

**Coherent Electronics
Quantum Information Processing
Quantum Optoelectronics**

AGENDA

MONDAY, OCTOBER 25

8:00 Registration and Continental Breakfast (Maxwell Dworkin Lobby)

Welcome (Maxwell Dworkin, Room G15)

8:50 Robert M. Westervelt (Harvard University)
Nanoscale Science and Engineering Center

9:00 Venky Narayanamurti (Harvard University)
Nanoscale Science and Engineering at Harvard

9:15 Hiroyuki Sakaki (Institute of Industrial Science, University of Tokyo)
*Recent Advances in Quantum Dots, Quantum Wires and Related Nanostructures:
Summary of Collaborative Research Project on Quantum Dots at the University
of Tokyo*

Quantum Information Processing (morning)

9:30 Yoshiro Hirayama (NTT Basic Research Laboratories)
Manipulation of Nuclear Spins in GaAs Based Hetero- and Nanostructures

10:00 Coffee Break (Maxwell Dworkin Lobby)

10:30 Seigo Tarucha (University of Tokyo)
Manipulation of Spin Effects in Coupled Quantum Dots

11:00 Leo Kouwenhoven (Delft University of Technology)
Single Spins in 1-D Nanowires and Tubes

11:30 Daniel Loss (University of Basel)
Decoherence and Relaxation of Spin Qubits in Quantum Dots

12:00 Lunch and Poster Session A (Maxwell Dworkin Lobby)

Quantum Information Processing (afternoon)

2:00 Charles M. Marcus (Harvard University)
Spin and Charge Manipulation in Few Electron Quantum Dots

2:30 Bertrand I. Halperin (Harvard University)
Spin, Spin-Orbit Coupling, and Transport in 2-D Electron Systems

3:00 Coffee Break (Maxwell Dworkin Lobby)

3:30 Toshiaki Hayashi (NTT Basic Research Laboratories)
Coherent Charge Manipulation in a Semiconductor Double Quantum Dot

4:00 Leonid Glazman (University of Minnesota)
Local Probes of Spin-Charge Separation

TUESDAY, OCTOBER 26

8:30 Registration and Continental Breakfast (Maxwell Dworkin Lobby)

Quantum Optoelectronics

9:00 Mikhail Lukin (Harvard University)
Coherent Optoelectronics for Quantum Communication and Quantum Networks

9:30 Venky Narayanamurti (Harvard University)
Ballistic Electro-Photonics

10:00 Coffee Break (Maxwell Dworkin Lobby)

10:30 Gerhard Abstreiter (University of München)
Optical Control of Single Charge and Spin in Self-Assembled Semiconductor Quantum Dots

11:00 Yasuhiko Arakawa (University of Tokyo)
Progress and Prospects of Quantum Dots for Nanophotonic Device Applications

11:30 Martino Poggio (University of California, Santa Barbara)
Optoelectronic Manipulation of Spins in Quantum Wells: Harnessing Local Magnetic Interactions

12:00 Lunch and Poster Session B (Maxwell Dworkin Lobby)

2:00 Robert Schoelkopf (Yale University)
Circuit Quantum Electrodynamics: Doing Quantum Optics with Superconductors

Nanoparticles

2:30 Mounqi Bawendi (Massachusetts Institute of Technology)
Excitons and Multiexcitons in Semiconductor Nanocrystal Quantum Dots: Single Dots, Many Dots, Applications

3:00 Hongkun Park (Harvard University)
Single Molecule Transistors

3:30 Coffee Break (Maxwell Dworkin Lobby)

Imaging Electrons in Nanoscale Structures

4:00 Robert M. Westervelt (Harvard University)
Imaging a Single-Electron Quantum Dot

4:30 Raymond Ashoori (Massachusetts Institute of Technology)
Novel Filamentary Structures Discovered in the Quantum Hall Liquid Using Scanning Charge Accumulation Imaging

5:00 Closing Remarks