

2005 IEEE International Integrated Reliability Workshop

PROGRAM SCHEDULE

MONDAY, October 17 Please have lunch before arriving at the camp; no lunch will be served at the camp.

- 1:00 – 6:00 p.m. Registration (*Lodge Lounge*): Pick up badges & handout; sign up for discussion groups and SIG's; prepare posters
 1:00 – 8:00 p.m. Lodge check-in. Get room assignment (prearranged) & room key, with lodge area map and information.
 (If physically challenged please notify desk of special needs.)
 1:30 – 3:30 p.m. **Tutorials** (parallel sessions A & B, see abstracts)

	Angora Rm.	Cathedral Rm.
1:30–2:30	A1: Dielectrics	
2:30–3:30	B1: MEMS	B2: Statistics

3:30 – 4:00 p.m. Break (poster preparation)

- 4:00 – 6:00 p.m. **Tutorials** (parallel sessions C & D, see abstracts)

	Angora Rm.	Cathedral Rm.
4:00–5:00	C1: Flash Memory	D1: Radiation
5:00–6:00	C2: NBTI	D2: Product

- 6:15 – 7:30 p.m. DINNER, (*Dining Room*) authors: dine with your session chair
 7:30 – 7:40 p.m. Announcements, DGs, SIGs (*Cathedral Room*)
 7:40 – 10:00 p.m. Poster Session & Mixer (*Cathedral Room*)

TUESDAY, October 18

7:00 – 8:00 a.m. BREAKFAST (*Dining Room*)

8:15 – 8:30 a.m. Welcome & Introduction: Rolf Vollertsen, General Chair

Technical Program Overview: John Conley, Tech. Prog. Chair (*Angora Room*)

8:30 – 9:30 a.m. Keynote: Status and Future Trends in Technology Reliability: Balancing Technical Challenges and Affordability—
 Dr. Erwin Hammerl, Director of Reliability Methodology, Infineon Technologies

9:30 – 9:50 a.m. Break

9:50 – 11:30 a.m. **SESSION #1: NBTI**, Chairs: John Conley, Sharp Labs and Guillaume Ribes, STMicroelectronics / IMEP/ENSERG

- 1.1 Observations of NBTI-induced atomic scale defects—J.P. Campbell, P.M. Lenahan, Penn State Univ, A.T. Krishnan, S. Krishnan, Texas Instr.
 1.2 Single-hole detrapping events in pMOSFETs NBTI degradation—V. Huard, Philips Semiconductors, M. Denais, C.R. Parthasarathy, STMicroelectronics
 1.3 Combined effect of NBTI and channel hot carrier effects in pMOSFETs—C. Guerin¹, V. Huard², M. Denais¹, F. Perrier²,
¹STMicroelectronics, ²Philips Semiconductors
 1.4 NBTI in SOI PMOSFETs with nitrogen in the gate oxide—S.T. Liu¹, D.E. Ioannou², D.P. Ioannou², M. Flanery¹, H.L. Hughes³
¹Honeywell Defense & Space Elect. Syst., ²George Mason Univ., ³Naval Research Laboratory

11:30 – 12:00 p.m. Group Picture

12:00 – 1:00 p.m. LUNCH, *Dining Room*

1:00 – 4:40 p.m. **TUTORIALS (cont.) and SESSION #2: Cu / LOW-k I**, Chairs: Harry Schafft, NIST and Peter O'Shea, PMC Sierra

- TA2 & 6.1 Intrinsic Limitations on the Performance & Reliability of High-k Gate Dielectrics for Advanced Electronic Devices—Gerry Lucovsky, NC State
(Incorporated in the above tutorial) 6.1: Asymmetries in the electrical activity of intrinsic grain-boundary and O-atom vacancy defects in
 HfO₂/ZrO₂, and at their interfaces with SiO₂: a disabling flaw for CMOS gate dielectric applications—G. Lucovsky, C. Fluton, C. Hinkle,
 S. Lee, North Carolina State Univ., J. Lüning, Stanford Synchrotron Research Center

T.E TUTORIAL E: Back-end reliability—Glenn Alers, Novellus

3:25 – 3:50 p.m. Break

2.1 Via depletion electromigration in copper interconnects—C. Christiansen, B. Li, J. Gill, R. Filippi, M. Angyal, IBM

2.2 Blech effect in dual damascene copper-low k interconnects—D. Ney^{1,3}, X. Federspiel², V. Girault¹, O. Thomas³, P. Gergaud³,
¹STMicroelectronics, ²Philips Semiconductors, ³TECSEN

4:40 – 5:55 p.m. **SESSION #3: Cu / LOW-k II**, Chairs: Glenn Alers, Novellus and Tim Sullivan, IBM

3.1 (withdrawn)

3.2 An integrated solution with a novel bi-layer etch stop to eliminate 90 nm Cu/low k package fail—P. Sun, E. Bei, Y.W. Chen, T. Hu, F. Ji,
 C.C. Liao, V. Ruan, A. Tsai, D.L. Wang, S. Wu, G. Zhang, A. Fan, I.C. Chen, SMIC

3.3 Impact of moisture on porous low-k reliability—J. Michelon, R.J.O.M. Hoofman, Philips Research Leuven

3.4 Effect of moisture on the Time Dependent Dielectric Breakdown (TDDDB) behavior of and ultra-low-k (ULK) dielectric—J.R. Lloyd, T.M.
 Shaw, E. Liniger, IBM Thomas J. Watson Research Center

6:00 – 7:30 p.m. DINNER, *Dining Room*

7:30 – 9:00 p.m. Discussion Groups, Chair: Yvonne Nelson, Qualcomm

90 min parallel sessions, attendees are to participate in one of the groups:

1. NBTI
 2. Interconnect
 3. Gate Oxide / High-k
 4. Product/Circuit

9:00 – 10:30 p.m. Individual SIG Meetings (to be announced at camp)

