

APS March Meeting 2011

Topical Group on Quantum Information Sessions and Invited Talks

Sunday, March 20, tutorial

Ivan Deutsch (University of New Mexico)
Quantum Simulation and Computing with Atoms

Tuesday, March 22, invited session, “Quantum Information: Featured Experiments”

H. Jeff Kimble (California Institute of Technology)
Entanglement of Spin Waves among Multiple Quantum Memories

Christopher Monroe (Joint Quantum Institute and University of Maryland)
Quantum Networks with Atoms and Photons

Till Rosenband (National Institute of Standards and Technology)
Quantum-Logic Clocks for Metrology and Geophysics

Robert J. Schoelkopf (Yale University)
Towards Quantum Information Processing with Superconducting Circuits

Anton Zeilinger (University of Vienna)
Quantum Information and the Foundations of Quantum Mechanics: A Story of Mutual Benefit

Wednesday, March 23, invited session, “20 Years of Quantum Information in Physical Review Letters”

Charles H. Bennett (IBM Research)
The Theory of Entanglement and Entanglement-Assisted Communication

David P. DiVincenzo (Aachen University)
Twenty Years of Quantum Error Correction

Artur Ekert (University of Oxford and National University of Singapore)
Less Reality, More Security

Peter W. Shor (Massachusetts Institute of Technology)
The Early Days of Quantum Algorithms

Benjamin Schumacher (Kenyon College)
A Brief Prehistory of Qubits

Thursday, March 24, invited session, “Symmetric Discrete Structures for Finite Dimensional Quantum Systems”

Berthold-Georg Englert (National University of Singapore)
On Mutually Unbiased Bases (MUBs)

Åsa Ericsson (Institut Mittag-Leffler)

Quantum States as Probabilities from Symmetric Informationally Complete Measurements (SICs)

Steven T. Flammia (California Institute of Technology)

The Lie Algebraic Significance of Symmetric Informationally Complete Measurements

Christophe Schaeff (University of Vienna)

Report on the Zeilinger Group SIC and MUB Experiments

William K. Wootters (Williams College)

States with the Same Probability Distribution for Each Basis in a Complete Set of MUBs

Focus Session: Superconducting Qubits

Chair: Robert McDermott (University of Wisconsin – Madison)

John Martinis (University of California at Santa Barbara)

Scaling Superconducting Qubits with the ResQu Architecture

Christopher Chudzicki (Williams College)

Parallel Entanglement Distribution on Hypercube Networks (Apker Award talk)

Focus Session: Quantum Optics with Superconducting Circuits

Chair: David Schuster (Yale University)

Andreas Wallraff (ETH, Zurich)

Tomography and Correlation Function Measurements of Itinerant Microwave Photons

Focus Session: Semiconducting Qubits

Chair: Jason Petta (Princeton University)

Amir Yacoby (Harvard University)

Control and Manipulation of Two-Electron Spin Qubits in GaAs Quantum Dots

Focus Session: Quantum Information for Quantum Foundations

Chair: Christopher Fuchs (Perimeter Institute for Theoretical Physics)

Giulio Chiribella (Perimeter Institute for Theoretical Physics)

Toward a Conceptual Foundation of Quantum Information Processing

Focus Session: Advances in Ion Trap Quantum Computation

Chair: Jungsang Kim (Duke University)

Richard E. Slusher (Georgia Tech Quantum Institute)

Trapped Ion Arrays for Quantum Simulation

Focus Session: 20 Years of APS Quantum Cryptography: Where Do We Stand?

Chair: Norbert Lütkenhaus (University of Waterloo)

Richard J. Hughes (Los Alamos National Laboratory)

Twenty-Seven Years of Quantum Cryptography!