

AGENDA

as of Sept. 22, 2011

GeneExpression Systems, Inc. & Appasani Research Conferences of USA Presents:

Quantum Science Symposium-2011

Quantum Biology and Quantum Information, Computing & Communication (QICC)-2011 Summit

Venue: Courtyard Marriott, 777 Memorial Drive, Cambridge, MA, USA Date: September 26 – 27, 2011

Organizer: Krishnarao Appasani, PhD., MBA GeneExpression Systems, Inc. of USA

SEPTEMBER 26, MONDAY (Day 1)	
AM SESSION (JOINT)	
8:00 AM	REGISTRATION OPEN: Coffee/Tea & Refreshments
9:00 – 10:55 AM	Session I: Inaugural Session Chair: Krishnarao Appasani, PhD., MBA USA
9:00 – 9:10 AM	Welcome Note by Dr. Krishnarao Appasani, Organizer
9:10 – 9:50 AM	Inaugural Lecture by: Nobel Laureate Frank Wilczek, PhD. Herman Feshbach Professor of Physics Massachusetts Institute of Technology, Cambridge, MA, USA Title: Frontiers of Elementary Quantum Mechanics
9:50 – 10:30 AM	Keynote Lecture by: Jeffrey H. Shapiro, PhD. Julius A. Stratton Professor of Electrical Engineering Massachusetts Institute of Technology, Cambridge, MA, USA Title: Classical Information Capacities of Bosonic Communications
10:30 – 10:55 AM	Xinsheng Sean Ling, PhD. Professor of Physics Brown University, Providence, RI, USA Title: Nanopore DNA sequencing: is it really possible?"
10:55 – 11:25 AM	AM Refreshment Break (30 min)-Visit of Posters
11:25 – 12:40 AM	Session II: Quantum Communication & Coherence in Semiconductors Chair: Eran Rabani, PhD. Israel
11:25 – 11:50 AM	Paul G. Kwiat, PhD. Professor of Physics University of Illinois at Urbana-Champaign, USA Title: Advanced Quantum Communication
11:50 – 12:15 PM	Yuzo Ohno, PhD. Associate Professor of Nanoelectronics and Spintronics Tohoku University, Sendai, Japan Title: Control and optical detection of nuclear spin coherence in semiconductors
12:15 – 12:40 PM	Eran Rabani, PhD. Professor of Chemical Physics Tel Aviv University, Tel Aviv, Israel Title: Quantum fluctuations can promote or inhibit glass formation
12:40 – 2:00 PM	Lunch Break (1 hour 20 min) Lunch will be Provided

PM SESSION

	QICC-Track		Quantum Biology Track
2:00 – 3:40	Session III: Quantum Information Chair: Alexander V. Sergienko, PhD. USA	2:00 – 3:40 PM	Session III: Quantum Dot Tracking in Live Cells & Quantum Coherence in Photosynthetic Complex Chair: Adam Cohen, PhD. Australia
2:00 – 2:25 PM	Alan Migdall, PhD. Fellow at the Joint Quantum Institute & University of Maryland National Institute of Standards and Tech. Gaithersburg, MD, USA Title: Quantum-Optics-Based Photon Tools for Metrology and Quantum information Applications	2:00 – 2:25 PM	Adam E. Cohen, PhD. Associate Professor of Chemistry, Chemical Biology and Physics Harvard University, Cambridge, MA USA Title: Controlling chemical reactions with weak magnetic fields: quantum coherence in ambient liquids
2:25 – 2:50 PM	Stefano Mancini, PhD. Professor of Theoretical Physics University of Camerino, Camerino, Italy Title: Memory effects in attenuation and amplification quantum processes	2:25 – 2:50 PM	Liam McGuinness, PhD. Post Doctoral Fellow in the Lab of Professor Lloyd C.L. Hollenberg Quantum Computation Center, University of Melbourne, Victoria, Australia Title: Quantum measurement and orientation tracking of fluorescent nanodiamonds in living cells
2:50 – 3:15 PM	Alexander V. Sergienko, PhD. Professor of Electrical & Computer Engineering Boston University, Boston, MA, USA Title: Quantum technology meets industry	2:50 – 3:15 PM	Gang Ruan, PhD. Research Scientist of Chemical and Biomolecular Engineering The Ohio State University, Columbus, USA Title: Quantum dots for single molecule tracking in live cells
3:15 – 3:40 PM	Jonathan L. Habif, PhD. Senior Scientist in the Technologies Group Raytheon BBN Technologies, Cambridge, MA, USA Title: Enabling technologies and emerging applications for quantum networks	3:15 – 3:40 PM	Alán Aspuru-Guzik, PhD. Associate Professor of Chemistry and Chemical Biology Harvard University, Cambridge, MA, USA Title: The role of quantum coherence in photosynthetic energy transfer
3:40 – 4:10 PM	PM Break (30 min) - Visit Posters	3:40 – 4:10 PM	PM Break (30 min) - Visit of Posters
4:10 – 5:50 PM	Session IV: Quantum Communication & Cryptography Chair: Masato Koashi, PhD. Japan	4:10 – 5:50 PM	Session IV: Quantum Biology of Light Harvesting Complexes & Micro-scale Technologies Chair: Alán Aspuru-Guzik, PhD. USA
4:10 – 4:35 PM	Masato Koashi, PhD. Professor of Applied Physics The University of Tokyo, Tokyo, Japan Title: Quantum cryptography and fundamental aspects in quantum mechanics	4:10 – 4:35 PM	Agata (Aggie) Branczyk, PhD. Postdoctoral Fellow of Physics University of Toronto, Toronto, Canada Title: Toward quantum state tomography of multi-chromophoric systems
4:35 – 5:00 PM	Andrew Hammond Vice President of Marketing MagiQ Technologies, Inc., Somerville, MA, USA Title: Beyond the Hype: The Theory, Practice, and Real World Applications of Quantum Cryptography	4:35 – 5:00 PM	Seogjoo Jang, PhD. Associate Professor of Chemistry and Biochemistry Queens College, City University of New York, Flushing, NY, USA Title: The role of quantum coherence in the resonance energy transfer in light harvesting complex 2 (LH2) of purple bacteria
5:00 – 5:25 PM	Dr. Polo Villoresi Professor of Experimental Physics University of Padua, Padova, Italy Title: Toward Space Quantum Communications	5:00 – 5:25 PM	Utkan Demirci, PhD. Assistant Professor of Medicine, Health Sciences & Technology MIT, Brigham & Women's Hospital & Harvard Medical School Boston, MA USA Title: Microscale Technologies for Regeneration of Functional Tissues Models <i>In Vitro</i>
5:25 – 5:50 PM	Ryotaro Inoue, PhD. Postdoctoral Fellow of Physics Kyoto University, Kyoto, Japan Title: Quantum Feedback Control of Collective Spin State	5:25 – 5:50 PM	Speaker Spot OPEN-TBA
6:00 PM End of 1st day session			

SEPTEMBER 27, TUESDAY (Day 2)	
AM SESSION (JOINT)	
8:00 AM	REGISTRATION OPEN: Coffee/Tea & Refreshments
9:00 – 10:40	Session V: Quantum Entanglement & Quantum Molecular Magnets Chair: Krishnarao Appasani, PhD., MBA USA
9:00 – 9:10 AM	Welcome Note by Dr. Krishnarao Appasani, Organizer
9:10 – 9:50 AM	Keynote Lecture by: Rainer Blatt, PhD. Research Director & Professor of Experimental Physics University of Innsbruck & Austrian Academy of Sciences, Innsbruck, Austria Title: Quantum information processing with trapped ions
9:50 – 10:15 AM	Jeremy O'Brien, PhD. Professor of Physics, Electrical Engineering & Director of the Centre for Quantum Photonics University of Bristol, Bristol, United Kingdom Title: TBA
10:15 – 10:40 AM	Susumu Takahashi, PhD. Assistant Professor of Chemistry and jointly in Physics University of Southern California, Los Angeles, CA, USA Title: Decoherence in crystals of quantum molecular magnets
10:40 – 11:10 AM	AM Refreshment Break (30 min)-Visit of Posters
11:10 – 12:25 PM	Session VI: Quantum Photonics & Photomedicine Chair: Jeremy O'Brien, PhD. United Kingdom
11:10 – 11:35 AM	Weizhong Dai, PhD. McDermott International Professor of Mathematics Louisiana Tech University, Ruston, LA, USA Title: A Higher-Order Accurate and Generalized FDTD-Q Method for Solving a Time Dependent Schrodinger Equation
11:35 – 12:00 PM	Robert H. Hadfield, PhD. Reader in Physics and Royal Society University Research Fellow Heriot-Watt University, Edinburgh, Scotland-UK Title: Single-photon detectors for quantum information science
12:00 – 12:25 PM	Seok-Hyun Andy Yun, PhD. Associate Professor of Photomedicine Harvard Medical School & Massachusetts General Hospital, Cambridge, MA, USA Title: Cell laser
12:25 – 2:00 PM	Lunch Break (1 hour 35 min) Lunch will NOT be Provided, on YOUR OWN

PM SESSION

	QICC-Track		Quantum Biology Track
2:00 – 3:40	Session VII: Quantum Devices & Semi-conductors Chair: Andrew J. Kerman, PhD. USA	2:00 – 3:40 PM	Session VII: Saundry Topics in Biophysics Chair: George T. Shubeita, PhD. USA
2:00 – 2:25 PM	Andrew J. Kerman, PhD. Scientist in Analog Device Technology MIT Lincoln Laboratory, Lexington, MA, USA Title: Quantum devices based on highly-disordered superconducting nanowires	2:00 – 2:25 PM	George T. Shubeita, PhD. Assistant Professor of Physics University of Texas at Austin, Austin, TX, USA Title: Regulation of molecular motor-driven transport
2:25 – 2:50 PM	Donghun Lee, PhD. Post Doctoral Researcher in Physics & Applied Physics Yale University, New Haven, CT, USA Title: Quantum properties of single defects in semiconductors and mechanical systems	2:25 – 2:50 PM	Philipp Spuhler, PhD. Post doctoral Fellow in Electrical & Computer Engineering Boston University, Boston, MA, USA Title: Bioimaging at the nanoscale: protein induced conformational changes in DNA arrays
2:50 – 3:15 PM	Georgy Astakhov, PhD. Post Doctoral Researcher in Experimental Physics Universität Würzburg, Wuerzburg, Germany Title: Giant magneto-optical Faraday effect at THz frequencies	2:50 – 3:15 PM	Xiangnan Dang Ph.D. candidate in the Materials Science & Engineering Massachusetts Institute of Technology, Cambridge, MA, USA Title: M13 virus-templated SWNT-TiO ₂ core-shell nanotubes for electron collection in photovoltaic devices
3:15 – 3:40 PM	Koji Azuma, PhD. Scientist in the Optical Science Laboratory NTT Basic Research Laboratories, Kanagawa, Japan Title: Quantum repeaters and computation built on a single module	3:15 – 3:40 PM	Speaker Spot OPEN To Be Announced
3:40 – 4:10 PM	PM Break (30 min) - Visit Posters		
4:10 – 5:50 PM	Session VIII: Quantum Computation Chair: Jiri Vala, PhD. Ireland	JOINT SESSION	
4:10 – 4:35 PM	Peter Shor, PhD. Morss Professor of Applied Mathematics Massachusetts Institute of Technology, Cambridge, MA, USA Title: Quantum computing		
4:35 – 5:00 PM	Jiri Vala, PhD. SFI Research Fellow in the Mathematical Physics National University of Ireland, Maynooth, Ireland Title: Topological phases and quantum computation		
5:00 – 5:25 PM	Matteo Mariani, PhD. Postdoctoral Fellow of Physics Univ. of California at Santa Barbara, Santa Barbara, CA, USA Title: Implementing the Quantum von Neumann Architecture with Superconducting Circuits		
5:25 – 5:50 PM	Zachary Dutton, PhD. Senior Scientist in the Technologies Group Raytheon BBN Technologies, Cambridge, MA, USA Title: Nonlinear microwave optics in superconducting quantum circuits		
6:00 PM	End of the Conference & Closing Remarks by the Organizer		

* Speaker names, titles and order may subject to change.

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