)

Chairmen: W. Carlos, NRL, and E. Fossum, Columbia University

- P.1 Influence of Entropy Properties on Measured Trap Energy Distributions at MOS-Interfaces, O. Engstrom, Chalmers University of Technology
- P.2 Direct Observation of Energy-Resolved Interface States in Si/SiO<sub>x</sub>, C.H. Yang, Texas Instruments, and J.M. Sung, Princeton University
- P.3 An Approach to a Unified Model of Qot, Dit Build-up due to Stress and Annealing in the MOS-System, F. Wulf and D. Braunig, Hahn-Meitner-Institut
- P.4 A New Model for the Thermal Oxidation Kinetics of Silicon, E.H. Nicollian, University of North Carolina and MCNC, and A. Reisman, North Carolina State University and MCNC
- P.5 On the Effect of the SiO<sub>2</sub>-Si Interface Microroughness in Ballistic Electron Transport, A. Aymerich, J. Sune, F. Campabadal, and I. Placencia, Universidad Autonoma de Barcelona
- P.6 Characterization of Silicon on Insulator Structures with Transmission Electron Microscopy and Modeling, I. Ohdomari, T. Ueno, and K. Kishimoto, Waseda University and Y. Kumii, NTT Elec. Comm. Lab.
- P.7 A High-Resolution X-TEM Study of Thin Oxides Formed in Si Trenches by Rapid Thermal Annealing, H. Iwasaki, O. Shippou, and K.B. Kim, Matsushita Elec. Indus. Co., and R. Sinclair, Stanford University

Session III: POSTER SESSION (cont'd.)

- P.8 Effects of NF<sub>3</sub> During Si Oxidation on the Radiation Response of MOS Capacitors, E. da Silva, Y. Nishioka, and T-p. Ma, Yale University
- P.9 On the Correlation between Gate Oxide Rad. Hardness and Hot Carrier Degradation Susceptibility, Y. Nissan-Cohan, H. Woodbury, and C. Wei, General Electric Co.
- P.10 Evolution of Trapped Holes in the Vicinity of Si-SiO<sub>2</sub>, S.J. Wang and S.A. Lyons, Princeton University
- P.11 Surface and Interface Electronic Structure of CdTe and HgTe, J.T. Schick, S.M. Bose, Drexel University, and A-B Chen, Auburn University
- P.12 Complete Network Analysis of Thin/Thick Oxide Structures as Obtained by Admittance Measurements, W.H. Fahrner, S. Braunig, and S. Ruhl, Hahn-Meitner-Institut

Friday Morning (8:30-12:00), December 4, 1987

Session IV: Interface Modeling and Measurements

Chairmen: A. Edwards, U.S. Army ET&D Labs, and P.M. Lenahan, Penn. State Univ.

- IV.1 (Invited) Electronic Structure of Pb Center at SiO<sub>2</sub>/Si Interface, M. Cook, NRL
- IV.2 Study of the Reactions of a New Positively Charged Defect in Device Oxides Damaged by Soft X-rays, B.B. Triplett, T. Takahashi, K. Yokogawa, and T. Sugano, University of Tokyo
- IV.3 Admittance of Amphoteric Interface States at the Si-SiO<sub>2</sub> Interface, U. Sharma and M. White, Lehigh University
- IV.4 The Development and Application of a Si-SiO<sub>2</sub> Interface-State Measurement System based on a Staircase Charge-Pumping Technique, J. Chung and R.S. Muller, UCB
- IV.5 Stable Photoinduced Paramagnetic Defects in Silicon Nitride, D. Krick and P. Lenahan, Penn. State University, and J. Kanicki, IBM Corp.

Friday Afternoon (4:00-7:00), December 4, 1987

Session V: Radiation and Hot Carrier Effects (II)

Chairmen: Z. Weinberg, IBM, and Y. Nishioka, Hitachi, Japan

- V.1 (Invited) Hot Carrier Transport and Degradation Effects in Small MOSFETs, J.F. Koch, Tech. Univ. Munich
- V.2 Radiation-Induced Enhancement of Minority Carrier Lifetime in MOS Capacitors Containing TCA Oxides, X.W. Wang, Y. Wang, Y. Nishioka, E. da Silva, and T-p. Ma, Yale University

Session V: Radiation and Hot Carrier Effects (II) (cont'd.)

- V.3 The Spectral Distribution of Radiation Induced Interface States in MOSFETs - Orientation Dependence, R.E. Stahlbush and N.S. Saks, NRL
- V.4 Comparison of Interface State Generation by Photoinjection in MOS Capacitors on (100) - versus (111) - Oriented Silicon, J.M. Sung and S.A. Lyon, Princeton University, and N.M. Johnson, Xerox Palo Alto Research Center

Saturday Morning (8:30-12:00), December 5, 1987

Session VI: Advanced Structures, Materials and Processes

Chairmen: R. Razouk, Signetic Corp., and L. Manchanda, AT&T Bell Laboratories

- VI.1 (Invited) Studies of Interface Traps by Tunneling in Very Thin Oxides, R.A. Buhrman, Cornell University
- VI.2 Oxidation of Silicon by a Low Energy Ion Beam: A Quantitative Model, S. Todorov, Inst. of Electronics, Sofia, Bulgaria, and E.R. Fossum, Columbia University
- VI.3 Yttrium Oxide/Silicon Dioxide: A New Dielectric Structure for VLSI/ULSI, L. Manchanda and M. Gurvitch, AT&T Bell Laboratories
- VI.4 Charge-Trapping Properties of Ultrathin Rapidly Nitrided Oxides and Re-Oxidized Nitrided-Oxides, T. Hori, H. Iwasaki, and K. Tsuji, Matsushita Elec. Ind. Co.
- VI.5 Effects of Processing Conditions on the Current Enhancement Properties of Si-rich Silicon Nitride Based Injectors, C. Kaya, T-p. Ma, and R.C. Barker, Yale University