

Workshop on Nanoelectronics for High Performance Computing and Information Processing

Place: CNSI Building 114 (Auditorium), UCLA, Los Angeles
Date: 19th and 20th November, 2007

Day 1: 19th November, 2007

8:00 - 8:30 a.m.	LIGHT BREAKFAST + REGISTRATION
	Opening Remarks – John Carruthers (ONAMI) Opening Remarks – Kang L Wang (FENA)
Focus Topic 1: Applications and Nanoarchitectures Chair: (Rick Kiehl)	
8.30 – 9.00	Nanoscale Architectures and Information Processing Paradigms - Rick Kiehl (Univ. of Minnesota, FENA)
9:00 – 9:30	Logic Devices with Spin Wave Buses - a New Approach to Scalable Magneto-Electric Circuitry – Alex Khitun (UCLA, FENA/WIN)
9:30 – 10.00	Neuromorphic Computing - Dan Hammerstrom (PSU, ONAMI)
10:00 – 10:30	BREAK
10:30 – 11:00	Chair led discussion and panel
Focus Topic 2: Assembly and Performance of Emerging Devices (Chair: Kang L Wang)	
11:00 – 11:30	Electron Transport in Graphene Nanostructures - Philip Kim (FENA)
11:30 – 12:00	Large Scale Assembly of Nanowire Parallel Arrays for High Performance Electronics - Ali Javey (Berkeley, FCRP MSD)
12:00 – 1:00 p.m.	LUNCH
1:00 – 1:30	Will silicon nanowires save the day? - Raj Solanki (Portland State Univ.)
1:30 – 2:00	Chair led discussion and panel
Focus Topic 3: Alternative State Variables and Emerging Research Materials (Chair: George Bourianoff)	
2:00 – 2:30	Understanding Magnetism in Multiferroics - Mikel Barry (UCB)
2:30 – 3.00	Plasmonic Metamaterials: from Far-Field Superimaging to Optical Cloaking - Podolskiy (Oregon State Univ.) and Deutsch (Univ. Oregon)
3:00 – 4:00	CNSI Tours (please meet by the registration table for the tour) Tour 1 @ 3 pm Tour 2 @ 3:30 pm
4:00 – 4:15	BREAK
4:15 – 4:55	Mechanically Interlocked Compounds for Molecular Electronics – William Dichtel (UCLA/FENA)
4:55 – 5:15	Excitronics: Excitonic Circuits - Ji-Ung Lee (Albany / NRI INDEX)
5:15 – 5:45	Chair led discussion and panel
6:00 p.m.	DINNER

Day 2: 20th November, 2007

8:30 – 9:00 a.m.	LIGHT BREAKFAST + REGISTRATION
	Opening Remarks – John Carruthers (ONAMI) Opening Remarks – Kang L Wang (FENA)
Focus Topic 4: Enabling Technologies – Nanometrology, Modeling, Design, Manufacturing (Chair: John Carruthers)	
9:00 – 9:30	Using Field Enhancement for the Advancement of Nanometrology Capabilities - Erik Sanchez (PSU, ONAMI)
9.30 – 10.00	Emerging Nanoscale Metrology Challenges for Beyond CMOS - Alain Diebold (CNSE, U Albany)
10:00 – 10:30	BREAK
10:30 – 11:00	Design for Nanotechnologies - Jason Cong (UCLA)
11:30 – 12:00	Chair led discussion and panel
12:00 – 1:00 p.m.	Light LUNCH

Workshop Objective:

This workshop aims to explore various areas in nanoelectronics for high performance information processing that address the power dissipation and variability challenges in nanoelectronics beyond the roadmap. In doing so, we will host speakers discussing alternate state variable switches, new switching phenomena, new materials such as carbon electronics and dilute magnetic semiconductors, alternate nanoarchitectures and paradigms, assembly, metrology and integration aspects. Both FENA and ONAMI have active research in these areas and are hosting this workshop to encourage discussion amongst both of these entities including having an open communication forum with the semiconductor industry, various research centers and the academic community at large.

This workshop will be hosted at the new CNSI building at UCLA, Los Angeles on the 19th and 20th of November, 2007

Attendance is expected to be about 40-50 participants. A report summarizing the findings of the workshop will be produced and possible synergistic efforts between FENA with ONAMI will be identified in strengthening networking and relationships.