ACRC
Architectures Circuits Research Center

הפקולטה להנדסת
חשמל ומחשבים
ע"ש אנדרו וארנה ויטרבי

Reliability of Semiconductor Devices // Day 2

Dr. Eitan Shauly

9:00-9:50 Hot-Carrier-Injection: mechanism and modeling; DAHC (Drain Avalanche Hot carrier), CHE (Channel hot Electron), SHE (Substrate Hot Electron), others; Lucky Electron Model,

10:00-10:50 HCI: HCI degradation under worse case conditions in planar MOSFETs and FinFETs, qualification – measurement, analysis and modeling, Process solutions to reduce HCI: DDD, spacer with LDD implant, HALO/Pockets; Aging

11:00-12:00 Negative-Bias-Temperature-Instability: Degradation Mechanism and modeling; Interface traps; The Reactive-Diffusion (R-D) degradation model, PBTI

12:00-13:00 Lunch break

13:00-13:50 NBTI: Stress time and degradation saturation; NBTI recovery; Dynamic NBTI; Qualification and modeling; Process dependency; Boron Penetration, ; Oxynitridization, DPN; Fluorine passivation

14:00-15:15 Gate Oxide Integrity: GOX scaling, interfaces, Leakage; Tunneling, TAT, Qbd, Vbd,; Layout sensitivity

15:30-17:00 GOI: Weibull distribution; Charge inside GOX, C-V; TDDB – physical mechanisms, IBM modeling

17:10-18:00 GOI / Tirgul