W. M. Keck Foundation Center for Extreme Quantum Information Theory (xQIT)
at the Massachusetts Institute of Technology

2011 xQIT Conference

Difficult Problems in Quantum Information Theory

Program

Tuesday, May 3, 2011

- ***Breakfast and coffee breaks will be in the fourth- floor lobby of Building 36.***
- ***Lunch will be in the Star Conference Room 32-D463.***
- ***The conference dinner R&D space on the fourth floor of the Stata Center, Building 32.***
- ***All presentations and welcoming remarks will take place in the RLE Conference Center 36-428.***

7:30 - 8:30AM	CONTINENTAL BREAKFAST Building 36 fourth-floor lobby
8:30 - 8:45 AM	Jeffrey Shapiro and Seth Lloyd, MIT Welcoming remarks

Session I

8:45 - 9:10 AM	Christopher Fuchs, Perimeter Institute for Theoretical Physics Charting the Shape of Quantum State Space
9:15 - 9:40 AM	G. Mauro D'Ariano, University of Pavia A Quantum Digital Universe
9:45 - 10:10 AM	Daniel Lidar, University of Southern California An Extreme Quantum Result
10:15 - 10:45 AM	COFFEE BREAK Building 36 fourth-floor lobby

Session II

10:45 - 11:10 AM	Edward Farhi, MIT An Update on the Quantum Adiabatic Algorithm
11:15 -11:40 AM	Scott Aaronson, MIT The Quantum Money Frontier
11:45 AM - 12:10 PM	Peter Shor, MIT TBD
12:15 - 1:45 PM	LUNCH Star Conference Room, 32-D463

Session III

1:45 - 2:10 PM	Seth Lloyd, MIT Projective Measurements for Quantum Channel Decoding
2:15 - 2:40 PM	Vittorio Giovannetti, Scuola Normale Superiore Master Equations for Correlated Quantum Channels
2:45 - 3:10 PM	Raul Garcia-Patron, Max Planck Institute for Quantum Optics Majorization Relations in a Two-Mode Squeezer: A Possible Way towards Solving the Minimum Output Entropy Conjecture for Bosonic Gaussian Channels
3:15 - 3:45 PM	COFFEE BREAK Building 36 fourth-floor lobby

Session IV

3:45 - 4:10 PM	Daniel Gottesman, Perimeter Institute for Theoretical Physics Improving Telescopes with Quantum Repeaters
4:15 - 4:40 PM	Mankei Tsang, University of New Mexico Quantum Limits to Waveform Estimation

4:45 - 5:10 PM	Howard Wiseman, Griffith University How Many Bits Does it Take to Track an Open Quantum System
6:30 PM	Dinner Stata Center fourth-floor R&D space

Wednesday, May 4, 2011

- ***Breakfast and coffee breaks will be in the fourth- floor lobby of Building 36***
- ***Lunch will be in the Student Center, Building W20***
- ***All presentations and closing remarks will take place in the RLE Conference Center 36-428.***

7:30 - 8:45 AM	CONTINENTAL BREAKFAST Building 36 fourth-floor lobby

Session V

8:45 - 9:10 AM	Nicolas Cerf, Université Libre de Bruxelles Gaussian Quantum Error Correction
9:15 - 9:40 AM	Saikat Guha, Raytheon BBN Technologies Optical Realizations of Optimal Quantum Receivers
9:45 - 10:10 AM	Mark Wilde, McGill University The Quest for a Quantum Simultaneous Decoder
10:15 - 10:45 AM	COFFEE BREAK Building 36 fourth-floor lobby

Session VI

10:45 - 11:10 AM	Lorenzo Maccone, University of Pavia Quantum Randomness from Locality?
11:15 - 11:40 AM	David Bacon, University of Washington Graph Isomorphism Beyond the Hidden Subgroup Problem

11:45 AM - 12:10 PM	Paolo Zanardi, University of Southern California Random Complex Network and Quantum Entanglement
12:15 - 1:45 PM	LUNCH Student Center, Building W20

Session VII

1:45 - 2:10 PM	Stefano Pirandola, University of York Binary Quantum Discrimination
2:15 - 2:40 PM	Jeffrey Shapiro, MIT Defeating Eavesdropping with Gaussian-State Quantum Illumination
2:45 - 3:10 PM	Graeme Smith, IBM Realistic Zero-Capacity Channels for Quantum Communication
3:15 - 3:45 PM	COFFEE BREAK Building 36 fourth-floor lobby

Session VIII

3:45 – 4:10 PM	Lorenza Viola, Dartmouth College Pointer State Engineering
4:15 – 4:40 PM	Paola Cappellaro, MIT Coherent-State Transfer via Mixed Spin Chains
4:45 – 5:10 PM	Christian Weedbrook, University of Toronto Quantum Cryptography Approaching the Classical Limit
5:15 – 5:25 PM	Seth Lloyd and Jeffrey Shapiro Closing Remarks