Monday Morning January 3 2005

Plenary Session, George R. Welch, Chair

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

7:30 **Herbert Walther**, *Max-Planck Institut für Quantenoptik*, "Recent Advances in Cavity Quantum Electrodynamics"

8:00 **Federico Capasso**, *Harvard University,* "New frontiers in quantum cascade laser research"

8:30 **Leonid Butov**, *University of California at San Diego,* "Experiments on Exciton Condensation and "Pattern Formation in Coupled Quantum Wells"

	Cavity QED Herbert Walther, Chair	*Quantum Cascade Laser Physics and Applications* Federico Capasso, Chair	*Exciton Condensation in Semiconductors* Leonid Butov, Chair	*Vibrational and Infrared Molecular Spectroscopy* Alexei Sokolov, Chair
9:10	**Thomas Becker**, *Max-Planck Institut für Quantenoptik,* "Cavity QED with the Micromaser: From Fock-State Generation to Phase Diffusion"	**Alexey Belyanin**, *Texas A&M University,* "Coherent nonlinear optics with quantum-cascade structures"	**Ronen Rapaport**, *Bell-Labs, Lucent Technologies*, "Excitons in luminescent rings and artificial traps"	**Paul Champion**, *Northeastern University,* "Exploring Low-Frequency Modes in Biomolecules Using Femtosecond Coherence Spectroscopy"
9:30	**Axel Scherer**, *California Institute of Technology,* "Photonic crystals - basics and prospects"	**Claire Gmachl**, *Princeton University,* "Intersubband transitions beyond QC lasers"	**Makoto Kuwata-Gonokami**, *University of Tokyo,* "Optical manipulation of cold excitons in a quantum degenerate regime"	**Nikolai Kalugin**, *Texas A&M University,* "Multi-phonon Infrared Spectra of thin polycrystalline films and monocrystals of dipicolinic acid"
9:50	**Chris Search**, *Stevens Institute of Technology,* "Quantum Atom Optics: Non-classical Dynamics of Matter-Waves Coupled to Light Fields"	**Cun-Zheng Ning**, *NASA Ames Center for Nanotechnology,* "Possibility of two-photon lasing using intersubband transitions in semiconductor nanostructures"	**Jim Wolfe**, *University of Illinois at Urbana-Champaign,* "Excitons in Cu2O, To BEC or not to BEC?"	**Aleksander Rebane**, *Montana State University,* "1-2-3 photon spectroscopy of NLO chromophores"

— Break —

Plenary Session, David H. Hughes, Chair

10:30 **David Hyland**, *Texas A&M University,* "Quantum Optics and Exosolar Planet Detection"

11:00 **Yoshihisa Yamamoto**, *Stanford University,* "Condensate of Polaritons in Microcavities"

	Novel Optics David Hyland, Chair	*Quantum Cascade Laser Physics and Applications* Alexey Belyanin, Chair	*Exciton Condensation in Semiconductors* Yoshihisa Yamamoto, Chair	*Entanglement, Correlations, and Complementarity* Jon Sjogren, Chair
11:40	**Michael G. Littman**, *Princeton University,* "Beating Diffraction with a Binary Mask – Shaped Pupil Coronagraph and the Optical Search for Planets about Nearby Stars"	**J. Barry McManus**, *Aerodyne Research, Inc.*, "Trace gas measurements using pulsed QC lasers: atmospheric and environmental applications"	**Leonid Levitov**, *Massachusetts Institute of Technology,* "theory of exciton condensation and pattern formation in coupled quantum wells"	**Alfred U'Ren**, *CISESE,* "Applied Photon Entanglement with Multi-Element Sources"
12:00	**Joe Mait**, *U.S. Army Research Laboratory,* "A Historical Perspective of Imaging"	**Tanya L. Myers**, *Pacific Northwest National Laboratory,* "Quantum Cascade Laser Transmitters for Sensors and Other Applications"	**Allan MacDonald**, *University of Texas at Austin,* "Excitonic Bose Condensation in Quantum Hall Bilayers"	**John Howell**, *University of Rochester,* "Time-Energy EPR Entanglement"
12:20	**Elena Kuznetsova**, *Texas A&M University,* "Solitary waves in amplifying media with excited-state absorption"	**Gottfried Strasser**, *Technical University of Wien,* "Surface emitting quantum cascade lasers"	**Loren Pfeiffer**, *Bell Laboratories*, "Design considerations of GaAs samples intended to demonstrate excitonic BEC"	**Mark Hillery**, *Hunter College, CUNY,* "Discriminating multipartite states"
12:40	**Leon Cohen**, *City University of New York (Hunter College),* "Time-Frequency Evolution of the Quantum Langevin Equation"			**Margaret Reid**, *University of Queensland, Australia,* "Criteria for entanglement of macroscopic superpositions"

Monday Evening January 3 2005

Plenary Session, M. Howard Lee, Chair

19:00 **William G. Unruh**, *University of British Columbia, Vancouver,* "Dumb Holes and Slow light– Testing Black Hole Physics in the Lab"

19:30 **Daniel J. Gauthier**, *Duke University,* "New techniques for ultra-low light-level nonlinear optics"

20:00 **Peter S. Pershan**, *Harvard University,* "X-ray optics of liquid surfaces"

— Break —

	Quantum Field Theory in Curved Space Howard Brandt, Chair	*Ultra-Low-Light Level Nonlinear Optics* Daniel J. Gauthier, Chair	*Novel Optics* John Howell, Chair	*Femtosecond Dynamics* Zoe-Elizabeth Sariyanni, Chair
20:50	**Leonard Parker**, *University of Wisconsin at Milwaukee,* "Cosmology and Quantum Field Theory in the Curved Spacetime of General Relativity"	**Danielle Braje**, *Stanford University,* "Nonlinear Optics Using Electromagnetically Induced Transparency in Cold Atoms"	**Kevin Lehmann**, *Princeton University,* Cavity Ring-down Spectroscopy	**Stefanie Gräfe**, *Wuerzburg University, Germany,* "Instanteneous dynamics and quantum control fields: principle and numerical applications"
21:10	**Stephen A. Fulling**, *Texas A&M University,* "Review of some recent work on acceleration radiation"	**Jeff Lundeen**, *University of Toronto,* "Applications of a nonlinear photon switch to Hardy's Paradox and Bell-state determination"	**George R. Welch**, *Texas A&M University,* "Enhanced coupling between optical and sound waves in the forward direction via ultra-slow light"	**Kazuhiko Misawa**, *Tokyo University of Agriculture and Technology,* "Real-time wave-packet dynamics and wave-packet engineering"
21:30	**Chris Adami**, *Keck Graduate Institute/Caltech,* "Black holes conserve information in curved-space quantum field theory"	**Min Xiao**, *University of Arkansas,* "All-optical switching with enhanced Kerr nonlinearity in EIT system"	**Raanan Tobey**, *University of Colorado,* "Nonlinear High-Frequency Photoacoustic Spectroscopy using EUV Light	**Jaan Laane**, *Texas A&M University,* "Spectroscopic Investigations of Molecular Structures in Electronic Excited States"
21:50	**Paul M. Alsing**, *Air Force Research Laboratory,* "Ion Trap Simulation of theUnruh Effect"	**Alex Kuzmich**, *Georgia Institute of Technology,* "Quantum networking with atomic ensembles"	**Kyungsun Na**, *University of Texas at Austin,* "Chaos Assisted STIRAP"	**Roland E. Allen**, *Texas A&M University,* "Response of benzene and dipicolinic acid to ultrafast laser pulses"

Tuesday Morning January 4 2005

Plenary Session, Olga Kocharovskaya, Chair

7:30 **Sune Svanberg**, *University of Lund, Sweden,* "Diagnostics and treatment of tumours using laser techniques"

8:00 **Gérard Mourou**, *U. of Michigan and LOA ENSTA/Ecole Polytechnique Fr.,* "Relativistic Optics"

8:30 **Stephen E. Harris**, *Stanford University,* "Fourier Synthesis of Optical Waveforms"

	Laser Medical Diagnostics Sune Svanberg, Chair	*Relativistic Optics* Gérard Mourou, Chair	*Laser Optics* Stephen E. Harris, Chair	*Femtosecond Dynamics* Vladimir A. Sautenkov, Chair
9:10	**Hans Hertz**, *Royal Institute of Technology, Stockholm,* "Sources and optics for table-top biomedical x-ray imaging"	**Michael Key**, *Lawrence Livermore National Laboratory,* "Physics of the fast Ignitor"	**Alexei Sokolov**, *Texas A&M University,* "Toward powerful single-cycle laser pulses"	**Manjusha Mehendale**, *Princeton University,* "All UV time resolved coherent anti-Stokes Raman scattering"
9:30	**Gordon Cates**, *University of Virginia,* "Progress using Laser Polarized Noble Gases for Magnetic Resonance in Medicine"	**Kim Ta Phuoc**, *LOA ENSTA/Ecole Polytechnique Fr.,* "Generation of X-ray beams using lasers from the accelaration of energetic electrons"	**Masayuki Katsuragawa**, *University of Electro-Communications, Japan,* "Ultrashort pulse generation using coherent molecular oscillation"	**Joseph Giordmaine**, *Princeton University,* "Slowing the dephasing of molecular coherence"
9:50	**Irving Bigio**, *Boston University,* "Optical biopsy: noninvasive detection of cancer with elastic-scattering spectroscopy"	**Frank Caroll**, *Vanderbilt U. Medical Center,* "Applications of High Intensity laser-based X-ray imaging and therapy"	**Chandrasekhar Roychoudhuri**, *University of Connecticut,* "Measuring properties of superposed light beams carrying different frequencies"	**Barak Dayan**, *Weizmann Institute of Science, Israel,* "Nonlinear interactions with entangled photons and high-power down-converted light"

— Break —

Plenary Session, Kotik Lee, Chair

10:30 **Eric Mazur**, *Harvard University,* "Wrapping light around a hair"

11:00 **Lute Maleki**, *Jet Propulsion Laboratory,* "Hyper parametric oscillation and squeezing in crystalline whispering gallery mode resonators"

	Nanophotonics I Eric Mazur, Chair	*Relativistic Optics* Gérard Mourou, Chair	*Quantum Metrology* Andrey Matsko, Chair	*Microcavity enhancements in Semiconductor Lasers and LEDs* Weng W. Chow, Chair
11:40	**Naomi Halas**, *Rice University,* "Plasmonic Nanosensors"	**John Nees**, *University of Michigan,* "Relativistic Optics: A route to high intensity attosecond pulses"	**Derek Kimball**, *University of California at Berkeley,* "Can a Quantum Nondemolition Measurement Improve the Sensitivity of an Atomic Magnetometer?"	**Connie Chang-Hasnain**, *University of California at Berkeley,* "50GHz VCSEL - no speed limit in sight"
12:00	**Michal Lipson**, *Cornell University,* "Manipulating light using highly confining nanophotonic structures"	**Wim Leemans**, *Lawrence Berkeley National Laboratory,* "Laser Plasma-based accelerators: their potential for High Energy Physics"	**Eugeniy Mikhailov**, *Massachusetts Institute of Technology,* "Development of a stable low-frequency squeezed vacuum source for precision position measurement"	**Dennis G. Deppe**, *University of Texas at Austin,* "Lithographically defined all epitaxial grating confined VCSELs and their applications to quantum-optics experiments"
12:20	**Kerry Vahala**, *California Institute of Technology,* "Q $>$ 100-million optical microresonators on silicon and applications"	**Jean-Claude Kieffer**, *INRS Canada,* "Phase contrast radiography with Ultrafast laser based X-ray source alser baser"	**Alexander Korotkov**, *University of California at Riverside,* "Quantum feedback control in solid-state mesoscopics"	**Kent Choquette**, *University of Illnois,* "Vertical Cavity Photonic Crystal Lasers"
12:40	**Elinor Irish**, *University of Rochester,* "Quantum Electro-Mechanics: Cavity QED beyond the rotating-wave approximation"		**Irina Novikova**, *Harvard Smithsonian Center for Astrophysics,* "Study of the three-photon absorption resonances as a challenger for the atomic clock"	**Ihab El-kady**, *Sandia National Laboratory,* "Thermal emission from photonic crystals: Does it exceed blackbody radiation?"

Tuesday Evening January 4 2005

Plenary Session, Robert Boyd, Chair

19:00 **Paul Brumer**, *University of Toronto*, "Coherent Control of Radiationless Transitions"

19:30 **Wolfgang Schleich**, *Universität Ulm*, "New Frontiers in General Relativity"

20:00 **Jacob Khurgin**, *Johns Hopkins University*, "Parametric Slow Light Structures"

— Break —

	New Directions in Coherent Control Paul Brumer, Chair	*Relativity and Optics* Wolfgang Schleich, Chair	*Slow Light Applications* Jacob Khurgin, Chair	*Nanophotonics II* Nikolai Kalugin, Chair
20:50	**Ioannis Thanapoulos**, *University of British Columbia and*, "Coherent Control of Nucleotide Base Pair Mutations"	**Ernst Rasel**, *Universität Hannover*, "Atom optics on ground and in space"	**Yifu Zhu**, *Florida International University*, "Nonlinear wave mixing with EIT in cold atoms"	**Evgenii E. Narimanov**, *Princeton University*, "Chaotic Microlasers Based on Dynamical Anderson Localization"
21:10	**Matthais Wollenhaupt**, *Universität Kassel*, "Quantum Control Using Intense Shaped Pulses"	**Ignazio Ciufolini**, *Universita' di Lecce, Italy*, "Accurate measurement of frame-dragging using the LAGEOS satellites and the GRACE Earth gravity models"	**Art Smirl**, *University of Iowa*, "Stopping, Trapping and Releasing Light in Doubly-Resonant Nanostructures"	**Viktor A. Podolskiy**, *Oregon State University*, "Nanostructured non-magnetic left-handed composites"
21:30	**Victor S. Batista**, *Yale University*, "Creating and Manipulating Electronic Coherences in Functionalized Seminconductor Nanostructures"	**Francis Everitt**, *Stanford University*, "Gravity Probe B On-Orbit: Processing the Science Data"	**De-Kui Qing**, *Texas A&M University*, "Delay-Time-Bandwidth Product in Slow Light"	**Jean-Pierre Leburton**, *University of Illinois at Urbana-Champaign*, "Charge stability and exchange engineering in coupled quantum dots"
21:50	**Petr Kral**, *University of Illinois at Chicago*, "Control of catalytic activity of proteins in vivo"	**Ulrich Schreiber**, *Universität Essen*, "Beyond the 6th decimal – High Precision Sagnac Interferometry"	**Alexander Gaeta**, *Cornell University*, "Slow Light in Optical Fibers"	**Sang-Kee Eah**, *The University of Chicago and Argonne*, "Scattered light interference of a single metal nanoparticle and its mirror image"

Wednesday Morning January 5 2005

Plenary Session, Linda Reichl, Chair

7:30 **Vladimir M. Shalaev**, *Purdue University,* "Plasmonic Nanophotonics: Coupling Light to Nanoscale via Plasmons"

8:00 **John Pendry**, *Imperial College,* "Metamaterials Open New Vistas in Optics"

8:30 **Mike Romalis**, *Princeton University,* "High-density alkali-metal magnetometers and their applications"

	Plasmonic Nanophotonics John Pendry, Chair	*Electron Waveguides* Jonathan P. Dowling, Chair	*Magnetometry* Dmitry Budker, Chair	*Biophysics and Biochemistry* Gerard Wysocki, Chair
9:10	**Gennady Shvets**, *University of Texas at Austin,* "Band engineering using electrostatic resonances: applications to super-lensing"	**Linda Reichl**, *University of Texas at Austin,* "Electron waveguide quantum computers"	**Peter Schwindt**, *NIST, Boulder,* "Microfabricated Atomic Magnetometers"	**James Weaver**, *Massachusetts Institute of Technology,* "Transport, sources and sinks: A multiscale, modular approach to modeling systems in biology and medicine"
9:30	**Harry Atwater**, *California Institute of Technology,* "Strong Coupling in Plasmonic Materials"	**Jonathan Bird**, *SUNY at Buffalo,* "Electron Waveguides for Quantum Computing: Spin & Wave-Based Approaches"	**Frank Narducci**, *Naval Air Systems Command,* "Atomic Magnetometry with Laser-Trapped Atoms"	**Timothy F. Havel**, *Massachusetts Institute of Technology,* "Some Connections between Protein NMR Spectroscopy and NMR Quantum Computing"
9:50	**Ildar Gabitov**, *University of Arizona,* "Nonlinear electrodynamics of ultrashort pulses in a medium with negative refractive index"	**Charles Stafford**, *University of Arizona,* "Spontaneous formation of nanoscale electron waveguides"	**Chris Hovde**, *Southwest Sciences,* "Earth-Field Atomic Magnetometry with Frequency-Modulated Light"	**Eric O. Potma**, *Harvard University,* "Biology seen through the window of CARS"

— Break —

Plenary Session, Marlan O. Scully, Chair

10:30 **Award Lamb Medal**, "The presentation of the 2005 Willis E. Lamb medal for Laser Science and Quantum Optics"

11:00 **Mark Raizen**, *University of Texas at Austin,* "Quantum Dynamics and Transport in Low-Dimensional Bose Gases"

	Plasmonic Nanophotonics Vladimir M. Shalaev, Chair	*Low Dimensional Quantum Gases* Mark Raizen, Chair	*Magnetometry and Quantum Metrology* Frank Narducci, Chair	*Laser Microtexturing* Eric Mazur, Chair
11:40	**Mikhail Noginov**, *Norfolk State University,* "Effect of silver nanoparticles on luminescence of Eu3+ ions in organic and inorganic materials"	**David S. Weiss**, *Pennsylvania State University,* "Observation of a 1D Tonks-Girardeau gas"	**Antoine Weis**, *Université de Fribourg,* "The human heart beat seen by cesium magnetometers"	**Andreas Ostendorf**, *Laser Zentrum Hannover,* "Patterning of silicon surfaces by ps and fs laser pulses"
12:00	**Mark I. Stockman**, *Georgia State University,* "Coherent, nonlinear, and quantum nanoplasmonics"	**Maxim Olshanii**, *University of Southern California,* "Interatomic Interactions and Interference"	**Andrey Matsko**, *Jet Propulsion Laboratory,* "Magnetometer based on the opto-electronic microwave oscillator"	**Peter Herman**, *University of Toronto,* "Ultrafast laser processing: controlling heat accumulation effects with variable repetition rate"
12:20	**Sergey Bozhevolnyi**, *University of Aalborg, Denmark,* "Polaritonics: photonics based on surface plasmon polaritons"	**Daniel J. Heinzen**, *University of Texas at Austin,* "Superfluid and insulating states of a Bose gas in an optical lattice"	**Dmitry Budker**, *University of California at Berkeley,* "Selective addressing and applications of high-order atomic polarization moments"	**Stephen Jesse**, *Oak Ridge National Lab / UTK,* "Modelling the evolution of surface micro-structures on laser irradiated silicon"
12:40	**Michael Scalora**, *U.S. Army Aviation and Missile Command,* "Negative Refraction of Ultrashort Electromagnetic Pulses"	**Peter Drummond**, *University of Queensland, Australia,* "Atoms in optical lattices and the Fermi sign problem"	**Dmitry V. Strekalov**, *Jet Propulsion Laboratory,* "Quantum-correlation metrology with biphotons: where is the limit?"	**Steve Yalisove**, *University of Michigan,* "Ultrafast laser interaction with Si-SiO2 interfaces"

Wednesday Evening January 5 2005

Plenary Session, Paul Corkum, Chair

19:00 **Peter D. Keefe**, *Keefe & Associates,* "Does the Adiabatic First Order Phase Transition of a Type I Superconductor Particle Pose a Quantum Limit to the Second Law?"

19:30 **Olga Kocharovskaya**, *Texas A&M University,* "Laser manipulations of nuclear transitions"

20:00 **James Franson**, *Johns Hopkins University,* "Linear Optics Quantum Computing"

— Break —

	Plasmonic Nanophotonics Mikhail Noginov, Chair	*Gamma-ray Optics* James J. Carroll, Chair	*Quantum Crypto/Comp* James Franson, Chair	*Novel Optics* Peter D. Keefe, Chair
20:50	**Mark Brongersma**, *Stanford University,* "Towards CMOS Compatible Nanophotonics and Plasmonics"	**Esen E. Alp**, *Argonne National Laboratory,* "Inelastic X-Ray Scattering Techniques and Their Applications"	**Jonathan P. Dowling**, *Louisiana State University,* "Quantum Optical Sensing, Imaging, and Computing"	**Xinyong Fu**, *Shanghai Jiao Tong University,* "Realization of Maxwell's Hypothesis"
21:10	**Vladimir P. Drachev**, *Purdue University,* "Nonlinear Spectroscopy of Metal Quantum Dots"	**David Reis**, *University of Michigan,* "Picosecond resolved x-ray scattering"	**Todd B. Pittman**, *Johns Hopkins University,* "Heralding single photons from pulsed down-conversion"	**Marlan O. Scully**, *Texas A&M University,* "Using Quantum Mechanics to Exorcise Maxwell's Demon"
21:30	**Peter G. Kik**, *CREOL, University of Central Florida,* "Resonant near-field excitation of surface plasmons for applications in imaging and optical interconnects"	**Ian McNulty**, *Argonne National Laboratory,* "X-ray coherence and microscopy"	**Howard Brandt**, *ARL,* "Design for a Quantum Cryptographic Entangling Probe"	**Goong Chen**, *Texas A&M University,* "Generalized Two-Centered Orbitals in the Modeling of Diatomic Molecules and Relevant Asymptotics"
21:50	**Karl L. Kompa**, *Max-Planck Institut für Quantenoptik,* "Molecules as Nanoscopic Information Devices"	**John Miao**, *University of California at Los Angeles,* "Coherent Imaging and Its Applications"	**Philip Hemmer**, *Texas A&M University,* "VLSI quantum computer in diamond"	**Mark D. Havey**, *Old Dominion University,* "Mesoscopic Wave Dynamics in Ultracold Atomic Rb"

Thursday Morning January 6 2005

Plenary Session, Richard Miles, Chair

7:30 **Szymon Suckewer**, *Princeton University*, "X-Ray Lasers via Optical Field Ionization"

8:00 **Joseph W. Haus**, *University of Dayton*, "Nanophotonics"

8:30 **Vitaly Kocharovsky**, *Texas A&M University*, "Interband Nonlinear Mixing Lasers for Mid/Far-Infrared Generation"

	What's New in Field of X-Ray Lasers Szymon Suckewer, Chair	*Nanophotonics III* Joseph W. Haus, Chair	*Semiconductor Optoelectronics* Vitaly Kocharovsky, Chair	*Entanglement, Correlations, and Complementarity* George R. Welch, Chair
9:10	**Jorge Rocca**, *Colorado State University*, "High repetition rate table-top and desk-top size soft x-ray lasers"	**Edward (Ted) Sargent**, *Univeristy of Toronto*, "Infrared Colloidal Quantum Dots: Electroluminescent, Photovoltaic, and Modulation Devices"	**Henryk Temkin**, *Texas Tech University*, "Semiconductor Light Sources for the Ultraviolet"	**Vincenzo Savona**, *Swiss Federal Institute of Technology-Lausanne*, "Quantum complementarity of microcavity polaritons"
9:30	**Jonathan S. Wurtele**, *University of California at Berkeley*, "Ultra-high intensity femtosecond laser via Raman Amplification for X-Ray Lasers"	**Steve Blair**, *University of Utah*, "Molecular detection and nonlinear optics with metallic nanocavities"	**Junichiro Kono**, *Rice University*, "Optical Signatures of the Aharonov-Bohm Phase in Carbon Nanotubes"	**Arthur Dogariu**, *NEC Laboratories America*, "Correlated photons via cascaded four-wave mixing in microstructured fiber"
9:50	**Yoav Avitzour**, *Princeton University*, "Possibility for compact recombination XRLs using Optical Field Ionization"	**Mark Baldo**, *Massachusetts Institute of Technology*, "Molecular circuits from Photosynthetic complexes"	**Scott Crooker**, *Los Alamos National Laboratory*, "Imaging electron spin flows in semiconductors in the presence of electric, magnetic, and strain fields"	**Edward S. Fry**, *Texas A&M University*, "Nonlocality in Quantum Mechanics"

— Break —

Plenary Session, Phillip Szuromi, Chair

10:30 **Richard Miles**, *Princeton University*, "Spectral Methods for Imaging High-Speed Fluid Flow"

11:00 **Wolfgang Kiefer**, *Wuerzburg University, Germany*, "Femtosecond coherent four-wave mixing spectroscopy and applications"

	What's New in Field of X-Ray Lasers Szymon Suckewer, Chair	*Nanophotonics III* Steve Blair, Chair	*Femtosecond Spectroscopy* Wolfgang Kiefer, Chair	*Quantum Imaging* Edward S. Fry, Chair
11:40	**Claudio Pellegrini**, *University of California at Los Angeles*, "Status of development of X-Ray FEL and some new ideas"	**Michael E. Crenshaw**, *US Army RDECOM*, "Quantum Electrodynamic Foundations of Continuum Electrodynamics"	**Torsten Siebert**, *Wuerzburg University, Germany*, "Optimizing population-transfer to excited vibrational states in femtosecond time-resolved coherent anti-stokes Raman Scattering for enhanced molecular recognition"	**Robert Boyd**, *University of Rochester*, "Progress in Quantum Lithography and Ghost Imaging"
12:00	**Marlan O. Scully et al.**, *Texas A&M University*, "Charge-Exchange X-Ray Lasers"	**Edo Waks**, *Stanford University*, "Single Photon Sources"	**Vladimir A. Sautenkov**, *Texas A&M University*, "UV coherent absorption spectroscopy for anthrax"	**Giuliano Scarcelli**, *UMBC*, "Quantum imaging using thermal and Raman photon pairs"
12:20		**Geoffrey Hunter**, *York University*, "Experimental Confirmation of the Photon as an Ellipsoidal Soliton"	**Yuri Rostovtsev**, *Texas A&M University*, "Electromagnetically Induced Coherent Scattering (EICS) in Backward Direction"	**Fuli Li**, *Texas A&M University*, "Coherence induced entanglement"
12:40		**Nan Yu**, *Jet Propulsion Laboratory*, "Ultra-low noise optical pulse generation through regenerative Q of the mode-locked laser"	**Guy Beadie**, *Naval Research Laboratory*, "CARS Detection: How Can We Optimize Sensitivity?"	**Manfred Kleber**, *Technische Universität München*, "Imaging Atoms with Evanescent Waves"

Thursday Evening January 6 2005

Plenary Session, Philip Hemmer, Chair

19:00 **Gerd Leuchs**, *University of Erlangen, Germany,* "Continuous Variable Quantum Algorithms"

19:30 **Norbert Kroó**, *Hungarian Academy of Sciences,* "Near field microscopy with surface plasmons and their statistical properties"

20:00 **Paul Corkum**, *National Research Council of Canada,* "Attosecond Imaging: Using a Molecule's own Electrons to Image Molecular Orbitals"

— Break —

	Quantum Algorithms Gerd Leuchs, Chair	*Gamma-ray Optics* Esen E. Alp, Chair	*Novel Optics* Norbert Kroó, Chair	*CARS Spectroscopy* Yuri Rostovtsev, Chair
20:50	**Oliver Gloeckl**, *University of Erlangen, Germany,* "From phase measurements on intense light beams to entanglement generation by spatial separation of quantum sidebands"	**James J. Carroll**, *Youngstown University,* "An experimental perspective on releasing energy from nuclear isomers"	**Gerard Wysocki**, *Rice University,* "Quantum cascade laser based trace-gas sensors for human breath analysis"	**Zoe-Elizabeth Sariyanni**, *Texas A&M University,* "Femtosecond CARS on molecules: Gaining Insight from a Theoretical Analysis"
21:10	**Julien Niset**, *Ecole Polytechnique and Universite Libre de Bruxelles,* "Quantum cloning with continuous variables"	**Douglas Cline**, *University of Rochester,* "Nuclear structure studies of nuclear isomers and implications for controlled energy release"	**Fam Le Kien**, *University of Electro-Communications, Japan,* "Atom traps and waveguides using evanescent light fields around subwavelength-diameter fibers"	**Robert Lucht**, *Purdue University,* "Nonperturbative Modeling of Coherent Anti-Stokes Raman Scattering with Ultrafast Lasers"
21:30	**Matt Eisaman**, *Harvard University,* "Quantum Control of Single Photons using Electromagnetically Induced Transparency"	**Roman Kolesov**, *Texas A&M University,* "Influence of electromagnetic radiation on the Mossbauer spectra through co-dopants."	**Anil K. Patnaik**, *Texas A&M University,* "Raman Photon Pair Correlations Via the Onsager Regression Theorem"	**Dmitry Pestov**, *Texas A&M University,* "Femtosecond CARS on organic molecules"
21:50		**Petr Anisimov**, *Texas A&M University, "* "Magic-angle" technique for suppression of inhomogeneous broadening of Mossbauer spectra"	**Michel de Haan**, *Université Libre de Bruxelles,* "Field theory reformulated without self-energy parts"	**Chong H. (Raymond) Ooi**, *Texas A&M University,* "Enhanced Nonlinear CARS Backscattering via Quantum Coherence for Remote Detection of Anthrax Spores"