

TUESDAY, August 19, 2008

19:00– Registration
19:00– Opening Reception

WEDNESDAY, August 20, 2008

8:00–8:40 Registration
8:40–9:00 **Opening Remarks**

WE-1 **Peter Knight** (Invited Talk)
9:00–9:30 *“Light, photons and nonclassicality”*

WE-2 **A.G. White** (Invited Talk), B.P. Lanyon, M. Barbieri, and M.P. Almeida
9:30–10:00 *“Quantum computing with zero entanglement”*

WE-3 **P.G. Kwiat** (Invited Talk) and J.T. Barreiro
10:00–10:30 *“Better living through hyperentanglement”*

10:30–11:00 **Coffee break**

WE-4 **A.M. Steinberg** (Invited Talk), R.B.A. Adamson, and L.K. Shalm
11:00–11:30 *“Measuring quantum states in the presence of fundamental symmetries”*

WE-5 **Jeremy L. O’Brien** (Invited Talk), Alberto Politi, Anthony Laing, Alex S. Clark, Jérémie Fulconis, Martin J. Cryan, John G. Rarity, Siyuan Yu, William J. Wadsworth, and Terry Rudolph
11:30–12:00 *“Fabricating and identifying photonic quantum devices”*

WE-6 **H.M. Wiseman** (Invited Talk), and Steven J. Jones
12:00–12:30 *“The EPR effect and nonlocality of a single photon”*

12:30–14:00 **Lunch**

WE-7 **A. Zeilinger** (Award Talk)
14:00–14:40 *“Entangled photons from fundamentals to quantum information and back”*

WE-8 **Prem Kumar** (Invited Talk), Joseph B. Altepeter, Matthew Hall, Milja Medic, and Monika Patel
14:40–15:10 *“Fiber based technologies for quantum communications in the telecom band”*

WE-9 **M.D. Eisaman**, E.A. Goldschmidt, J. Chen, S.V. Polyakov, J. Fan, and A. Migdall
15:10–15:30 *“Experimental test of non-local realism using a new fiber-based, polarization-entangled photon-pair source”*

15:30–16:00 **Coffee break**

WE-10 **Mikhail D. Lukin** (Invited Talk)
16:00–16:30 *“Quantum interfaces for spins and photons: new approaches and applications”*

WE-11 **J.D. Franson** (Invited Talk)
16:30–17:00 *“Generation of entanglement outside of the light cone”*

WE-12 **Carlton M. Caves** (Invited Talk)
17:00–17:30 *“Quantum-limited metrology: Dynamics vs. entanglement”*

17:30–19:30 POSTER Session 1

19:30– Soccer Match

THURSDAY, August 21, 2008

- TH-1 **Philippe Grangier** (Invited Talk)
8:00–8:30 *“Quantum information processing with individual neutral atoms in optical tweezers”*
- TH-2 **Julien Laurat** (Invited Talk), K.S. Choi, H. Deng, and H.J. Kimble
8:30–9:00 *“Matter-matter entanglement for quantum networks”*
- TH-3 **J. Appel** (Invited Talk), P. Windpassinger, D. Oblak, U. Hoff, N. Kjærgaard, and E. Polzik
9:00–9:30 *“Spin squeezing on the cesium clock transition by QND measurements”*
- TH-4 **S. Kuhr** (Invited Talk), J. Sherson, C. Weitenberg, M. Endres, O. Loesdau, J. Petersen, and I. Bloch
9:30–10:00 *“A new experiment towards single site addressability in optical lattices”*
- 10:00–10:30 **Coffee break**
- TH-5 **Akira Furusawa** (Award Talk)
10:30–11:10 *“Continuous-variable quantum information processing with squeezed states of light”*
- TH-6 **M. Sasaki** (Invited Talk)
11:10–11:40 *“Temporally multiplexed Schrödinger kitten states”*
- TH-7 **T.C. Ralph** (Invited Talk) and A.P. Lund
11:40–12:10 *“Distilling pure continuous variable entanglement”*
- TH-8 **O. Pfister**, R. Bloomer, and M. Pysher
12:10–12:30 *“Entangling the optical frequency comb into continuous-variable cluster states”*
- 12:30–14:00 **Lunch**
- TH-9 **R. Laflamme** (Invited Talk)
14:00–14:30 *“Noise characterization for quantum devices”*
- TH-10 **F. De Martini** (Invited Talk), F. Sciarrino, C. Vitelli, and Francesco Saverio Cataliotti
14:30–15:00 *“Macroscopic quantum superposition and entanglement in light reflection from Bose-Einstein condensates”*
- TH-11 **H. Kosaka**, H. Shigyou, Y. Mitsumori, Y. Rikitake, H. Imamura, T. Kutsuwa, and K. Edamatsu
15:00–15:20 *“Coherent transfer of light polarization to electron spins in a semiconductor”*
- 15:20–15:50 **Coffee break**
- TH-12 **R. J. Hughes** (Invited Talk), D. Rosenberg, C.G. Peterson, J.W. Harrington, P.R. Rice, N. Dallmann, K.T. Tyagi, K.P. McCabe, S.-W. Nam, B. Baek, R.H. Hadfield, and J.E. Nordholt
15:50–16:20 *“Practical long-distance decoy state quantum key distribution”*
- TH-13 **Hoi-Kwong Lo** (Invited Talk)
16:20–16:50 *“Towards secure quantum key distribution systems with testable assumptions”*
- TH-14 **M. Peev** and N. Gisin
16:50–17:10 *“SECOQC: Major results, the QKD-Network Prototype in Vienna”*
- TH-15 **N. Korolkova**, T. Tyc, L. Mišta, D. Menzies, and G. Sinclair
17:10–17:30 *“Continuous variable entanglement distribution”*
- 17:30–19:30 POSTER Session 2**
- 19:30– **Reception: “Quantum information in Canada”**

FRIDAY, August 22, 2008

- FR-1 **Christoph Simon** (Invited talk)
8:00–8:30 *“Quantum repeaters with atomic ensembles”*
- FR-2 **N. Gisin** (Invited talk)
8:30–9:00 *“Towards quantum repeaters”*
- FR-3 **A. Kuzmich** (Invited talk), S.D. Jenkins, S.-Y. Lan, R. Zhao, A. Collins, H. Jen, Y. Dudin, A. Radnaev, C.J. Campbell, D.N. Matsukevich, T. Chanelière, and T.A.B. Kennedy
9:00–9:30 *“Towards quantum repeaters”*
- FR-4 **P.K. Lam** (Invited talk), G. Hétet, B.C. Buchler, M.T.L. Hsu, M. Hosseini, B.M. Sparkes, A.L. Alexander, J.J. Longdell, and M.J. Sellars
9:30–10:00 *“Delay and storage of quantum information via gradient echo and EIT”*
- 10:00–10:30 **Coffee break**
- FR-5 **D. Leibfried** (Invited talk), J. Amini, B. Blakestad, J.J. Bollinger, J. Britton, K.R. Brown, R. Epstein, J.P. Home, J.D. Jost, E. Knill, C. Langer, C. Ospelkaus, R. Ozeri, R. Reichle, S. Seidelin, N. Shiga, A. VanDevender, J. Wesenberg, and D.J. Wineland
10:30–11:00 *“Quantum information processing with trapped ions at NIST”*
- FR-6 **M.B. Plenio** (Invited talk), J.I. Cirac, A. Retzker, B. Reznik, D.M. Segal, and R.C. Thompson
11:00–11:30 *“Testing quantum field theory and quantum phase transitions in trapped atoms and ions”*
- FR-7 **L.-M. Duan** (Invited talk), Z.-Q. Yin, Z.-X. Gong, and Y.-J. Han
11:30–12:00 *“A compact source for squeezed light from opto-mechanical coupling in a micro-cavity”*
- FR-8 **S. Ghose**, S. Chaudhury, A. Smith, B. Anderson, and P. Jessen
12:00–12:20 *“Quantum chaos, entanglement and decoherence in an atomic spin system”*
- FR-9 **Anil Shaji**, Animesh Datta, Sergio Boixo, Steven T. Flammia, Matthew Davis, and Carlton M. Caves
12:20–12:40 *“Generalized quantum metrology with Bose-Einstein condensates”*
- 12:40– **Outing:** Heritage Park

SATURDAY, August 23, 2008

- SA-1 **Frank Verstraete** (Invited talk)
8:00–8:30 *“The complexity of simulating strongly correlated quantum systems”*
- SA-2 **K. Mølmer** (Invited talk), Etienne Brion, Line Hjortshøj Pedersen, Mark Saffman, and Karl Tordrup
8:30–9:00 *“Quantum computing with ensemble encoded qubits”*
- SA-3 **Robert Raussendorf** (Invited talk)
9:00–9:30 *“Topological fault-tolerance in cluster state quantum computation”*
- SA-4 **F. Illuminati**
9:30–9:50 *“Quantum information and quantum cooperative systems”*
- 9:50–10:20 **Coffee break**
- SA-5 **Giacomo Mauro D’Ariano** (Invited talk)
10:20–10:50 *“A new notion in quantum mechanics: The quantum comb”*
- SA-6 **B.M. Terhal** (Invited talk), P. Aliferis, F. Brito, D.P. DiVincenzo, J. Preskill, and M. Steffen
10:50–11:20 *“Biased-noise superconducting qubits: Coding and fault-tolerance against physical noise”*
- SA-7 **Renato Renner** (Invited talk) and Robert König
11:20–11:50 *“Entropy sampling”*
- SA-8 **V.P. Belavkin**
11:50–12:10 *“Optimal quantum filtering and control equations with examples”*
- SA-9 **Z. Hradil**, J. Řeháček, and D. Mogilevtsev
12:10–12:30 *“Tomography for quantum diagnostics”*
- 12:30–14:00 **Lunch**
- SA-10 **Jeffrey H. Shapiro** (Award talk), and Baris I. Erkmen
14:00–14:40 *“The truth about Gaussian-state imaging: What is quantum and what is not”*
- SA-11 **Hideo Mabuchi** (Invited talk)
14:40–15:10 *“Coherent-feedback quantum control with a dynamic compensator”*
- SA-12 **L.M.K. Vandersypen** (Invited talk)
15:10–15:40 *“Coherence and control of a single electron spin”*
- 15:40–16:10 **Coffee break**
- SA-13 **G.J. Pryde** (Invited talk), B.L. Higgins, D.W. Berry, S.D. Bartlett, and H.M. Wiseman
16:10–16:40 *“Entanglement-free, Heisenberg-limited phase measurement”*
- SA-14 **G.J. Milburn** (Invited talk)
16:40–17:10 *“Quantum measurement and nanomechanical resonators”*
- SA-15 **Markus Aspelmeyer** (Invited talk)
17:10–17:40 *“Quantum-Opto-Mechanics: from laser cooling towards quantum entanglement with micromirrors”*
- 17:40–19:30 POSTER Session 3**
- 19:30– **Banquet**

SUNDAY, August 24, 2008

SU-1 8:00–8:30	Peter Høyer (Invited talk) <i>“What quantum computers cannot do”</i>
SU-2 8:30–9:00	Daniel Gottesman (Invited talk), Dorit Aharonov, and Matt Hastings <i>“Entanglement vs. gap for one-dimensional spin systems”</i>
SU-3 9:00–9:30	Michael M. Wolf (Invited talk) <i>“Short stories on quantum channels”</i>
SU-4 9:30–9:50	Normand Beaudry , Tobias Moroder, Norbert Lütkenhaus <i>“Squashing models for optical measurements in quantum communication”</i>
9:50–10:20	Coffee break
SU-5 10:20–10:50	Reinhard F. Werner (Invited talk) <i>“A survey of Clifford quantum cellular automata”</i>
SU-6 10:50–11:10	R. W. Spekkens and G. Gour <i>“The resource theory of quantum reference frames”</i>
SU-7 11:10–11:30	G. Gour , R. W. Spekkens, B.C. Sanders, and P.S. Turner <i>“Resource Theories, $SU(2)$ super selection rule, and time inversion”</i>
SU-8 11:30–11:50	Lev B. Levitin and Tommaso Toffoli <i>“A generalized bound on the rate of quantum dynamics”</i>
SU-9 11:50–12:10	Zheng-Cheng Gu , Michael Levin, and Xiao-Gang Wen <i>“Tensor-entanglement renormalization group approach to 2D quantum lattice models”</i>
SU-10 12:10–12:30	O. Gittsovich , O. Gühne, P. Hyllus, and J. Eisert <i>“Covariance matrix criterion for separability”</i>
SU-11 12:30–13:00	Horace P. Yuen (Invited talk) <i>“Entanglement Destruction in Quantum Information Systems”</i>
13:00–13:10	Closing Remarks
13:10–	Lunch