Princeton-TAMU Symposium on Quantum Noise Effects in Thermodynamics, Biology and Information, April 14-16, 2016

Princeton University (Organized by Jianshu Cao, Leon Cohen, Andrea Mameniskis, Vincent Poor, Marlan Scully, Anatoly Svidzinsky and Dawei Wang)

Time	Thursday, April 14, Friend Center, Room 113	Friday, April 15, Friend Center, Room 113	Saturday, April 16, Friend Center, Room 113
	8:20 AM, Registration and Breakfast	**8:30 AM, BREAKFAST, Friend Center**	**8:30 AM, BREAKFAST, Friend Center**
	8:50, Welcome: Marlan Scully, Chair: Gershon Kurizki	Chair: Leon Cohen	Chair: Dmitri Voronine
9:00 - 9:25	Vincent Poor, Princeton	Quantum interference in spontaneous decay and phase decay Shiyao Zhu, Beijing Computational Science Research Center	Lasing to ground states of H-like LiIII at 13.5nm and He-like CV at 4nm in application to generation of sub-fsec pulses Szymon Suckewer, Princeton
9:25 - 9:50	The Stefan-Boltzmann Law: Two classical Laws Give a Quantum One, Wolfgang Schleich, Universität Ulm	Multi-function and low-noise phase-shifting manipulator at single-photon level, Chengjie Zhu, Tongji University	On a possibility of sub-fs pulses generation by x-ray plasma lasers Olga Kocharovskaya, TAMU
9:50 - 10:15	Plasmons, dynamical screening, superconductivity Norbert Kroo, Hungarian Academy of Sciences	Quantum Noise and Nonlocal Interference Yanhua Shih, University of Maryland	Uncovering new analytical solutions to the Dirac equation Andre Campos, Princeton
10:15 - 10:40	Dipolar collisions between Rydberg polaritons Jeff Thompson, Princeton	The photons are the signal: detecting electronic noise in mesoscopic conductors, Joachim Ankerhold, Ulm	Quantum nature of light: Description of electromagnetism by fermions Anatoly Svidzinsky, TAMU and Princeton
10:40 - 11:05	**BREAK, Poster session**	**BREAK, Poster session**	**BREAK, Poster session**
11:05 - 11:30	Philip Hemmer, TAMU	Erasing memory – Protecting quantum coherence and entanglement, Suhail Zubairy, TAMU	Marlan Scully, TAMU, Princeton and Baylor
11:30 -11:55	Unidirectional single photon generation via metamaterials, Jingping Xu, Tongji University	Quantum communication under noisy Gaussian channels Hyunchul Nha, TAMU at Qatar	Schrodinger cat states generated by synthetic spin-orbit interaction in Fock-state lattices, Dawei Wang, TAMU
11:55 - 12:20	Bose-Einstein condensation of photons and grand canonical condensate fluctuations, Martin Weitz, University of Bonn	Creating and Sustaining Entangled States of N-Qubits using Noise and Dissipation Manas Kulkarni, New York City College of Technology	How to trap a photon: Dicke Subradiance vs Anderson localization A29 Robin Kaiser, Nice
12:20 - 12:45	Jianshu Cao, MIT	A Modest View of Bell's Theorem Steve Boughn, Princeton University and Haverford College	Symmetry protected single photon subradiance Han Cai, TAMU
12:45 - 13:55	**LUNCH, Poster session, Friend Center**	**LUNCH, Poster session, Friend Center**	**LUNCH, Poster session, Friend Center**
	Chair: Michael Shlesinger	Chair: Yanhua Shih	Chair: Andre Campos
13:55 - 14:20	What is truly quantum about quantum thermodynamics? Gershon Kurizki, Weizmann Institute	An Alternative to Laser Cooling of Neutral Atoms Mark Raizen, University of Texas at Austin	Influence of decoherence in relativistic quantum systems Renan Cabrera, Princeton
14:20 - 14:45	Cavity-based parametric amplifiers as quantum heat engines, Arnab Ghosh, Weizmann Institute	Holographic method for site-resolved detection of a 2D array of ultracold atoms, Johannes Hecker-Denschlag, Ulm	Dissipative Quantum Dynamics and Heat Transfer Induced by Spin Noises, Kim Hsieh, MIT
14:45 - 15:10	Thermodynamics of light-matter interactions: attenuation, amplification, the Carnot limit and beyond, Erez Boukobza, University of Tel Aviv	A fresh look at the T3 – phase Maxim Efremov, Universität Ulm	Non-equilibrium dynamics of open systems and Fluctuation-dissipation theorem, Vaclav Spicka, Institute of Physics, Academy of Sciences of the Czech Republic
15:10 - 15:35	Quantum supremacy of many-particle thermal machines Adolfo del Campo, U. of Massachusetts	Frank Narducci, Navy	Relaxation Phenomena In the Adiabatic Phase Transition of Type I Superconductor Particles, Peter Keefe, University of Detroit Mercy
15:35 - 16:00	**BREAK, Poster session**	**BREAK, Poster session**	**BREAK, Poster session**
16:00 - 16:25	Portraits of Thermal Equilibrium, Aurelia Chenu, MIT	Dynamical scintillation index for the pulse train model of noise Leon Cohen, CUNY	Noise and Disorder in Quantum Biology Dmitri Voronine, TAMU
16:25 - 16:50	Negative probability problem in non-thermal bath Shen Wen Li, TAMU	Connection between operator ordering and phase-space distributions, Jonathan Ben-Benjamin, TAMU	Gain in the Mathieu equation and QASER system Reed Nessler, TAMU
16:50 - 17:15	Steady-State Quantum Coherence in Fano-Agarwal Coupling System, Barnabas Kim, TAMU	Wigner-Lindblad equations for quantum friction Denys Bondar, Princeton	Wave-particle duality relation under simultaneous measure of visibility and distinguishability, Jiehui Huang, TAMU
17:15 - 17:40	Coulomb-blockade as protection in photosynthesis Antenna with cyclic structures, Hui Dong, TAMU	Towards quantum signatures in a driven swept-bias Josephson junction, Harald Losert, Universität Ulm	
6:00 PM	**DINNER, Friend Center**	**DINNER, Friend Center**	

Friday, April 15, After Dinner Talk: Leon Cohen "The History of Noise"

Posters:

1. Tuguldur Begzjav, TAMU, Theoretical investigation using symmetric group to construct eigenstates of N spin-half particles
2. Erez Boukobza, University of Tel Aviv, Thermodynamic indistinguishability and the field state fingerprint of a non–linear amplifier
3. Birmingham Blake, Baylor,
4. Jing-Wei Fan, Tongji University, TAMU, Vacuum-Induced Transparency in Metamaterials
5. Wei Feng, TAMU, Electromagnetically induced transparency with super-radiant two-level system
6. Jeremy Kunz, Baylor, Effects of UV-Vis Radiation and Plasmonic Nanoparticles on E. coli Bacteria
7. Fu Li, TAMU, Quantum correlation in dephasing decay and its effect on interference in three-level systems
8. Zack Liege, Baylor
9. Gaotian Lu, TAMU, Xi'an Jiaotong University, Anomalous Substrate Effects in Raman Scattering of Multilayered Material
10. Yusef Maleki, TAMU, Entangled Spin Coherent States via Dicke State Engineering
11. Tao Peng, TAMU, Study of quantum noise in laser
12. Yujie Shen, TAMU, Interferometric-retrieved single-beam coherent anti-Stokes Raman spectroscopy
13. Anton Shutov, TAMU, All-collinear FAST CARS and Raman sidebands generation in gases
14. Mariia Shutova, TAMU, Topological charge algebra of optical vortices in nonlinear interactions
15. Mariia Shutova, TAMU, Measurement of the topological charge of mixed OAM states
16. Luojia Wang, TAMU, Baylor,
17. Zhiguo Wang, TAMU, Xi'an Jiaotong University, Modulating Photonic Band Gap Signal with the Relative Phase and the nonlinear Phase Shift
18. Zhenhuan Yi, TAMU, Dual pathway quantum beat in Rubidium vapor
19. Ran Zeng, TAMU, Casimir repulsion enhancement via topological insulators
20. Xiwen Zhang, TAMU, Continuous and discrete gradient echo
21. Daoquan Zhu, TAMU, Xi'an Jiaotong University, Resonance Raman Spectroscopy of Defects in Semiconducting 2D Material
22. Xingchen Zhao, TAMU, Single-photon Source: A Brief Introduction
23. Matthias Zimmermann, Ulm,