NANO2002 Workshop II: Joint IPAM/MSRI Workshop on Quantum Computing

Monday October 21, 2002

8:30–9:30 *Check-In/Light Breakfast (Hosted by IPAM)*

9:30–10:30 **Manny Knill** (Los Alamos National Laboratory)
On the Power of Models of Quantum Computation

10:30–11:00 *Break*

11:00–12:00 **Jonathan Dowling** (Jet Propulsion Laboratory)
Linear Optics and Projective Measurements for Fun and Profit

12:00–2:00 *Lunch (on your own)*

2:00–3:00 **Hans Briegel** (Ludwig-Maximilians-University of Munich)
Measurement-based quantum computation

3:00–3:30 *Break*

3:30–4:30 **Ivan Deutsch** (University of New Mexico)
Quantum Control with Ultracold Atoms

4:30–5:30 **Eli Yablonovitch** (UCLA)
The Prospects for Storing and Manipulating Quantum Information Stored on Electron Spins in Semiconductors

5:30–7:00 *Wine/Cheese Reception (Hosted by IPAM)*

Tuesday October 22, 2002

8:30–9:00 *Continental Breakfast*

9:00–10:00 **John Goodkind** (University of California at San Diego)
Qubits Using Single Electrons Over a Dielectric

10:00–10:30 *Break*

(Tuesday schedule continued on next page)

(Tuesday schedule continued from previous page)

10:30–11:30 **Atac Imamoglu** (UCSB)
Quantum dot single photon source: prospects for applications in quantum information processing

11:30–12:30 **Timothy Havel** (Massachusetts Institute of Technology)
Quantum Dynamical Semigroup Tomography

12:30–2:00 *Lunch (on your own)*

2:00–3:00 **Carl Williams** (NIST)
Scalable Quantum Architectures using Efficient Nonlocal Interactions

3:00–3:30 *Break*

3:30–4:30 **Poul Jessen** (University of Arizona)
Qubits and quantum gates in optical lattices

4:30–5:30 **Luming Duan** (California Institute of Technology)
Engineering many-body Hamiltonians with ultracold atoms in optical lattices

Wednesday October 23, 2002

8:30–9:30 *Continental Breakfast*

9:30–10:30 **Daniel Gottesman** (Perimeter Institute)
Beyond the DiVincenzo Criteria: Requirements and Desiderata for Fault-Tolerance

10:30–11:00 *Break*

11:00–12:00 **Vwani Roychowdhury** (UCLA)

12:00–2:00 *Lunch (hosted by IPAM)*

2:00–3:00 **Vadim Smelyanskiy** (NASA Ames Research Center)
Dynamics of quantum adiabatic computation in random NP-complete problems

3:00–3:30 *Break*

3:30–4:30 **Birgitta Whaley** (University of California at Berkeley)
Encoded Universality - Adapting Quantum Processing to Physical Interactions

4:30–5:30 **Alexei Kitaev** (California Institute of Technology)

5:30–12:00 *Conclusion*