

AGENDA (FINAL, 2015)

GeneExpression Systems & Appasani Research Conferences Presents:

Physical Sciences Symposia-2015 on

Quantum Science Symposium & Crystal/Graphene Science Symposium

Venue: Courtyard MARRIOTT (next to MicroCenter), 777 Memorial Drive, Boston/Cambridge, MA, USA

Date: September 21 - 22, 2015

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

SEPTEMBER 21, MONDAY

7:45 AM	REGISTRATION OPEN: Coffee/Tea & Refreshments		
8:30 – 11:00 AM	JOINT INAUGURAL SESSION I: Chair: Krishnarao Appasani, PhD.		
8:30 – 8:45 AM	Welcome Address by Organizer: Krishnarao Appasani, PhD. GeneExpression Systems, Inc. USA		
8:45 – 9:15 AM	KEYNOTE SPEKER: AMIR YACOBY, PhD. Professor of Physics & Applied Physics, Harvard University, USA Title: Quantum computing and fractional Quantum Hall States		
9:15 – 9:45 AM	KEYNOTE SPEKER: VLADAN VULETIC, PhD. Professor of Physics, Massachusetts Institute of Technology, USA Title: Nanophotonic quantum phase switch with a single atom		
9:45 – 10:10 AM	KEYNOTE SPEKER: PHILIP KIM, PhD. Professor of Physics, Harvard University, USA Title: Quantum transport in graphene and its heterostructures		
10:10 – 10:35 AM	Helge Weman, PhD. Professor of Nano-Electronics, Norwegian University of Science and Technology, Norway Title: Epitaxial growth of semiconductor nanowires on graphene: Generic model and potential device applications		
10:35 – 11:00 AM	Koji Azuma, PhD. Researcher in Theoretical Quantum Physics Research Group, NTT Basic Research Laboratories, Japan Title: All-photonic quantum internet		
11:00 – 11:30 AM	30 min BREAK		
TWO PARALLEL SESSIONS STARTS FROM NOW			
	CRYSTAL / GRAPHENE SCIENCE		QUANTUM SCIENCE
11:30 – 12:45 PM	Session II: Graphenes, Silicenes & Crystal Structures Chair: Guy Le Lay, PhD. FRANCE	11:30 – 12:45PM	Session II: Quantum Systems & Entanglement Chair: Stefano Mancini, PhD. ITALY
11:30 – 11:55 AM	Dr. Guy Le Lay Aix-Marseille University, France Title: Silicene and germanene, graphene's cousins: from first realizations to device fabrication	11:30 – 11:55 AM	Stefano Mancini, PhD. University of Camerino, Italy Title: Entanglement from dissipative dynamics in multi-qubit systems
11:55 – 12:20 PM	Claudio Chamon, PhD. Boston University, USA Title: Electron fractionalization in graphene-like structures	11:55 – 12:20 PM	Rina Kanamoto, PhD. Meiji University, Japan Title: Nonlinear optomechanics in the quantum regime
12:20 – 12:45 PM	Paul Cadden-Zimansky, PhD. Bard College, USA Title: Quantum Hall effects in hybrid graphene	12:20 – 12:45 PM	Matthew LaHaye, PhD. Syracuse University, USA Title: Mechanical quantum systems
12:45 – 1:45 PM	1 Hour Lunch Break (Provided)		
1:45 – 4:10 PM	Session III: Epitaxial Graphenes, Hetero-	1:45 – 4:10 PM	Session III: Semi & Super Conductors

	structures & Carbon Nano Tubes Chair: Michael Wörner, PhD., GERMANY		Chair: Yukio Tanaka, DSc. JAPAN
1:45 – 2:10 PM	Michael Wörner, PhD. Max-Born Institute for Optics, Germany Title: Ultrafast nonlinear terahertz spectroscopy on epitaxial multi-layer graphene	1:45 – 2:10 PM	Yukio Tanaka, DSc. Nagoya University, Japan Title: Axial current generation in Weyl semimetals and spin and charge generation on the surface of topological insulators by spin dynamics
2:10 – 2:35 PM	Maki Suemitsu, PhD. Tohoku University, Japan Title: Epitaxial graphene formation on SiC and on Si substrates	2:10 – 2:35 PM	Robert H. Hadfield, PhD. University of Glasgow, Scotland, UK Title: Infrared single-photon detection with superconducting nanowires
2:35 – 3:00 PM	Nikolai Zhitenov, PhD. National Institute of Standards & Technology, USA Title: Creating and probing electron whispering-gallery modes in graphene	2:35 – 3:00 PM	Yong P. Chen, PhD. Purdue University, USA Title: Topological insulators: from Dirac to Majorana fermions
3:00 – 3:25 PM	Ahmad E. Islam, PhD. Air Force Research Laboratory, USA Title: Carbon Nanotubes: Synthesis, Field Emission and Field-effect Transistor	3:00 – 3:25 PM	Michael Gullans, PhD. National Inst. of Standards and Technology, USA Title: Interfacing semiconductor spin qubits with photons
3:25 – 3:50 PM	Mehdi Estili, PhD. National Institute for Materials Science, Japan Title: Carbon nanotube–ceramic matrix composites: Processing and characterizations	3:25 – 3:50 PM	Kiyoshi Tamaki, PhD. NTT Basic Research Labs, NTT Corp., Japan Title: Security of quantum key distribution with imperfect light sources
3:50 – 4:15 PM	25 min. BREAK		
4:15 – 5:30 PM	Session IV: Graphene Applications & Devices Chair: Young Hee Lee, PhD., KOREA	4:30 – 6:30 PM	Session IV: Quantum Photonics Chair: Mazyar Mirrahimi, PhD. FRANCE
4:15 – 4:40 PM	Young Hee Lee, PhD. Sungkyunkwan University, Korea Title: Engineering phase transition in two-dimensional transition metal dichalcogenides	4:15 – 4:40 PM	Mazyar Mirrahimi, PhD. QUANTIC – INRIA Paris-Rocquencourt, France Title: Dissipation-induced stabilization of a quantum manifold: a semi-protected logical qubit
4:40 – 5:05 PM	Kieran Massey, PhD. Durham University, United Kingdom Title: Computing with disordered materials: Evolving circuits from carbon nanotube and liquid crystal composites	4:40 – 5:05 PM	Norio Kawakami, PhD. Kyoto University, Japan Title: Photo-induced quantum phase transitions in two-orbital fermionic optical lattices
5:05 – 5:30 PM	Debora Pierucci, PhD. CNRS-Lab. Of Photonics & Nanostructures, France Title: Interlayer coupling in MoS ₂ - Epitaxial graphene Van der Waals heterostructure	5:05 – 5:30 PM	Imad Agha, PhD. University of Dayton, USA Title: Quantum waveform conversion
5:30 – 5:55 PM	Kristie J. Koski, PhD. Brown University, USA Title: Silicon based 2D chalcogenide and nano-ribbons	5:30 – 5:55 PM	Hidekazu Kumano, PhD. Hokkaido University, Japan Title: Semiconductor quantum-dot-based quantum photon sources
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6:00 PM	End of 1st day sessions	6:30 PM	End of 1st day sessions

SEPTEMBER 22, TUESDAY

8:00 AM	REGISTRATION OPEN: Coffee/Tea & Refreshments		
8:30 – 11:00 AM	JOINT INAUGURAL SESSION V: Chair: Krishnarao Appasani, PhD.		
8:30 – 8:45 AM	Welcome Address by Organizer: Krishnarao Appasani, PhD. GeneExpression Systems, Inc. USA		
8:45 – 9:15 AM	KEYNOTE SPEAKER: EVAN J. REED, PhD. Assistant Professor of Material Science & Engineering, Stanford University, USA Title: Emergent phase change and electromechanical properties of two-dimensional and few-layer materials		
9:15 – 9:45 AM	KEYNOTE SPEAKER: EUGENE A. FITZGERALD, PhD. Merton C. Flemings-SMA Professor of Material Science & Engineering Massachusetts Institute of Technology, USA Title: Enabling the Integrated Circuits of the Future		
9:45 – 10:10 AM	Pawel Hawrylak, PhD. Professor of Physics, Quantum Theory Group, University of Ottawa, CANADA Title: Semiconductor and graphene quantum dots for quantum information processing		
10:10 – 10:35 AM	Thomas G. Mason, PhD. Professor of Chemistry & Biochemistry, University of California Los Angeles, USA Title: A Shape-Designed Colloidal Glass		
10:35 – 11:00 AM	Jason S. Orcutt, PhD. Physical Sciences Research Staff Member, IBM T. J. Watson Research Center, USA , Title: Monolithic silicon photonic technology and applications		
11:00 – 11:15 AM	15 min BREAK		
	TWO PARALLEL SESSIONS STARTS FROM NOW		
	CRYSTAL / GRAPHENE SCIENCE		QUANTUM SCIENCE
11:15 – 12:30 PM	Session VI: Semi-conductors & Meta-Materials Chair: Evan J. Reed, PhD. USA	11:30 – 12:30PM	Session VI: Quantum Systems Chair: Vesna Mitrovic, PhD. USA
11:15 – 11:40 AM	Enrico Rossi, PhD. College of William and Mary, USA Title: Kondo Effect in Dirac Materials and Yu-Shiba-Rusinov states in 2D superconductors with spin-orbit coupling	11:15 – 11:40 AM	Vesna Mitrovic, PhD. Brown University, USA Title: NMR as a probe of competing orders in quantum systems
11:40 – 12:05 PM	Jean Christophe Blancon, PhD. Los Alamos National Laboratory, USA Title: Phase-engineering low resistance contacts to atomic layered transition metal di-chalcogenides for optoelectronic applications	11:40 – 12:05 PM	Dirk R. Englund, PhD. Massachusetts Institute of Technology, USA Title: Progress towards scalable entanglement of spin Qubits in photonics integrated circuits
12:05 – 12:30 PM	Ivana Petkovic, PhD. Yale University, USA Title: Edge magnetoplasmons in graphene	12:05 – 12:30 PM	Kenneth Burch, PhD. Boston College, USA Title: Evidence for a new Excitation at the Interface between High Tc Superconductor and a Topological Insulator
12:30 – 1:45 PM	1 Hour 15 min Lunch Break (ON YOUR OWN)		

1:45 – 4:10 PM	Session VII: Graphene Opto-Electronics, Plasmonics, Spintronic & Silicon Technology Chair: Keshav M. Dani, PhD. JAPAN	1:45 – 4:10 PM	Session VII: Quantum Information, Cryptography, Computation & Qubits Chair: Jiri Vala, PhD. IRELAND
1:45 – 2:10 PM	Keshav M. Dani, PhD. Okinawa Institute of Science & Technology, Japan Title: Emergent photophenomena in 3D structures composed of van der Waals heterostructure flakes	1:45 – 2:10 PM	Jiri Vala, PhD. National University of Ireland, Ireland Title: Quantum entanglement and optimal control
2:10 – 2:35 PM	Anirudha V. Sumant, PhD. Argonne National Laboratory, USA Title: Graphene nano-scroll formation	2:10 – 2:35 PM	Benjamin Feldman, PhD. Princeton University, USA Title: Exploring signatures of Majorana fermions in chains of magnetic atoms on a superconductor
2:35 – 3:00 PM	Kin Chung Fong, Ph.D. Raytheon BBN Technologies, USA Title: Graphene, hydrodynamics, and quantum information	2:35 – 3:00 PM	Toshihiko Sasaki, DSc. University of Tokyo, Japan Title: New scheme of quantum key distribution: avoiding information leak rather than detecting
3:00 – 3:25 PM	Keith Whitener, PhD. Naval Research Laboratory, USA Title: Hydrogenated graphene: Advances in synthesis and applications	3:00 – 3:25 PM	Feihu Xu, PhD. Massachusetts Institute of Technology, USA Title: Experimental quantum fingerprinting
3:25 – 3:50 PM	Saroj Prasad Dash, PhD. Chalmers University of Technology, Sweden Title: Spintronics with two-dimensional materials and van der Waals heterostctures	3:25 – 3:50 PM	Nathan G. Hamlin, PhD. Washington State University, USA Title: A quantum-resistant public-key code
3:50 – 4:30 PM	40 min. BREAK	3:50 – 4:15 PM	40 min. BREAK
4:30 – 5:45 PM	Session VIII: Graphene Nanoribbons Chair: Antonio Tejada, PhD., FRANCE	4:30 – 5:45 PM	Session VIII: Quantum Engineering, Quantum Devices & Quantum Technologies Chair: Michael J. Biercuk, PhD. AUSTRALIA
4:30 – 4:55 PM	Antonio Tejada, PhD. University of Paris, France Title: Atomic and electronic structure of graphene sidewall nano ribbons	4:30 – 4:55 PM	Michael J. Biercuk, PhD. The University of Sydney, Australia Title: Predicting the Future of Noisy Qubits
4:55 – 5.20 PM	Adam Jakus, PhD. Northwestern University, USA Title: 3D-Printing graphene from liquid inks	4:55 – 5.20 PM	Hiromitsu Takeuchi, PhD. Osaka City University, Japan Title: Superfluid ³ He as an exotic example of projected symmetry breaking
5.20 – 5.45 PM	Peng Yin, PhD. Harvard Medical School, USA Title: Programmable Carbon Nano-Materials with DNA Bricks	5.20 – 5.45 PM	Enrico Vogt, PhD. Qubig GmbH, Germany , Title: Electro-Optic Devices: Empowering Laser Technologies for Quantum Science
5.45 - 6:00 PM	End of The Meeting: Concluding remarks by Organizer		