QUANTUM WORKSHOP

August 18, 2008

Albuquerque, New Mexico

Day One

7:00	**Continental Breakfast**
8:00	**Welcome**
8:10	**Opening Remarks** *Marion Scott, SNL, Director, Information Systems Analysis*
8:25	**Donor Based Quantum Computing in Silicon** *Lloyd Hollenberg, University of Melbourne, Professor*
9:00	**Addressing the Charge and Spin of a Single Dopant Atom in a Nano MOSFET** *Sven Rogge, TU Delft, Professor*
9:30	**Progress Towards Quantum Logic using Donor Electron Spin Qubits in Silicon** *Jeffery Bokor, LBL*
10:00	**Refreshments, Posters & Discussion**
10:30	**MOS Architecture for Coherent Control and Read-Out of Single Dopant Electron Spin Qqubits in Si** *Dr. Andrea Morello, University of New South Wales, CQCT*
11:00	**Single P Dopant State Spectroscopy using Silicon SETs** *Dr. Hans Huebl, University of New South Wales*
11:30	**External Field Control of Donor Electrons at the Si-SiO2 Interface** *Belita Koiller, University of Rio de Janerio, Physics Institute, Professor*
12:00	**Lunch and Break Out Meeting**
1:30	**STM-Patterned P-Donor Based Planar Quantum Dot Structures in Silicon** *Martin Fuchsle, University of New South Wales, PhD student*
2:00	**Single Ion Implantation using Focused Ion Beam and Geiger Mode Detection** *Ed Bielejec, SNL, Member of Technical Staff, Radiation – Solid Interactions*
2:30	**Applications of Electrically Detected Magnetic Resonance: Towards Spin Based Quantum Electronics in Silicon.** *Dr. Dane McCamey, University of Utah*
3:00	**Refreshments, Posters & Discussion**
3:30	**Si QC Work** *Sankar Das Sarma, University of Maryland, Professor*
4:00	**Pulsed Electron Spin Resonance Measurements of Spin Coherence in Si Structures** *Shayam Sankar, Princeton University*
4:30	**Spin-Dependent Scattering in a Silicon Transistor** *Rogerio de Sousa, University of Victoria, BC, Assistant Professor*
5:00	**Poster Session - Room open for discussion and poster viewing**

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Day Two

7:00	**Continental Breakfast & Announcements**
8:00	**Error Correction for Solid-State QC** *Dr. Austin Fowler, University of Waterloo, Ontario, Institute for Quantum Computing*
8:30	**Protecting Quantum Information with Optimal Control** *Dr. Mathew Grace, SNL, Postdoctoral Appointee Thermal / Fluid Science and Engineering*
9:00	**Message Passing in Fault Tolerant Quantum Error Correction** *Dr. Ashley Stephens, University of Melbourne*
9:30	**Refreshments, Posters & Discussion**
10:00	**Universal Electrical Wire Communication within QI-Processors** *Eli Yablonovitch, University of California –Berkeley, Professor*
10:30	**Electrons on He** *Steve Lyon, Princeton University, Professor*
11:00	**Cryogenic CMOS (?)** *Martin Peckerar, University of Maryland, Professor*
11:30	**Si Foundry for Single Electron Devices and Circuit Assisted Read-Out** *Malcolm Carroll, SNL, Member of Technical Staff, Photonic Microsystems Technology, or* *Mike Lilly, SNL, Member of Technical Staff, CINT Science*
12:00	**Lunch**
1:00	**TBA** *Christie Simmons,* University of Wisconsin, Student
1:30	**Accumulation-Mode Quantum-Dot Devices** *Andrew Hunter, HRL*
2:00	**Ge/Si Nanowire-Based DQD w/ Charge Sensor** *Yongjie Hu, Harvard University,*
2:30	**Refreshments, Posters and Discussion**
3:00	**Electron-Phonon Interaction Induced Dephasing of Exchange Coupled Spin Qubits in Si Nanostructures** *Xuedong Hu, SUNY Buffalo, Proffessor*
3:30	**SOI Structures for Quantum Computing** *Dr. David Williams, Cambridge*
4:00	**Two Dimensional Electron Systems with Mobility Exceeding 105 cm2/Vsec On Hydrogen-Terminated Silicon Surfaces** *Bruce Kane, University of Maryland, Professor*
4:30	**Valley Splitting in Quantum Dots** *Dr. Mark Friesen, University of Wisconsin*
5:00	***Modeling Physical Qubits Using Tight-binding and Effective Mass Theories*** *Rick Muller, SNL, Member of Technical Staff, Multiscale Dynamics Materials Modeling*