

Wednesday Morning January 3 2007

Plenary Session, George R. Welch, Chair

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

7:30 **Szymon Suckewer**, *Princeton University*, “Advances in Coherent Soft X-Ray Sources”

8:00 **H. Jeff Kimble**, *California Institute of Technology*, “Quantum Networks in Quantum Optics”

8:30 **Peter Drummond**, *University of Queensland, Australia*, “Quantum dynamics in phase-space: From coherent states to the Gaussian representation”

Advances in Coherent Soft X-Ray Sources
Szymon Suckewer, Chair

Quantum Information, Computation, and Communication

Quantum dynamics in ultra-cold atom systems

Semiconductor Optics
Weng Chow, Chair

9:10 **Jorge J. Rocca**, *Colorado State University*, “Recent developments in high repetition rate soft x-ray lasers”

H. Jeff Kimble, Chair
Howard Brandt, *Army Research Laboratory*, “Positive-Operator and Projection Valued Measures in Quantum Key Distribution”

Peter Drummond, Chair
Gora Shlyapnikov, *Universite de Paris Sud, Orsay, France*, “Strongly interacting ultracold Fermi-Fermi mixtures”

Lu J. Sham, *University of California, San Diego*, “Density functional theory for entanglement and quantum phase transition”

9:30 **Carmen S. Menoni**, *Colorado State University*, “Nanoscale imaging with soft x-ray lasers”

Birgitta Whaley, *University of California, Berkeley*, “A measurement-based measure of Schrodinger cat state size”

Rob Ballagh, *University of Otago, Dunedin, New Zealand*, “Bragg scattering of correlated atom pairs from a Fermi gas in a BCS state”

Steven Cundiff, *JILA*, “Optical Two-Dimensional Fourier Transform Spectroscopy of Semiconductors”

9:50 **Bedrich Rus**, *Academy of Sciences of the Czech Republic*, “Development and Applications of a 10-mJ Soft X-Ray Laser”

Joshua Bienfang, *NIST*, “Broadband quantum cryptography”

Lincoln D. Carr, *Colorado School of Mines*, “Macroscopic Quantum Tunneling and Entangled States in Bose-Einstein Condensates”

Kent D. Choquette, *University of Illinois at Urbana-Champaign*, “Gain Localized Photonic Crystal Light Emitting Diode”

10:10 *(Change:)*
Talk rescheduled to next session,

Daniel Lidar, *University of Southern California*, “Quantum Error Correction beyond Completely Positive Maps”

Walter Rantner, *University of Innsbruck*, “Thermodynamics of the BCS-BEC crossover”

Diane L. Huffaker, *University of New Mexico*, “Facet-controlled QD nucleation”

— Break —

Plenary Session, Szymon Suckewer, Chair

10:50 **Andre Mysyrowicz**, *ENSTA, école polytechnique, Palaiseau*, “On Bose-Einstein condensation in CuCl and Cu₂O”

11:20 **Victor S. Batista**, *Yale University*, “Coherent Control with Multiple Pulses”

Novel Optics

Robert Murawski, Chair

12:00 **Yuri Rostovtsev**, *Texas A&M University*, “Toward Soft X-Ray Laser Without Inversion”

From EIT to Quantum Computing

Vladimir A. Sautenkov, Chair

Min Xiao, *University of Arkansas*, “Controlled nonlinear dynamical effects with EIT medium inside an optical cavity”

BEC of excitons

Andre Mysyrowicz, Chair

Makoto Kuwata-Gonokami, *University of Tokyo*, “Study on the collision effects of cold excitons in Cu₂O by excitonic Lyman spectroscopy”

Coherent Control with Multiple Pulses

Victor S. Batista, Chair

Michael Spanner, *University of Toronto*, “New insights into the coherent control of reactive scattering”

12:20 **Susanne Yelin**, *University of Connecticut*, “Tunable negative refraction and electromagnetically induced chirality”

Jonathan P. Dowling, *Louisiana State University*, “Optical Quantum computing”

Heinrich Stolz, *Universität Rostock*, “On Bose-Einstein condensation of Excitons in Cuprous Oxide”

Valeria D. Kleiman, *University of Florida*, “Coherent Control of Fluorescence Quantum Efficiency”

12:40 *(Change:)*
Josef Feldhaus, *DESY*, “13.8 nm Soft X-Ray FEL”

Mikhail D. Lukin, *Harvard University*, “Quantum register based on individual electron and nuclear spin qubits”

Leonid Butov, *University of California at San Diego*, “Phenomena in cold exciton gases”

Viatcheslav Dobrovitski, *Ames Laboratory*, “Dynamical decoupling protocols for the electron spins in quantum dots”

Wednesday Evening January 3 2007

Plenary Session, Victor S. Batista, Chair

19:00 **Frank Stienkemeier**, *Universität Freiburg*, “Dynamics and Coherence in Doped Helium Nanodroplets”

19:30 **Elisabeth Giacobino**, *Ecole Normale Supérieure and CNRS, Paris*, “Quantum memories”

20:00 **Ilya Averbukh**, *Weizmann Institute of Science*, “Spinning molecules selectively”

— Break —

Helium Droplet Spectroscopy

Frank Stienkemeier, Chair

20:50 **Kevin Lehmann**, *Princeton University*, “Phonons and spontaneous symmetry breaking in helium droplets doped with spherical atoms calculated with Time Dependent Helium Density Functionals”

21:10 **Curt Wittig**, *University of Southern California*, “Closely spaced vibronic levels in helium droplets”

21:30 **Pierre-Nicholas Roy**, *University of Alberta*, “Theoretical studies of dopant rotations in helium quantum nano-clusters”

21:50 **Takamasa Momose**, *University of British Columbia*, “Non-rigidity of hydrogen clusters at 0.4 K”

Building blocks for quantum information

Elisabeth Giacobino, Chair

Gerd Leuchs, *University of Erlangen, Germany*, “Quantum communication with coherent states”

Antoine Browaeys, *CNRS - Institut d’Optique*, “Coherent manipulations of atomic qubits in moving optical tweezers”

Francesco De Martini, *Università “La Sapienza”, Rome*, “High gain Parametric Amplification, the Schroedinger Cat and the transition from quantum to classical physics”

Hanna Krauter, *Niels Bohr Institute, Copenhagen University*, “Quantum teleportation between light and matter”

Ultra-Cold Systems

Leonid Butov, Chair

Ofir Alon, *Heidelberg University*, “Pathway to fermionization of cold bosonic systems”

Marvin Girardeau, *University of Arizona*, “Exact Properties of Strongly Correlated Ultracold Gases in Tight Waveguides”

Anatoly Svidzinsky, *Texas A&M University*, “Master equation analysis of fluctuations in interacting BEC”

Vitaly Kocharovsky, *Texas A&M University*, “Non-perturbation in fluctuations theory of BEC and theorem on non-polynomial averages in statistical physics”

Laser Control in Multicomponent Systems

Ilya Averbukh, Chair

Albrecht Lindinger, *Freie Universität Berlin*, “Optimal control methods applied on small molecules”

Robert J. Levis, *Temple University*, “Control of Multicomponent Systems with Strong Laser Fields: A New Paradigm for Sensing”

Robert Gordon, *University of Illinois at Chicago*, “Controlling Molecular Processes in Gaseous and Condensed Phases”

Monika Leibscher, *Freie Universität Berlin*, “Toward separation of nuclear spin isomers with coherent light”

Thursday Morning January 4 2007

Plenary Session, David Voss, Chair

7:30 **Wolfgang Schleich**, *Universität Ulm*, “A tribute to two pioneers of quantum optics: Herbert Walther and Lorenzo Narducci”

8:00 **Stefan W. Hell**, *Max Planck Institute for Biophysical Chemistry, Göttingen*, “Far-field fluorescence microscopy with diffraction-unlimited resolution”

8:30 **Mikhail Noginov**, *Norfolk State University*, “Random lasers: so simple and so complicated”

Memorial Session
Wolfgang Schleich, Chair

*Nanoscale Far-Field Fluorescence
Microscopy*
Stefan W. Hell, Chair

*Propagation, localization, and lasing in
random media*
Mikhail Noginov, Chair

Statistical Physics and Nonlinear Optics
Anatoliy Savchenkov, Chair

9:10 **Ludger Wöste**, *Freie Universität Berlin*, “Remote Sensing of the Atmosphere: From DIAL-Systems Inspired by Herbert Walther to Femtosecond LIDAR”

Joerg Bewersdorf, *Jackson Laboratory, Bar Harbor*, “4Pi microscopy - 3D biological imaging with 100 nm axial resolution”

Aristide Dogariu, *CREOL & FPCE, University of Central Florida*, “Variable coherence sensing”

M. Howard Lee, *University of Georgia*, “How valid is Boltzmann’s ergodic hypothesis?”

9:30 **Gerhard Paulus**, *Texas A&M University*, “Above-threshold ionization: An oddity finds applications”

Harald F. Hess, *Howard Hughes Medical Institute*, “Imaging Intracellular Fluorescent Proteins at Nanometer Resolution”

Andrey A. Chabanov, *University of Texas at San Antonio*, “Dynamics of localized wave in disordered media”

Xinyong Fu, *Shanghai Jiao Tong University*, “Realization of Maxwell’s Hypothesis”

9:50 **Thomas Walther**, *Technische Universität Darmstadt*, “Prospects of Trapping Neutral Mercury”

Kohzo Hakuta, *University of Electro-Communications, Japan*, “Optical Nanofibers for Manipulating and Probing Single-Atom Fluorescence”

Christof Aegerter, *Universität Konstanz*, “Observation of Anderson localization of light in 3D”

Jason Fleischer, *Princeton University*, “Dispersive, superfluid-like shock waves in nonlinear optics”

10:10 **Frank A. Narducci**, *Naval Air Systems Command*, “Phase dynamics in EIT”

(*Change:*)
Xiaowei Zhuang, *Harvard University*,
—Talk Cancelled—

Michael Scalora, *AMSRD-WS-ST*, “Negative refraction, subwavelength focusing, and super-resolution in one-dimensional, transparent, metallo-dielectric photonic band gap structures”

Roman Kolesov, *Texas A&M University*, “Ramsey Interference in Coherent Population Trapping Spectrum of Ruby at Room Temperature”

— Break —

Plenary Session, Jonathan P. Dowling, Chair

10:50 **Artem Rudenko**, *MPI Heidelberg*, “Time-resolved measurements with intense ultrashort laser pulses”

11:20 **Nat Fisch**, *Princeton University*, Phase Space Manipulation of Ions and Atoms

Laser ionization
André Dieter Bandrauk, Chair

*Phase Space Manipulation of Ions and
Atoms*
Nat Fisch, Chair

Entanglement, Erasure, and Dissipation
Edward S. Fry, Chair

Semiconductor lighting and uv laser diodes
Elena Kuznetsova, Chair

12:00 **Anthony F. Starace**, *University of Nebraska at Lincoln*, “Initial State Symmetry Effects on ATD Plateau Enhancements”

Edvardas Narevicius, *University of Texas at Austin*, “Coherent Slowing of Supersonic Beams”

Jens Eisert, *Imperial College London*, “A plethora of novel measurement-based schemes for quantum computing”

Robert M. Biefeld, *Sandia National Laboratories*, “Recent Advances in GaN-based Emitters”

12:20 **Alfred Maquet**, *Université Pierre et Marie Curie, Paris*, “Resonances and Re-Collisions in Strong Field Atomic Processes”

Mark Raizen, *University of Texas at Austin*, “One-Photon Cooling”

Arkady Plotnitsky, *Purdue University*, “Prediction, Repetition, and Erasure in Classical and Quantum Physics: Experiment, Theory, and Philosophy”

Dennis Deppe, *University of Central Florida*, “All-Epitaxial Single Quantum Dot Quantum Semiconductor Light Source”

12:40 **Wilhelm Becker**, *Max Born Institut Berlin*, “Resonant enhancements in intense-laser atom processes”

Benjamin Lev, *JILA/NIST/University of Colorado*, “Prospects for cavity-assisted laser cooling of Stark decelerated OH”

Shi-Yao Zhu, *Hong Kong Baptist College*, “Atom decay in one dimensional photonic crystals composed of dispersive left handed materials”

Weng W. Chow, *Sandia National Laboratory*, “Many-body modifications to group-velocity slowdown”

Thursday Evening January 4 2007

Plenary Session, Wolfgang Schleich, Chair

19:00 **John Briggs**, *University of Freiburg*, “Atoms for Attoseconds”

19:30 **Reinhold Walser**, *Universität Ulm*, “Dropping cold quantum gases on Earth over long times and large distances”

20:00 **Hans Schuessler**, *Texas A&M University*, “Coherent oscillations of nano structures”

— Break —

Atoms and Matter in Strong Fields
Manfred Kleber, Chair

Coherent Oscillations
Hans Schuessler, Chair

*Cold atoms, precision measurements, and
gravitational tests in outer space.*
Reinhold Walser, Chair

Semiconductor Optics
Lu J. Sham, Chair

20:50 **Olga Smirnova**, *NRC Canada*, “Attosecond XUV probing of strong-field electron dynamics”

Tobias Kippenberg, *Max-Planck Institut für Quantenoptik*, “Radiation pressure self-cooling of a micro-mechanical oscillator”

Kai Bongs, *Universität Hamburg*, “Quantum gases under microgravity”

Alexey Belyanin, *Texas A&M University*, “Creating and utilizing intersubband quantum coherence in semiconductor quantum wells”

21:10 **John Delos**, *College of William and Mary*, “Atoms in electric and magnetic fields”

Tobias Schaetz, *Max-Planck Institut für Quantenoptik*, “Towards an ion-trap as an analog quantum simulator”

Ernst M. Rasel, *Universität Hannover*, “Atomic quantum sensors on ground and in space”

Claire Gmachl, *Princeton University*, “Novel active region designs for Quantum Cascade Lasers”

21:30 **Tobias Kramer**, *Harvard University*, “2D-matter waves in strong crossed electric and magnetic fields”

Peter J. Mohr, *National Institute of Standards and Technology*, “Fundamental Constants and the International System of Units”

Nan Yu, *NASA Jet Propulsion Laboratory*, “Physics and applications with cold atom interferometer”

Christopher J. Stanton, *University of Florida*, “Coherent Phonons in Semiconductor Heterostructures”

21:50 *(Change:)*
Andreas Becker, *Max Planck Institute for the Physics of Complex Systems, Dresden*,
—Talk Cancelled—

Margaret Reid, *University of Queensland, Australia*, “Signifying macroscopic superpositions in squeezed and entangled field”

Ron Folman, *Ben Gurion University*, “Interference with cold atoms”

David Reitze, *University of Florida*, “Spectroscopy of Quantum Wells in High Magnetic Fields: Creating and Probing Coherence”

Friday Morning January 5 2007

Plenary Session, Manfred Kleber, Chair

7:30 **Hans Frauenfelder**, *Los Alamos National Laboratory*, “Molecular tunneling in proteins”

8:00 **Moshe Shapiro**, *University of British Columbia and the Weizmann Institute*, “Proof of the [q,p] commutation relations based on canonical invariance, and the quantum theory of slow light”

8:30 **Sunney Xie**, *Harvard University*, “CARS Microscopy”

From Quantum Mechanics to Biology

Hans Frauenfelder, Chair

Coherent Control

Moshe Shapiro, Chair

CARS

Sunney Xie, Chair

9:10 **Martin A. Hunter**, *Massachusetts Institute of Technology*, “Fractal composition of biological tissue: Facts, implications, open questions”

Albert Stolow, *National Research Council of Canada*, “Quantum Control via the Non-resonant Dynamic Stark Effect”

Eric Potma, *University of California at Irvine*, “Spatial phase shaping in nonlinear coherent microscopy”

9:30 **Eric Mazur**, *Harvard University*, “Using short bursts of photons to manipulate biological matter at the nanoscale”

Mikhail Ivanov, *National Research Council of Canada*, “Fighting ‘decoherence’ in rotationally hot diatomic molecule”

Arthur Dogariu, *Princeton University*, “Time-resolved CARS spectroscopy using a photonic crystal fiber source”

9:50 **Kazuhiko Misawa**, *Tokyo University of Agriculture and Technology*, “Femtosecond isomerization of all-trans retinal triggered with a phase-locked pulse pair”

Ioannis Thanopoulos, *University of British Columbia*, “Coherently Controlled Adiabatic Passage to Multiple Continuum Channels”

Dmitry Pestov, *Texas A&M University*, “Detection of Bacterial Spores by means of Multiplex CARS spectroscopy”

— Break —

Plenary Session, Marlan O. Scully, Chair

10:30 **Lamb Award**, “The presentation of the 2007 Willis E. Lamb Award for Laser Science and Quantum Optics”

11:00 **James J. Carroll**, *Youngstown University*, “Studies of induced isomer depletion using intense photon sources”

X-ray optics

James J. Carroll, Chair

Surfaces and plasmons

Andrew Jordan, Chair

Localization and Disorder in Ultracold

Gases

Mikhail Noginov, Chair

Molecular and Chemical Physics

Alexei Sokolov, Chair

11:40 **Olga Kocharovskaya**, *Texas A&M University*, “Level mixing induced transparency: theory and experiment”

Rogério de Sousa, *University of California at Berkeley*, “Coherent control of magnetic noise at semiconductor surfaces”

Mark D. Havey, *Old Dominion University*, “Time-dependent electromagnetic wave dynamics in ultracold, high-density Rb vapor”

Marlan O. Scully, *Texas A&M and Princeton University*, “Bohr’s 1913 Molecular Model Revisited”

12:00 **Esen E. Alp**, *Argonne National Laboratory*, “Inelastic x-ray scattering under extreme conditions”

Naomi Halas, *Rice University*, “Plasmonic design: combining surface enhanced spectroscopies on the same substrate”

Randall G. Hulet, *Rice University*, “Pairing of Atomic Fermions with Unequal Spin Populations”

Shaul Mukamel, *University of California at Irvine*, “Coherent Nonlinear Optical Spectroscopy of Molecules: Femtosecond Analogues of Multidimensional NMR”

12:20 **Uwe van Bürck**, *Technische Universität München*, “Coherence in Nuclear Resonant Scattering of Synchrotron Radiation”

Peter Nordlander, *Rice University*, “Plasmon hybridization: understanding and designing the energy landscape of plasmonic geometries”

Eric Akkermans, *Technion, Israel*, “Photon correlations induced by disorder in a mesoscopic gas of cold atoms”

Bertrand Girard, *Université Paul Sabatier, CNRS*, “Coherent control with atoms and molecules”

12:40 **Edward S. Fry**, *Texas A&M University*, “Directed Spontaneous Emission from an Extended Ensemble of N Atoms: Timing Is Everything”

Norbert Kroó, *Hungarian Academy of Sciences*, “Quantum metal optics”

Leonardo Fallani, *LENS European Laboratory for Non-linear Spectroscopy*, “Ultracold bosons in disordered optical lattices”

Robert Murawski, *Texas A&M University*, “Wavepacket Oscillations In Cs-2”

Friday Evening January 5 2007

Plenary Session, Eric Mazur, Chair

19:00 **Georg Raithel**, *University of Michigan*, “Cold Rydberg Atoms and Cold Plasmas”

19:30 **Peter D. Keefe**, *Keefe & Associates*, “Patents and Copyrights”

20:00 **Robert P. Lucht**, *Purdue University*, “Femtosecond CARS Measurements of Gas-Phase Properties”

— Break —

X-ray optics

Olga Kocharovskaya, Chair

20:50 **Douglas Cline**, *University of Rochester*, “Nuclear structure of high-K isomers: implications for controlled energy release”

21:10 **Nino Pereira**, *Ecopulse, Inc., Springfield, VA*, “A single-crystal X-ray spectropolarimeter”

21:30 **Marie-Madeleine Aléonard**, *Université de Bordeaux I, CENBG*, “Characterisation of the hard X-rays absolute energy distribution obtained with a kHz femtosecond laser and tantalum targets”

21:50 **Ian McNulty**, *Argonne National Laboratory*, “X-ray Vortices and Orbital Angular Momentum”

Femtosecond Sensors

Robert P. Lucht, Chair

James Gord, *Wright-Patterson Air Force Base*, “Femtosecond Ballistic Imaging of Optically Dense Sprays”

Tom Settersten, *Sandia National Laboratory*, “Time-resolved wave-mixing spectroscopy as a probe of gas-phase collisional kinetics”

Sukesh Roy, *Innovative Scientific Solutions Inc.*, “High repetition rate gas-phase temperature measurements in reacting flows using femtosecond coherent anti-Stokes Raman scattering spectroscopy”

Thilo Kraetschmer, *University of Wisconsin at Madison*, “Hyperspectral Absorption Spectroscopy Based on Femtosecond Lasers”

Cold Rydberg Atoms and Cold Plasmas

Georg Raithel, Chair

Jim Martin, *University of Waterloo, Canada*, “Use of microwave dressing fields to enhance Rydberg atom interactions”

James P. Shaffer, *University of Oklahoma*, “Cold Rydberg Atom Interactions and Energy Transfer”

Edward Eyler, *University of Connecticut*, “Nonlinear optics in an ultracold gas of Rydberg atoms”

Juha Javanainen, *University of Connecticut*, “Feshbach resonant atoms in an optical lattice: a superfluid?”

Intellectual Property

Peter D. Keefe, Chair

William D. Blackman, *Carrier, Blackman & Associates*, “Patent Strategy”

Dave Morrison, *University of Utah*, “Patent Searching”

Donald J. Ersler, *Donald J. Ersler, S.C.*, “Intellectual Property Workshop”

Saturday Morning January 6 2007

Plenary Session, Jonathan Wurtele, Chair

7:30 Jeffrey Hangst, Aarhus and CERN, Status and Prospects for Antihydrogen Research

8:00 Howard Wiseman, Griffith University, Australia, “Achieving Heisenberg-limited interferometry: can quantum control help?”

8:30 Margaret Murnane, University of Colorado at Boulder, “Attosecond Science - Latest Developments and Expanding Opportunities”

	<i>Antihydrogen</i> Jeffrey Hangst, Chair	<i>Quantum-Limited Measurement and Control</i> Howard Wiseman, Chair	<i>Attosecond Science</i> Margaret Murnane, Chair	<i>Novel Optics</i>
<u>9:10</u>	Neil Russell , Northern Michigan University, “Tests of Lorentz symmetry using antihydrogen”	J.M. Geremia , University of New Mexico, “Optical Coherent State Discrimination via a Real-Time Closed-Loop Quantum Measurement”	André Dieter Bandrauk , Université de Sherbrooke, Canada, “Attosecond Science in Molecules”	Lute Maleki , NASA Jet Propulsion Laboratory, “Novel scheme for Bessel beam generation with WGM structure”
<u>9:30</u>	Ryu Hayano , University of Tokyo, “ASACUSA experimental results and plans”	Kurt Jacobs , University of Massachusetts at Boston, “Feedback Control and Quantum Jumps”	Nick Wagner , University of Colorado at Boulder, “Monitoring Molecular Dynamics using Attosecond Electrons Recollisions”	Anatoliy Savchenkov , NASA Jet Propulsion Laboratory, “Parametric conversions in lithium niobate resonator”
<u>9:50</u>	Jerry Gabrielse , Harvard University, “Atrap experimental results and plans”	Kenneth Pregnell , Imperial College, UK, “Time Symmetry and Signatures of Quantum Metrology”	Guido Saathoff , University of Colorado at Boulder, “Attosecond Science on Surfaces”	Deniz Yavuz , University of Wisconsin, “All optical femtosecond switch using two photon absorption”

— Break —

Plenary Session

10:30 Andrew Sessler, Lawrence Berkeley National Laboratory, “Intense Particle Beams: Uses, Needs, Desires, and Limitations”

11:00 Gershon Kurizki, Weizmann Institute of Science, Israel, “Multipartite entanglement and disentanglement”

	<i>Intense Particle Beams: Uses, Needs, Desires, and Limitations</i> Andrew Sessler, Chair	<i>Quantum-Limited Measurement and Control</i> Howard Wiseman, Chair	<i>Attosecond Science</i> Henry C. Kapteyn, Chair	<i>Multipartite Entanglement and Disentanglement</i> Gershon Kurizki, Chair
<u>11:40</u>	Swapan Chattopadhyay , Jefferson Laboratory, “Intense Beams – Generation, Transport and Cooling”	Daniel Steck , University of Oregon, “Continuous Measurement of Atomic Motion”	Zenghu Chang , Kansas State University, “Precision control of carrier-envelope phase in grating-based chirped amplifiers for attosecond research”	Ting Yu , University of Rochester, “Entanglement Sudden Death in Mixed Bipartite Systems”
<u>12:00</u>	Vladimir Litvinenko , Brookhaven National Laboratory, “Rings (Coherent phenomena like electron cloud)”	Jeremy O’Brien , Bristol University, “Beating the standard quantum limit with four photons”	Masayuki Katsuragawa , University of Electro-Communications, Japan, “Optical synthesis with broad Raman sidebands - Toward subfemtosecond regime”	Masahito Ueda , Tokyo Institute of Technology, “Quantum measurement and the second law of thermodynamics”
<u>12:20</u>	Gennady Stupakov , SLAC, “Beam cooling and phase space manipulations”	Philip Hemmer , Texas A&M University, “Progress toward scalable quantum computers in diamond”	Andy Kung , Academia Sinica, Taiwan, “Single cycle optical pulses with constant carrier envelope phase”	Vladimir Akulin , Université Paris-Sud, “Multipartite Entanglement: Exhaustive Description and Control”
<u>12:40</u>	Alexander Zholents , Lawrence Berkeley National Laboratory, “How ideas of intense transport and manipulation of high-quality beams apply to future FEL light sources”	Robert W. Boyd , University of Rochester, “Slow, fast, and backwards light propagation”	Alexei Sokolov , Texas A&M University, “Toward subfemtosecond pulses by molecular modulation in gasses and solids”	(Change:) Hideomi Nihira , University of Rochester, —Talk Cancelled—

Saturday Evening January 6 2007

Plenary Session, Robert W. Boyd, Chair

19:00 **Selim M. Shahriar**, *Northwestern University*, “Fast-Light for Astrophysics: Testing Alternate Theories of Gravity and Detecting Gravitational Waves”

19:30 **Theo Nieuwenhuizen**, *University of Amsterdam*, “Einstein versus Maxwell: is gravitation a curvature of space, or a field in flat space, or both?”

20:00 **Jens Rauschenberger**, *Max-Planck Institut für Quantenoptik*, “Frequency Combs and Enhancement Resonators”

— Break —

On Some Foundations of Physics
Theo Nieuwenhuizen, Chair

Applications of Quantum Optics
Selim M. Shahriar, Chair

Frequency Combs and Enhancement Resonators
Jens Rauschenberger, Chair

Novel Optics
Yuri Rostovtsev, Chair

20:50 **Vaclav Spicka**, *Academy of Sciences of the Czech Republic*, “Some Quantum Experiments from the Point of View of Stochastic Electrodynamics”

Baris I. Erkmen, *Massachusetts Institute of Technology*, “Coherence Propagation of Phase-sensitive Light and Applications to Ghost Imaging”

David Jones, *University of British Columbia*, “Coherent Buildup Cavities for Generating High-Flux, Spectrally Pure EUV Radiation.”

Rebecca Olson Knell, *University of Maryland*, “Photon Burst Detection of Multi-Level Atoms in Cavity QED”

21:10 **Gregg Jaeger**, *Boston University*, “Quantum coding, entanglement, and decoherence”

Ron Meyers, *Army Research Laboratory*, “Chaotic Laser Quantum Ghost Imaging”

Thomas R. Schibli, *JILA / University of Colorado*, “Femtosecond enhancement cavities”

Vladimir A. Sautenkov, *Texas A&M University*, “Amplitude correlations of coupled optical fields in EIT experiments”

21:30 **Andrew Jordan**, *University of Rochester*, “Quantum Udemolition - Undoing quantum measurement by erasing information”

Jun-Tao Chang, *Texas A&M University*, “Measurement of the separation between atoms beyond diffraction limit”

Tara Fortier, *National Institute of Standards and Technology*, “Optical frequency combs for optical measurements and comparisons”

Elena Kuznetsova, *Texas A&M University*, “Coherent generation of THz pulses in molecular gases and optical crystals”

21:50 **Al F. Kracklauer**, *University of Weimar*, “The Semiclassical theory of optical ‘Quantum’ eraser experiments”

Christoph Gohle, *Max-Planck-Institute of Quantum Optics*, “Cavity enhanced broad band spectroscopy”

George R. Welch, *Texas A&M University*, “Nonlinear Magneto-optic Polarization Rotation with Intense Laser Fields”