

Monday Morning, January 4 2010

Plenary Session, George R. Welch, Chair

7:25 **George R. Welch**, *Texas A&M University*, “Welcoming Remarks”

7:30 **Colin McKinstrie**, *Bell Laboratories, Alcatel-Lucent*, “Recent advances in fiber-based devices”

8:00 **Andy Kung**, *Academia Sinica, Taiwan*, “Waveform Synthesis using Frequency Combs Generated by Molecular Modulation”

8:30 **Ralf Röhlsberger**, *Deutsches Elektronen Synchrotron DESY*, “The collective Lamb shift in Nuclear Resonant Scattering”

Recent advances in fiber-based devices
Colin McKinstrie, Chair

Attosecond Pulses and Arbitrary Waveforms via Molecular Modulation
Alexei Sokolov, Chair

Nuclear Gamma-ray Superradiance
Ralf Röhlsberger, Chair

9:10 **Stojan Radic**, *University of California San Diego*, “Distributed Mixer Engineering with Molecular-Scale Accuracy”

Deniz D. Yavuz, *University of Wisconsin at Madison*, “Continuous-Wave Raman Generation in Molecules”

Adriana Palfy, *Max Planck Institute, Heidelberg*, “X-ray single-photon entanglement via coherent control of nuclei”

9:30 **Takayuki Kurosu**, *National Institute of Advanced Industrial Science and Technology*, “Parametric Delay Dispersion Tuner”

Fetah Benabid, *University of Bath*, “Towards a CW photonic intensity waveform synthesizer”

Jörg Evers, *Max Planck Institute for Nuclear Physics*, “Yoctosecond photon pulses from quark-gluon plasmas”

9:50 **Andreas O. J. Wiberg**, *University of California San Diego*, “Polychromatic Parametric Processing of Ultrafast Fields”

Masayuki Katsuragawa, *University of Electro-Communications, Japan*, “Efficient generation of Raman-type optical frequency comb in an enhancement cavity”

Bernhard Adams, *Argonne National Laboratory*, “Manipulation of nuclear γ -ray superradiance”

— Break —

Plenary Session, Godfrey Gumbs, Chair

10:30 **Jun Ye**, *JILA/NIST, and University of Colorado*, “Polar molecules - dipolar collisions and ultracold chemistry”

11:00 **Martin Wegener**, *Karlsruhe Institute of Technology*, “Towards 3D photonic metamaterials”

Recent advances in fiber-based devices
Andreas O. J. Wiberg, Chair

Attosecond Pulses and Arbitrary Waveforms via Molecular Modulation
Andy Kung, Chair

Cold Molecules
Lincoln Carr, Chair

Metamaterials
Martin Wegener, Chair

11:40 **Michael Vasilyev**, *University of Texas at Arlington*, “Multichannel all-optical regeneration”

MiaoChan Zhi, *Texas A&M University*, “Broadband light generation in CVD single crystal diamond”

Samuel Meek, *Max Planck Berlin*, “Taming molecular beams; towards a molecular laboratory on a chip”

(Change:)
TBA [Title Not Entered]

12:00 **Nathan Newbury**, *NIST*, “Fiber-based frequency combs and some precision measurement applications”

Chao-Kuei Lee, *NSYSU*, “Measurement of Octave-spanning Raman Generated Ultrafast Pulses”

Johann Georg Danzl, *University of Innsbruck*, “An ultracold, high-density sample of rovibronic ground-state molecules in an optical lattice”

Costas Soukoulis, *Ames Laboratory*, [Title Not Entered]

12:20 **Brian J. Smith**, *University of Oxford*, “Photon-pair generation in birefringent fibers”

Novel Optics
Vaclav Spicka, *Academy of Sciences of the Czech Republic*, “Fast dynamics of mesoscopic systems”

William C. Stwalley, *University of Connecticut*, “The electronic spectroscopy of ultracold KRb molecules”

Herbert O. Moser, *National University of Singapore*, “THz meta-foil – a platform for practical applications of metamaterials”

12:40 **Jingyun Fan**, *University of Maryland and NIST*, “High-brightness and -fidelity photon sources”

Matthias Weidemüller, *University of Heidelberg*, “Ultracold Polar Molecules in the Rovibrational Ground State”

Nick Fang, *University of Illinois at Urbana-Champaign*, “Molding the Flow of Light and Sound With Metamaterials”

Monday Evening, January 4 2010

Plenary Session, Vladislav V. Yakovlev, Chair

19:00 **Nat Fisch**, Princeton University, “Compressing Waves in Plasma”

19:30 **Richard Mathies**, University of California Berkeley, “Femtosecond Time-Resolved Stimulated Raman Spectroscopy”

20:00 **Nikolay Zheludev**, University of Southampton, “Nonlinear and Switchable Metamaterials”

— Break —

Wave compression in various media
Nat Fisch, Chair

*Stimulated Raman Scattering in Physics,
Chemistry, and Biology*
Richard Mathies, Chair

Cold Molecules
Jun Ye, Chair

Metamaterials 2 – Nonlinear Metamaterials
Nikolay Zheludev, Chair

20:50 **Robert Kirkwood**, Lawrence Livermore National Laboratory, “Using non-linear Raman amplification in a plasma to increase laser power and improve coupling to fusion targets at large laser facilities”

Satoshi Takeuchi, RIKEN, “Capturing structural snapshots of reacting molecules by femtosecond time-domain Raman spectroscopy”

Lincoln D. Carr, Colorado School of Mines, “Tunable Molecular Quantum Many Body Dynamics”

Nader Engheta, University of Pennsylvania, “Nonlinear Nanostructures in Metatronics”

21:10 **Nikolai Yampolsky**, Los Alamos National Laboratory, “Demonstration of detuning and wavebreaking effects on laser amplification by means of backward Raman scattering in plasma”

Valery Milner, University of British Columbia, “Narrow-band correlation spectroscopy with broad-band laser pulses”

Robin Cote, University of Connecticut, “Coherent manipulation of ultracold polar molecules”

Steven M. Anlage, University of Maryland, “Smaller, Faster, Colder: Superconducting Metamaterials”

21:30 **Ilya Dodin**, Princeton University, “Compressing linear waves trapped in plasma”

Vladislav V. Yakovlev, University of Wisconsin - Milwaukee, “Biomedical applications of stimulated Raman scattering”

Roman Krems, University of British Columbia, “Collision dynamics of molecules and rotational excitons in an ultracold gas confined by an optical lattice”

Willie Padilla, Boston College, “Infrared Metamaterials for Controlling Blackbody Emission”

21:50 **Tenio Popmintchev**, JILA, University of Colorado at Boulder, “Laser Pulse Self-Compression and Phase Matching of High Harmonic Generation at 0.5 keV”

George R. Welch, Texas A&M University, “Heterodyne Coherent anti-Stokes Raman scattering for spectral phase retrieval and signal amplification”

Paul Julienne, NIST Joint Quantum Institute, “Universal reaction rates for ultracold molecular collisions”

Steve Brueck, University of New Mexico, “Large-Area Linear and Nonlinear Nanophotonics”

Tuesday Morning, January 5 2010

Plenary Session, Claire Bedrock, Chair

7:30 **Naomi Halas**, *Rice University*, “Optically responsive complexes for nanomedicine”

8:00 **Shaul Mukamel**, *University of California, Irvine*, “Stimulated CARS Resonances Revisited: Double-slit Interference of Two-photon Pathways”

8:30 **Leonid Butov**, *University of California San Diego*, “Exciton Condensates”

Frontiers of plasmonics
Peter Nordlander, Chair

Nonlinear Spectroscopy with Shaped Pulses and Entangled Photons
Shaul Mukamel, Chair

Exciton Condensates
Leonid Butov, Chair

Localization of Light
Robin Kaiser, Chair

9:10 **Harry Atwater**, *California Institute of Technology*, “Plasmonics at the dielectric/metal transition and plasmonic networks”

Valentyn Prokhorenko, *University of Toronto, Canada*, “Coherent Multidimensional Spectroscopies with Coherent Control Capabilities”

Michael Lilly, *Sandia National Laboratories*, “Electrical transport techniques to probe the ground state of closely spaced electron-hole bilayers”

Mark D. Havey, *Old Dominion University*, “Light scattering in high density and ultracold Rb”

9:30 **Jonathan Fan**, *Harvard University*, “Fano Interference in Self-Assembled Plasmonic Nanoparticle Clusters”

Ted Goodson, *University of Michigan*, “Entangle Photon Spectroscopy of Organic Molecules”

Alexey Kavokin, *University of Rome II*, “Superconductivity mediated by a Bose-Einstein condensate of exciton-polaritons”

Igor M. Sokolov, *State Polytechnic University, St. Petersburg*, “Light scattering from high density ultracold atomic clouds”

9:50 **Mikael Käll**, *Chalmers University of Technology*, “Alignment, Rotation and Spinning of Plasmonic Nanoparticles using Polarization Dependent Optical Forces”

Scott Papp, *California Institute of Technology*, “Characterizing multipartite entanglement with uncertainty relations”

Barbara Pietka, *Ecole Polytechnique Fédérale de Lausanne, Switzerland*, “Condensation of exciton-polaritons in a semiconductor microcavity”

Sergey Skipetrov, *CNRS and Joseph Fourier University*, “Self-consistent theory of Anderson localization”

10:10 **Stefan Maier**, *Imperial College London*, “Concepts for spectral and spatial mode tailoring of optical plasmonic nanocavities and THz plasmonic metamaterials”

Marcos Dantus, *Michigan State University*, “Strategies for coherent spectroscopy based on a single broad bandwidth shaped pulse”

Vittorio Pellegrini, *NEST CNR-INFM and Scuola Normale Superiore Pisa (Italy)*, “Seeing inter-layer excitonic coherence in the excitations of electron double layers”

Andrey Chabanov, *University of Texas at San Antonio*, “Statistics of Fluctuations and Correlation of Localized Waves”

— Break —

Plenary Session, G. G. Padmabandu, Chair

10:50 **Tamar Seideman**, *Northwestern University*, “Spinning Tops in External Fields. From High Harmonic Generation to Control of Transport in the Nanoscale”

11:20 **Wolfgang Schleich**, *Universität Ulm, Free-Electron Lasers* [Title Not Entered]

Frontiers of plasmonics
Naomi Halas, Chair

New Directions in Coherent Alignment
Tamar Seideman, Chair

Free-Electron Lasers
Wolfgang Schleich, Chair

Novel Optics
Anatoly Svidzinsky, Chair

12:00 **Peter Nordlander**, *Rice University*, “Quantum description of plasmons in strongly coupled metallic nanostructures”

Yehiam Prior, *Weizmann Institute of Science*, “Molecular Alignment – Small And Large, Slow And Fast”

Roland Sauerbrey, *Research Centre Dresden-Rossendorf (FZD)*, “High Intensity Lasers as Undulators for FEL’s”

Martin Richardson, *CREOL, The College of Optics & Photonics*, “A new kid on the block - the thulium fiber laser”

12:20 **Lukas Novotny**, *University of Rochester*, “Free-Space Excitation of Propagating Surface Plasmon Polaritons”

(Change:)
Edward Hamilton, *Grand Valley State University*, “Control of the alignment dynamics of asymmetric top molecules by means of laser pulses”

Paul Preiss, *Universität Ulm*, “On the Quantum Theory of the FEL”

M. Howard Lee, *University of Georgia*, “Superstable 3-cycle in the logistic map and Sharkovskii’s theorem”

12:40 **Mark I. Stockman**, *Georgia State University*, “New Horizons of Nanoplasmonics: from SPASER to Attoseconds”

(Change:)
See Leang Chin, *Laval University*, “Femtosecond laser filamentation and molecular rotation”

Theo Nieuwenhuizen, *University of Amsterdam*, “Black holes with hair as a normal state of matter”

Tuesday Evening, January 5 2010

Plenary Session, Eric Akkermans, Chair

19:00 **Paolo Nussenzveig**, *Instituto de Fisica – USP, Brazil*, “Three-color entanglement: generation characteristics and robustness”

19:30 **Ron Folman**, *Ben-Gurion University*, “Atom chips: one decade of ultra cold atoms microns from a surface”

20:00 **Ralf Schützhold**, *Universität Duisburg-Essen*, “Fundamental effects from a quantum optics perspective”

— Break —

Plasmonics 2
Natalia Litchinitser, Chair

Quantum Information with Continuous Variables

Spatial interferometry on atom chips
Ron Folman, Chair

Unruh Effect
Eric Akkermans, Chair

20:50 **Alexandra Boltasseva**, *TU Denmark / Purdue University*, “Searching for Better Plasmonic Materials”

Paolo Nussenzveig, Chair
Ulrik Andersen, *Technical University of Denmark*, “Quantum coherence of continuous variable systems can survive complete loss”

Romain Long, *Laboratoire Kastler Brossel*, “Transition from atom number bunching to antibunching in a double-well potential on an atom chip”

Serge Reynaud, *Ecole normale supérieure Paris*, “Dynamical Casimir radiation and analogues”

21:10 **Norbert Kroó**, *Hungarian Academy of Sciences*, “Multiplasmon processes in enhanced laser fields”

Alexander Gaeta, *Cornell University*, [Title Not Entered]

Peter Krüger, *University of Nottingham*, “A radio-frequency based integrated atom interferometer and the 1d Bose gas”

(Change:)
Eric Akkermans, *The Technion, Israel*, “Casimir effect and other QED vacuum properties from the viewpoint of Shannon information”

21:30 **Mikhail A. Noginov**, *Norfolk State University*, “Loss Reduction and Stimulated Emission in Nanoplasmonic Systems”

Peter van Loock, *Max Planck Institute for the Science of Light*, “A note on quantum error correction with continuous variables”

Max Riedel, *LMU and MPQ Munich*, “Atom chip based generation of entanglement for quantum metrology”

Gerald Dunne, *University of Connecticut*, “The Schwinger Effect: Nonperturbative Pair Production from Vacuum”

21:50 **Gennady Shvets**, *University of Texas at Austin*, “Slow light in plasmonic metamaterials: the double-Fano resonance approach”

Stephen P. Walborn, *Universidade Federal do Rio de Janeiro*, “Non-Gaussian Entanglement with Spatial Variables of Photons”

(Change:)
TBA [Title Not Entered]

Miles P. Blencowe, *Dartmouth College*, “Analogue Hawking Radiation in a Superconducting Circuit”

Wednesday Morning, January 6 2010

Plenary Session, Ian Osborne, Chair

7:30 **John Pendry**, *Imperial College London*, “Transformation Optics & the Control of Electromagnetic Radiation”

8:00 **Vladimir M. Shalaev**, *Purdue University*, “Transforming Light with Metamaterials”

8:30 **Aleksei Zheltikov**, *Moscow State University*, “Ultrafast guided-wave photonics: Colorful ways to tailor ultrashort optical field waveforms”

	<i>Metamaterials 3 – Transformation Optics</i> John Pendry, Chair	<i>High Frequency and High Energy Lasers</i> Marlan O. Scully, Chair	<i>Semiconductor Lasers 2</i> Weng Chow, Chair	<i>Coherent Spectroscopy and Quantum Control</i> Valery Milner, Chair
<u>9:10</u>	Xiang Zhang , <i>University of California Berkeley</i> , “Optical cloaking and Plasmon lasers”	Jorge J. Rocca , <i>Colorado State University</i> , “Table-top soft x-ray lasers with shorter wavelengths and smaller size”	Claire Gmachl , <i>Princeton University</i> , “Highly power-efficient Quantum Cascade lasers”	Anita Goel , <i>Nanobiosym</i> , “Quantum Frontiers of Nano-Bio-Physics”
<u>9:30</u>	Che-ting Chan , <i>Hong Kong University of Science & Technology</i> , “Illusion effects created using transformation optics”	Carmen Menoni , <i>Colorado State University</i> , “Nanoscale imaging and patterning using bright beams of soft x-ray light from table-top lasers”	Cun-Zheng Ning , <i>Arizona State University</i> , “More Gain with More Loss: Metals as Gain Enhancers and Plasmonic Nanolasers”	Alexei Sokolov , <i>Texas A&M University</i> , “Backward mirror-less lasing achieved through pump pulse shaping”
<u>9:50</u>	Michal Lipson , <i>Cornell University</i> , “Transformational optics in the optical regime using nanophotonic structures”	Eyob A. Sete , <i>Texas A&M University</i> , “Transient XUV lasing without inversion via He triplet states”	Vassilios Kovanis , <i>Air Force Research Laboratory</i> , “Nonlinear dynamics of photonic circuits: gain lever, optical injection and coupled lasers”	Kazuhiko Misawa , <i>Tokyo University of Agriculture and Technology</i> , “Sensitive detection of inhalational anesthetic molecules by heterodyne-detected single-beam CARS using adaptively phase-modulated femtosecond pulses”
<u>10:10</u>	David Smith , <i>Duke University</i> , “Controlling light with transformation optical metamaterials”	Szymon Suckewer , <i>Princeton University</i> , “Coherently Driven Transitions in He atoms and He-Like Ions for XUV and X-Ray Lasing: Approach to Experiments”	Mike Wanke , <i>Sandia National Laboratory</i> , “THz transceivers”	Svetlana Malinovskaya , <i>Stevens Institute of Technology</i> , “Adiabatic Raman Passage Using an Optical Frequency Comb”

— Break —

Plenary Session, Marlan O. Scully, Chair

10:50 **Lamb Award**, “The presentation of the 2010 Willis E. Lamb Award for Laser Science and Quantum Optics”

11:20 **Mark A. Kasevich**, *Stanford University*, “Quantum Simulation with Bose-Einstein Condensed Atoms and High Finesse Optical Cavities”

	<i>Metamaterials 4 – New Concepts in Metamaterials</i> Vladimir M. Shalaev, Chair	<i>Quantum Information, Computing, and Imaging</i> Elisabeth Giacobino, Chair	<i>Bose-Einstein condensates</i> Mark A. Kasevich, Chair	<i>Novel Optics</i> Hui Xia, Chair
<u>12:00</u>	Eugeni Narimanov , <i>Purdue University</i> , “Infinite at Any Frequency: the photonic density of states in (meta)materials with hyperbolic dispersion and related phenomena”	Claude Fabre , <i>Université Pierre et Marie Curie</i> , “Quantum information processing and clock synchronization beyond the standard quantum limit using quantum frequency combs”	Vanderlei S. Bagnato , <i>IFSC/ Univeristy of Sao Paulo</i> , “Emergence of Turbulence in a BEC”	Leon Cohen , <i>City University of New York (Hunter College)</i> , “The propagation of noise fields in a dispersive medium”
<u>12:20</u>	Ivdar Gabitov , <i>University of Arizona</i> , “Coherent loss compensation in optical metamaterials”	Walter C. Daugherty , <i>Texas A&M University</i> , “Quantum-Type Reversible Circuits and Algorithms”	Yu-Ju Lin , <i>NIST Gaithersburg and University of Maryland</i> , “Optically synthesized magnetic fields for ultracold neutral atoms”	Patrick Loughlin , <i>University of Pittsburgh</i> , “Local duration-bandwidth product of a propagating pulse”
<u>12:40</u>	Natalia Litchinitser , <i>University at Buffalo</i> , “Transition Metamaterials”	Robert W. Boyd , <i>University of Rochester</i> , “New Results in Quantum Imaging”	Juan Pino , <i>JILA</i> , “Counting phonons: a new window into strongly interacting superfluid”	Koryun Oganessian , <i>Yerevan Physics Institute</i> , “Theory of Smith-Purcell Radiation from Rough Surfaces”

Wednesday Evening, January 6 2010

Plenary Session, Howard E. Brandt, Chair

19:00 **Hui Cao**, *Yale University*, “Recent Developments of Random Lasers”

19:30 **Howard Wiseman**, *Griffith University*, “Platonic Love at a Distance”

20:00 **Chris Greene**, *University of Colorado*, “Ultracold 4-body systems and the Efimov effect”

— Break —

Lasing in Random Media

Hui Cao, Chair

20:50 **Robin Kaiser**, *CNRS, France*, “Random Lasing with Cold Atoms”

21:10 **Martin Weitz**, *Universität Bonn*, “Two-dimensional blackbody radiation from an optical microresonator”

21:30 **Hakan Tureci**, *ETH Zurich*, “Nature of lasing modes in weakly scattering disordered media”

21:50 **Johann Kroha**, *University of Bonn*, “Self-consistent transport theory of diffusive random lasers”

Quantum Information Processing

Howard Wiseman, Chair

Bryan Jacobs, *Johns Hopkins Univ. Applied Physics Lab*, “Hybrid Information Processing”

Louis H. Kauffman, *University of Illinois at Chicago*, “Topological Quantum Information Theory”

Yaakov Weinstein, *Mitre Corporation*, “Constructing Photonic Cluster States for Quantum Computation”

Howard E. Brandt, *U.S. Army Research Laboratory*, “Jacobi Fields in Quantum Circuit Complexity Analysis”

Mixtures and Spinors I

Ofir E. Alon, Chair

Eddy Timmermans, *Los Alamos National Laboratory*, “Pseudo-spin-spin interactions, hysteresis and macroscopic tunneling in ultra-cold atoms”

Fei Zhou, *University of British Columbia*, “Beyond mean-field spin dynamics”

Ludwig Mathey, *NIST, Gaithersburg*, “Supercritical superfluid and vortex unbinding following a quantum quench”

Hossein Sadeghpour, *ITAMP/Harvard University*, “Cold dimer formation and other spin relaxation processes in a buffer-gas cooled magnetic trap”

Quantum Optics

Jon P. Davis, Chair

Sándor Varró, *Hungarian Academy of Sciences*, “Correlations in single-quantum experiments. A note on wave-particle duality”

Thomas Becker, *Max Planck Institute of Quantum Optics*, “New spectroscopic techniques for Rydberg atoms”

Frank A. Narducci, *Naval Air Systems Command*, “Recoil-induced resonances for temperature measurements and all-optical switching”

(Change:)

Edward S. Fry, *Texas A&M University*, “Ring-Down Spectroscopy in an Integrating Cavity”

Thursday Morning, January 7 2010

Plenary Session, Tatjana Curcic, Chair

7:30 **Hyatt M. Gibbs**, *University of Arizona*, “Strongly Coupled Single-Quantum-Dot Nanocavity System: From Vacuum Rabi Splitting to Lasing”

8:00 **Stefan Kröll**, *Lund University*, “Coherent interactions in rare earth ion doped crystals for quantum memory and quantum computer development”

8:30 (*Changed:*) **Elisabeth Giacobino**, *Laboratoire Kastler Brossel, CNRS, UPMC, ENS, Paris*, “Superfluidity of polaritons in semiconductor microcavities”

Semiconductor Lasers I

Hyatt M. Gibbs, Chair

9:10 **Mikhail Belkin**, *The University of Texas at Austin*, “THz quantum cascade laser sources for room-temperature operation”

9:30 **Alexey Belyanin**, *Texas A&M University*, “Instabilities, multimode dynamics, and ultrafast modulation of mid-infrared quantum cascade lasers”

9:50 **Daniel Wasserman**, *University of Massachusetts Lowell*, “Mid-infrared Plasmonics”

10:10 **Patrice Genevet**, *Texas A&M University*, “Experimental observation of Localized vortices in semiconductor Lasers”

Quantum coherence effects in solids

Stefan Kröll, Chair

Olga Kocharovskaya, *Texas A&M University*, “Study of ions interactions in solids by means of EIT”

Philip Hemmer, *Texas A&M University*, “High resolution single spin imaging with NV diamond”

(*Change:*)

Torsten Siebert, *Freie Universitaet Berlin*, “Towards Supercontinuum Spectroscopy and Control of Ultrafast Molecular Processes”

Victor Acosta, *University of California Berkeley*, “Perfect defects? Spin-ensemble magnetometry with Nitrogen-Vacancy centers in diamond”

Mixtures and Spinors II

Chris Greene, Chair

Li You, *QingHua University*, “Mixtures for two spin-1 condensates”

Doerte Blume, *Washington State University*, “s-wave interacting Fermi gas under harmonic confinement”

Klaus Ziegler, *Institut fuer Physik, Universitaet Augsburg*, “Anderson localization in fermionic mixtures”

Ofir E. Alon, *University of Heidelberg*, “Interferences with distinguishable BECs and more”

Matter Wave Localization

Alain Aspect, Chair

Giacomo Roati, *LENS, University of Florence*, “A tunable Bose-Einstein condensate in disordered potentials”

Scott Pollack, *Rice University*, “Interaction Effects in Anderson Localization of an Ultracold Atomic Gas”

Pascal Szriftgiser, *Laboratoire PhLAM, CNRS, USTL*, “The Anderson metal-insulator transition with atomic matter waves”

(*Change:*)

Russell Hart, *University of Innsbruck*, “Metal-Insulator Transitions and Transport of Ultracold Atoms in Optical Lattices”

— Break —

Plenary Session, Leon Cohen, Chair

10:50 **Douglas Stone**, *Yale University*, “Novel Lasing Structures and Phenomena from Ab Initio Theory”

11:20 **Marlan O. Scully**, *Texas A&M and Princeton University*, “The Quantum Solar Cell: Using quantum thermodynamics to mitigate recombination and enhance efficiency”

Novel and complex laser structures

Douglas Stone, Chair

12:00 **Marin Soljacic**, *Massachusetts Institute of Technology*, “Novel platforms for light sources”

12:20 **Lei Xu**, *Fudan University, Shanghai*, “Coupled Microcavities for Single Mode Lasing and Biosensing”

12:40 **Qijie Wang**, *Nanyang Technological University*, “Directional emission from deformed microcavities”

Quantum coherence effects in solids

Olga Kocharovskaya, Chair

Philippe Goldner, *Ecole Nationale Supérieure de Chimie de Paris*, “Coherent Collective Emission in a Random Medium”

Thierry Chanelière, *Laboratoire Aimé Cotton - CNRS*, “Few photons storage in thulium doped crystals”

(*Change:*)

Sergey Polyakov, *NIST*, “Towards DLCZ-type solid state quantum memory: tailored state preparation”

Bose-Einstein condensates

Vanderlei S. Bagnato, Chair

Christoph Weiss, *University of Oldenburg*, “Mesoscopic quantum superpositions of a Bose-Einstein condensate in a periodically shaken double well”

Vitaly Kocharovsky, *Texas A&M University*, “Analytical solution for BEC critical phenomena”

(*Change:*)

Adilet Imambekov, *Rice University*, “Exact Solution for 1D Spin-Polarized Fermions with Resonant Interactions”

Quantum Solar Energy

Marlan O. Scully, Chair

Ting Shan (Willie) Luk, *Sandia National Laboratory*, “Enhanced spontaneous emission from photonic crystal microcavities”

Oleksiy Roslyak, *Hunter College, CUNY*, “Signatures of carrier multiplication in polariton fluorescence spectra”

Anatoly Svidzinsky, *Texas A&M University*, “Design of a quantum dot (well) solar energy convertor utilizing wide solar spectrum”

Thursday Evening, January 7 2010

Plenary Session, Virgil Sanders, Chair

19:00 **Kent D. Choquette**, *University of Illinois*, “ ‘Green’ Photonic Laser Sources”

19:30 **Yuri Rostovtsev**, *University of North Texas*, “Quantum coherence excited by far-detuned optical pulses: generation of X-ray and nuclear radiation”

20:00 **Peter D. Keefe**, *Keefe and Associates*, “Intellectual Property”

— Break —

Semiconductor Lasers 3
Kent D. Choquette, Chair

*Quantum systems and ultra short pulses:
time and space*
Yuri Rostovtsev, Chair

Intellectual Property
Peter D. Keefe, Chair

Quantum Carpets
Frank A. Narducci, Chair

20:50 **J. Gary Eden**, *University of Illinois*, “Microcavity Plasma Arrays and Coupling of Semiconductor and Gas Phase Plasmas”

Thomas Pfeifer, *Max-Planck Institute for Nuclear Physics*, “Measurement and CEP control of isolated attosecond pulse contrast”

William Blackman, *Carrier, Blackman & Associates*, “Obtaining a Patent”

Kenji Ohmori, *Institute for Molecular Science, Japan*, “Spatiotemporal coherent control with picometer and attosecond precision; From cold molecules to bulk solids”

21:10 **Ravi Jain**, *University of New Mexico*, “Diode-pumped High-Power Mid-IR Fiber Lasers and Amplifiers”

Hebin Li, *Texas A&M University*, “Carrier-envelope phase effect of RF pulses: sine vs cosine”

Dave Morrison, *University of Utah*, “Searching U.S. And Foreign Patents For Related Technologies”

William Case, *Grimmell College*, “Optical Carpets from the Talbot and Talbot-Lau Effects”

21:30 **Weng Chow**, *Sandia National Laboratory*, “Solid-state lighting and the efficiency droop problem”

Hichem Eleuch, *Texas A&M University*, “Analytical Solutions of the Schrodinger Equation in time and space”

Howard J. Brubaker “Marketing Intellectual Property”

Ernst M. Rasel, *Leibniz Universität Hannover*, “Giant Matterwaves”

21:50 **Nikolai Stelmakh**, *University of Texas at Arlington*, “Shaping spontaneous emission pattern by plasmonic nanocavity”

Verònica Ahufinger, *ICREA and Universitat Autònoma de Barcelona*, “Coherent patterning of matter waves with subwavelength localization”

(Change:)
Lijun Wang, *Max-Planck Institute for the Science of Light*, “Cooling and Stochastic Resonance of a Macroscopic Oscillator”