



DS Digital CMOS Technologies/Memory Technologies/Modeling & Simulation/Compact Modeling Reviews

Date: Monday, April 8, 2013, 8 a.m. — Thursday, April 11, 5 p.m. PT

Location: University of California at Santa Barbara, Loma Pelona Conference Center, Room 1108, Santa Barbara, CA, United States

Event ID: E004960

These reviews are being held to provide an annual contract review and provide guidance to the Non-Classical CMOS Center, Digital CMOS Technologies, Memory Technologies, Modeling & Simulation, and Compact Modeling projects by SRC Member Companies.

Monday, April 8, 2013 - Modeling & Simulation

7:00 - 8:00 AM	Continental Breakfast & Registration	
8:00 - 8:15 AM	Welcome & Introductory Remarks	Kwok Ng (SRC)
8:15 - 8:45 AM	Task ID: 2273.001 - Assessment of Silicon-Free Transport in Realistic Nanoscale Devices with NEMO5	Tillmann C. Kubis (Purdue)
8:45 - 9:15 AM	Task ID: 2289.001 - Modeling of III-V Issues	Massimo V. Fischetti (UT/Dallas)
9:15 - 9:45 AM	Task ID: 2302.001 - Semiclassical Ensemble Monte Carlo Simulation of III-V FinFETs	Leonard F. Register & Sanjay Banerjee (UT/Austin)
9:45 - 10:00 AM	Break	
10:00 - 10:30 AM	Task ID: 2272.001 - Multiscale Modeling of Dopant Activation/Deactivation and Diffusional Control	Paulette Clancy & Michael Thompson (Cornell)
10:30 - 11:00 AM	Task ID: 2300.001 - Implantation and Flash Annealing Studies of Si(+) in InGaAs	Kevin S. Jones (Univ. of Florida)
11:00 - 11:30 AM	Task 2277.001 - Probing Effect of Defects on Ferroelectricity in Ferroelectric Thin Films	Jeong Ho You & Jinghong Chen (SMU)
11:30 - 11:45 AM	Poster Session Preview	
11:45 AM - 12:45 PM	Lunch and Poster Session	

12:45 - 1:15 PM	Task 2274.001 - Modeling of Tunneling Contacts for Achieving Low Contact Resistance and Efficient Spin Injection	Krishna C. Saraswat (Stanford)
1:15 - 1:45 PM	Task 2299.001 - Reversible Diffusionless Phase Transitions in Complex Functional Oxides	Alex Demkov (UT/Austin)
1:45 - 2:15 PM	Break / Closed Intra-Company Caucus	
2:15 - 4:30 PM	Closed TAB Session	
4:30 - 5:30 PM	PI Feedback Session / Poster Session	

Tuesday, April 9, 2013 - Non-Classical CMOS Center & Digital CMOS Technologies

7:00 - 8:00 AM	Continental Breakfast & Registration	
8:00 - 8:15 AM	Welcome & Introductory Remarks	Kwok Ng (SRC)
8:15 - 8:30 AM	Non-Classical CMOS Center Overview	Mark Rodwell (UCSB)
8:30 - 9:00 AM	Task ID: 1437.008 - Gate Dielectrics and Dielectric/III-V Interface Engineering	Paul McIntyre (Stanford)
9:00 - 9:30 AM	Task ID: 1437.008 - Gate Dielectrics and Dielectric/III-V Interface Engineering	Susanne Stemmer (UCSB)
9:30 - 10:00 AM	Task ID: 1437.008 - Gate Dielectrics and Dielectric/III-V Interface Engineering	Andrew Kummel (UCSD)
10:00 - 10:15 AM	Break	
10:15 - 10:45 AM	Task ID: 1437.009 - III-V MOS Device Fabrication	Art Gossard and *Jeremy Law (UCSB)
10:45 - 11:15 AM	Task ID: 1437.009 - III-V MOS Device Fabrication	Mark Rodwell (UCSB)
11:15 - 11:45 AM	Task ID: 2327.001 - Extraction of CV Parameters for III-V/High-k Devices	Christopher Hinkle & Eric Vogel (UT/Dallas)
11:45 - 11:50 AM	Poster Session Preview	
11:50 AM - 12:50 PM	Lunch and Poster Session	
12:50 - 1:20 PM	Task ID: 2181.001 - Passivation and ALD Monolayer Nucleation on Ge (100) and SiGe (100)	Andrew Kummel (UC/San Diego)
1:20 - 1:50 PM	Task ID: 2259.001 - In-In-situ Technique to Evaluate Extreme Passivation of EOT Scaling with High Mobility on III-V and Ge	Andrew Kummel & Evgueni Chagarov (UC/San Diego)
1:50 - 2:20 PM	Task ID: 2091.001 - Triple-Gate MOSFETs with High-k/Metal Gate on High-mobility Channels on Bulk Si Substrates	Christopher Hinkle & Eric Vogel(UT/Dallas)
2:20 - -2:50 PM	Break / Closed Intra-Company Caucus	
2:50 - 5:20 PM	Closed TAB Session	

5:20 - 6:20 PM	PI Feedback Session / Poster Session	
6:30 - 8:30 PM	Dinner	
Wednesday, April 10, 2013 - Digital CMOS Technologies and Compact Modeling		
7:00 - 8:00 AM	Continental Breakfast & Registration	
8:00 - 8:15 AM	Welcome & Introductory Remarks	Kwok Ng (SRC)
8:15 - 8:45 AM	Task ID: 2141.001 - Advanced Quantum Device Simulation using NEMO5	Gerhard Klimeck & Mykhailo Povolotskyi (Purdue)
8:45 - 9:00 AM	Task ID: 2333.001 - Low Power Semiconductor Devices Based on Nano Schottky Junctions	Moh'd Rezeq (Khalifa University) <i>via WebEx</i>
9:00 - 9:15 AM	Task ID: 2334.001 - Fabrication, Characterization and Modeling p-channel III-V MOSFET Competitive with Ge P-channel MOSFET	Irfan A. Saadat (Masdar Inst.) <i>via WebEx</i>
9:15 - 9:45 AM	Task ID: 2195.001 - Compound Semiconductors on Germanium Fins and/or Self-Aligned Contact Metallization Technology	Yee-Chia Yeo (NUS)
9:45 - 10:00 AM	Break	
10:00 - 10:30 AM	Task ID: 2188.001 - Growth and Assessment of Ultra Thin AlN or GaInN Interlayers on High In% MOSCAPs/MOSFETs to Provide a Low Dit and a Chemically Inert Surface Prior to Al ₂ O ₃ Dielectric Deposition by ALD	Iain Thayne (Univ. of Glasgow)
10:30 - 11:00 AM	Task ID: 2140.001 - Multi-Gate III-V QWFET	Suman Datta (Penn State)
11:00 - 11:15 AM	Task ID: 2288.001 - InAs / GaSbInAs/GaSb Based Nanoscale 3D III-V CMOS	Peide Ye (Purdue)
11:15 - 11:45 AM	Task ID: 2325.001 - Short Channel High-Ge-Content Extremely Thin Body Strained SiGe and Ge-on-Insulator	Judy L. Hoyt (MIT) <i>via WebEx</i>
11:45 - 11:45 AM	Poster Session Preview	
11:45 AM - 12:45 PM	Lunch and Poster Session	
12:45 - 1:00 PM	Task ID: 2336.001 - Macro Models for Micro Batteries	Ibrahim Elfadel (Masdar Inst.)
1:00 - 1:30 PM	Task ID: 2055.001 - Unified Multi-gate CMOS Compact Model	Chenming Hu & Ali Niknejad (UC/Berkeley)
1:30 - 2:00 PM	Research ID: 2217 - RF and Analog Compact Model Research	Chenming Hu & Ali Niknejad

(UC/Berkeley)

2:00 - 2:30 PM	Task ID: 2056.001 - Non-quasi-static Compact Models of ESD Protection Devices	Elyse Rosenbaum (UIUC)
2:30 - 3:00 PM	Break / Closed Intra-Company Caucus	
3:00 - 5:30 PM	Closed TAB Session	
5:30 - 6:30 PM	PI Feedback Session / Poster Session	
Thursday, April 11, 2013 - Memory Technologies		
7:00 - 8:00 AM	Continental Breakfast & Registration	
8:00 - 8:15 AM	Welcome & Introductory Remarks	Kwok Ng (SRC)
8:15 - 8:45 AM	Task ID: 2303.001 - Oxide-based Resistive Memory Variability	Hyunsang Hwang (POSTECH)
8:45 - 9:15 AM	Task ID: 2224.001 - Modeling of Switching Mechanisms in RRAMs	Zhiping Yu (Tsinghua University)
9:15 - 9:45 AM	Task ID: 2247.001 - Nanoscale Thermometry of Oxide RRAM	James Bain (CMU)
9:45 - 10:00 AM	Break	
10:00 - 10:15 AM	Task ID: 2335.001 - Energy Loss Minimization for Magnetic Tunnel Junctions in STT-MRAM Memory Switches via Split Fields and Nanotextured Interfaces	Abdel F. Isakovic (Khalifa University) <i>via WebEx</i>
10:15 - 10:45 AM	Task ID: 2248.001 - Low-Power Reliable STT-MRAMS: MTJ Stacks, Bit-Cells & Architecture	Kaushik Roy (Purdue)
10:45 - 11:15 AM	Task ID: 2250.001 - Material Development and Fabrication Techniques for Mult-bit STT-MRAMs	Jian-Ping Wang (Univ. of Minnesota)
11:15 - 11:30 AM	Poster Session Preview	
11:30 AM - 12:30 PM	Lunch / Poster Session	
12:30 - 1:00 PM	Task ID: 2092.001 - Investigation of Stress Effects on Thin-Film PZT Ferroelectric Capacitors for FRAM Enhancement	Toshikazu Nishida (Univ. of Florida)
1:00 - 1:30 PM	Task ID: 2249.001 - Physical Mechanism and Scalability of Resistive Memory	S. Simon Wong (Stanford)
1:30 - 2:00 PM	Break / Closed Intra-Company Caucus	
2:00 - 4:00 PM	Closed TAB Session	
4:00 - 5:00 PM	PI Feedback Session / Poster Session	

