

PQE XXXIII Participants

Roland Allen, Texas A&M University

“Molecular Transformations following Femtosecond-scale Laser Pulses”

Ara Apkarian, University of California, Irvine

“Multilinear spectroscopy to control and compute in the molecular Hilbert space”

Oleg Astafiev, Japan Science and Technology Corporation

“Infrared photon detectors using semiconductor quantum dots”

Ilya Averbukh, Weizmann Institute of Science

“Squeezing of Atoms by Pulsed Optical Lattices”

Ilya Averbukh, Weizmann Institute of Science

“Controlling Quantum Rotation with Light”

Petras Avizonis, Boeing

Yehuda B. Avniel, DARPA Consultant

Andre D. Bandrauk, Univ. de Sherbrooke, Canada

“Attosecond Control of Harmonic Generation”

Victor Batista, Yale University

“Coherent Control of Photoisomerization in Retinal”

Guy Beadie, Naval Research Laboratory

“Femtosecond CARS in polyatomic molecules”

Thomas Becker, Max-Planck Institut für Quantenoptik

“Fock-state generation and phase diffusion”

Wilhelm Becker, Max Born Institute, Berlin

“Quantum-path survey of the relativistic laser-atom interaction”

Alexey Belyanin, Texas A&M University

“Resonant Nonlinear Optical Processes in Semiconductor Lasers”

Andrew Berger, University of Rochester

“Raman spectroscopy for studying oral bacteria”

Attila Bergou, Jet Propulsion Laboratory

“Relativistic Quantum Information Theory”

Janos Bergou, Hunter College, CUNY

“Quantum state discrimination”

Alexander A. Betin, Raytheon

Sandra G. Biedron, MAX-Laboratory and Argonne National Lab.

“Overview of short-wavelength free-electron lasers and exotic schemes”

Rolf Binder, University of Arizona

“Theory of biexcitonic electromagnetically-induced transparency in semiconductors”

Steve Blair, University of Utah
“Engineering the nonlinear phase shift using artificial resonances”

Jeffrey Bokor, University of California, Berkeley

Bruno Bosacchi, Princeton University

Robert Boyd, University of Rochester
“Everything photonic”

Howard Brandt, Army Research Lab
“Quantum Vacuum Heuristics”

Robert Brecha, University of Dayton
“Collapse of a degenerate Fermi gas”

Paul Brumer, University of Toronto
“Control and Decoherence: When is Quantum Decoherence Dynamics Classical?”

Philip Bucksbaum, University of Michigan
“Experimental aspects of closed-loop control of unimolecular reactions in liquids”

William A. Bundy, Raytheon

Leonid Butov, University of California at Berkeley
“Exciton condensation in semiconductor nanostructures”

Robert Byren, Raytheon

Mike Campbell, General Atomics
“Application of Petawatt Lasers for Fast Ignition”

Federico Capasso, Harvard University
“Mid and far infrared Quantum Cascade lasers”

S. Castelletto, IEN Galileo Ferraris, Italy
“Quantum and Classical resources for the metrology of biphoton field in parametric down conversion”

Connie Chang, University of California, Berkeley
“Proposal of Semiconductor Variable All-Optical Buffer”

Gordon Chen, Texas A&M University
“Quantum Circuit Design for the Multi-Object Search Problem”

Russell Chipman, University of Arizona

Kent Choquette, University of Illinois
“Coupled Microcavities in Vertical Cavity Lasers”

Weng Chow, Sandia
“LWI in semiconductor quantum dots”

Cristiano Ciuti, University of California at San Diego
“Polariton parametric interactions in semiconductor microcavities”

Leon Cohen, City University of New York (Hunter College)
“Quantum phase space, correspondence rules, and the speech-hearing connection”

Dennis Couwenberg, Elsevier Science

Michael E. Crenshaw, US Army Aviation and Missile Command
“Index Enhancement and Absorption Compensation via Quantum Coherence Control in Multicomponent Media”

Tatjana Curcic, Booz Alen Hamilton

Giuseppe D’Aguanno, Università di Roma “La Sapienza”
“Trapping and Storing Light in c(2) Photonic Crystals”

Dallin Durfee, Brigham Young University

Barak Dayan, Weizmann Institute of Science, Israel
“Coherent Control with Nonclassical light”

Dennis G. Deppe, The University of Texas at Austin
“Unipolar Quantum Cascade Quantum Dot Structures for Infrared Light Emission”

Yujie J. Ding, Lehigh University
“Efficient laser amplifiers based on quasi-indirect-bandgap GaAs/AlAs nanostructures”

Todd Ditmire, University of Texas, Austin
“Generation of X-Rays and Neutrons with Ultraintense and Ultrafast Pulse Laser”

Bob Doering, Texas Instruments
“Can We Tunnel Through the Barriers Facing Moore’s Law?”

Michelle M. Donegan, Johns Hopkins

Jim Dunn, Lawrence Livermore National Laboratory
“Ultrashort Pulse Driven X-Ray Lasers”

Joerg Evers, University of Freiburg
“Spontaneous emission suppression with intense low-frequency laser fields”

Jay Eversole, Naval Research Laboratory
“Bio-Agent Detection: DoD application of optical techniques”

Jerome Faist, University of Neuchatel, Switzerland
“Quantum Cascade Lasers: THz and the Search for Second-Order Gain”

Michael Feld, Massachusetts Institute of Technology

Marc J. Feldman, University of Rochester
“Computers without Switches”

Nat Fisch, Princeton University
“Raman Amplification and Compression of Ultrashort Pulses in Plasmas; a Successor Technology to CPA?”

Michael J. Fitch, Johns Hopkins University

Jason W. Fleischer, Technion, Israel
“Solitons in optically-induced photonic lattices”

Jim Franson, Johns Hopkins University
“Progress in Linear Optics Quantum Computing”

Bretislav Friedrich, Harvard University
“Population Transfer, Spectroscopy and Manipulation of Molecules in Nonresonant Fields”

Edward S. Fry, Texas A&M University
“Loophole-free tests of Bell Inequalities”

Ildar Gabitov, University of Arizona

Alexander Gaeta, Cornell University
“The Universal Nature of Nonlinear Wave Collapse”

Lorenzo Galleani, Politecnico di Torino, Italy
“Nonlinear oscillations and the Wigner distribution”

Alessandra Gatti, Università dell’Insubria
“Entangled imaging and wave-particle duality: from the microscopic to the macroscopic realm”

Tom Gavrieledes, Air Force Research Laboratory

Gustav Gerber, Universität Würzburg
“Adaptive Femtosecond Quantum Control”

Claire Gmachl, Bell Labs, Lucent Technologies
“Multiwavelength and Nonlinear Light Generation in Quantum Cascade Lasers”

Jim Gordon, Lucent Technologies
“Wigner densities, quantum noise, and solitons”

Robert Gordon, University of Illinois at Chicago
“Nanolithography with Molecular Optics”

Kohzo Hakuta, The University of Electro-Communications, Japan
“Quantum coherence in solid hydrogen”

Naomi Halas, Rice University
“Plasmon Hybridization: Design Principles and Realization of Nanophotonic Architectures”

Byoung Ham, E.T.R.I.

Jim Harris, Stanford University
“VCSELs for snowmaking”

- Joseph W. Haus**, University of Dayton
“Nonlinear optics in photonic crystals”
- Timothy F. Havel**, Massachusetts Institute of Technology
“The Real Density Matrix”
- Daniel J. Heinzen**, University of Texas at Austin
“Coherent production of molecules in Bose-Einstein condensates”
- Phil Hemmer**, Texas A&M University
“Progress toward quantum computing and stopped-light quantum storage, using EIT in solids”
- Karl Hess**, University of Illinois
“Time and setting dependent instrument parameters and proofs of the Bell inequalities”
- Wendell T. Hill, III**, University of Maryland
- Mark Hillery**, Hunter College, CUNY
“Programmable quantum circuits”
- John Holzrichter**, UC Davis and LLNL
- David H. Hughes**, AFRL
“Time-Frequency Signatures in Classical Phenomenological Physics”
- Randy Hulet**, Rice University
“Tunable Interactions in Ultracold Bose and Fermi Gases: Solitons to Superfluids”
- Juha Javanainen**, University of Connecticut
“Making a molecular condensate using the Feshbach resonance”
- Robert R. Jones**, University of Virginia
“Closed Loop Control of Intense Laser Fragmentation of Small Clusters”
- Kishore Kapale**, Texas A&M University
“Quenching of spontaneous emission through interference of incoherent pump processes”
- Henry Kapteyn**, JILA, University of Colorado
“Coherent Control of Atoms and Molecules Using Broad-Bandwidth Light Pulses”
- Mark A. Kasevich**, Stanford University
“Towards Heisenberg-limited de Broglie-wave force sensors”
- Peter Keefe**, Keefe & Associates
“Coherent Magneto-Caloric Effect Superconductive Heat Engine Process Cycle”
- Christoph H. Keitel**, University of Freiburg
“Ultra-intense laser-matter interaction: from atomic towards high-energy physics”
- Moochan Kim**, Texas A&M University
- Laszlo Kish**, Texas A&M University
“Noise, Speed and Dissipation: End of Moore’s Law of Miniaturization?”

- Manfred Kleber**, Technical University of Munich
“Matter waves from quantum sources”
- Olga Kocharovskaya**, Texas A&M University
“Atomic and Nuclear Interference in Solids”
- Vitaly Kocharovsky**, Texas A&M University
“Mechanism of BEC”
- Roman Kolesov**, Texas A&M University
“Electromagnetically induced transparency in a neon discharge: prospects for a new method of plasma diagnostics”
- Alexander Kolomenski**, Texas A&M University
“A comparative analysis of laser methods in Raman spectroscopy”
- Karl L. Kompa**, Max-Planck Institut für Quantenoptik
“Controlling vibrational energy in molecules”
- Robert Kosut**, SC Solutions, Inc.
“Adaptive Control of Quantum Systems”
- Robert Kosut**, SC Solutions, Inc.
“Identification of Quantum Systems for Control Design”
- Gershon Kurizki**, Weizmann Institute of Science
“Cold Gases with Laser-Induced Long-Range Forces”
- Elena Kuznetsova**, Texas A&M University
“Short pulse generation in the gamma-ray range”
- Wolfgang Lange**, Max-Planck Institut für Quantenoptik
“Ions and Photons under Deterministic Control”
- Jean-Pierre Leburton**, University of Illinois
“A scalable Spin-qubit Circuit with Quantum Dots”
- M. Howard Lee**, University of Georgia
“Carnot cycle for photon gas?”
- Robert Levis**, Temple University
“Adaptive Strong Field Control of Chemistry”
- Qiang Lin**, Zhejiang University
“Coherence effect on superluminal propagation of light”
- Alexander Litvak**, Institute of Applied Physics, RAS
“High Power Microwaves: Sources and Applications”
- Pat Loughlin**, University of Pittsburgh
“Instantaneous frequency, quantum mechanical current, and phase-space distributions”
- Robert Lucht**, Purdue University
“Sensitive, Selective Detection of Molecular Species Using Electronic-Resonance-Enhanced Coherent Anti-Stokes Raman Scattering (ERE CARS)”

Willie Luk, Sandia National Laboratory

Hideo Mabuchi, California Institute of Technology
“Experiments in Quantum Feedback”

Lute Maleki, Jet Propulsion Laboratory
“Photonic oscillator”

Jon Marangos, Imperial College
“Molecular HHG and Electron Dynamics in Strong Laser Fields”

Andrey Matsko, Jet Propulsion Laboratory
“Optical measurements of gravity fields”

Eric Mazur, Harvard University
“Femtosecond Laser Micromachining: Applications in Photonics and Biology”

Gerard Meijer, FOM-Institute for Plasma-Physics ‘Rijnhuizen’
“Deceleration and Trapping of Polar Molecules”

Roberto Merlin, University of Michigan
“Optically-Induced Multi-Spin Entanglement in a Semiconductor Quantum Well”

Claudia Mewes, Kaiserslautern University of Technology
“Decoherence suppression in collective quantum memories”

Terry Michalske, Sandia National Laboratories
“Integrated Nanotechnology: Activities at Sandia and Opportunities with DOE’s Nanoscience User Facilities”

A. Migdall, NIST (Gaithersburg)
“Two photon metrology - getting gown to business”

Eugeniy E. Mikhailov, Texas A&M University
“Observation of Narrow Enhanced Absorption Resonances in Rb Vapor Due to a Buffer Gas”

Roger E. Miller, University of North Carolina
“Transition Moment Directions in Oriented Biomolecules: A New Structural Tool”

Kazuhiko Misawa, Tokyo University of Agriculture and Technology
“Wave packet engineering using a phase-programmable femtosecond optical source”

Jerry Moloney, Univ of Arizona
“Femtosecond Atmospheric Light Strings: Supercontinuum and Rf Emission Sources”

Marcus Motzkus, Max-Planck-Institut für Quantenoptik
“Quantum control of ultracomplex molecular systems with shaped pulses”

Charles Munnerylyn, Visx Inc.
“Lasers in Ophthalmology: Past, Present, and Future”

Margaret Murnane, JILA
“Multiphoton EUV PHotonics: Quasi Phase Matching at Short Wavelengths”

Ashok Muthukrishnan, Texas A&M University
“Two-photon sources and path entanglement”

Andrey Mysyrowicz, Ecole Polytechnique, France
“Femtosecond Light bullets in the sky: recent advances”

Frank Narducci, Naval Air Systems Command
“Progress towards magneto-optic rotation in a cold gas”

Justin Nash, Naval Air Systems Command

Theo Nieuwenhuizen, University of Amsterdam
“Thermodynamics and small quantum systems”

Qian Niu, University of Texas at Austin
“Laser Tweezers in Condensates”

Irina Novikova, Texas A&M University
“Effects of buffer gas on nonlinear magneto-optic rotation”

Duncan O’Dell, University of Sussex
“Rotons and Excitation Spectra in Laser-Illuminated Condensates”

Mike O’Hare, University of Dayton

Tomas Opatrny, Texas A&M University
“Molecular coherence preparation using chirped pulses and fractional STIRAP”

Roy Ozeri, Weizmann Institute
“Experiments in Laser - Induced Interactions in Condensates”

William Page, Air Force Research Laboratory

Belen Paredes, Max-Planck Institut für Quantenoptik
“ $1/2$ -Anyons with small atomic Bose-Einstein condensates”

Pravesh Patel, Lawrence Livermore National Laboratory
“Generation of intense proton beams with ultrashort-pulse lasers”

Mauro Paternostro, The Queen’s University of Belfast
“Generation of entangled coherent states using a double electromagnetically induced transparency”

Anil K. Patnaik, University of Electro-Communications, Japan
“Slow light propagation in a thin optical fiber via electromagnetically induced transparency”

Justin Peatross, Brigham Young University
“Group Velocity and the Propagation of Broadband Pulses”

Walter Philipp, University of Illinois
“A local mathematical model for EPR experiments”

Carlo Piermarocchi, Michigan State Univ.
“Optical control of electron spins in quantum dots for quantum computation”

- Pierre Pillet**, Laboratoire Aimé Cotton
“Experiments in Frozen Rydberg Gases”
- Marcus Pollnau**, Swiss Federal Institute of Technology
“Novel broadband light sources for optical coherence tomography”
- Herschel A. Rabitz**, Princeton University
“Tying the Loop Tighter Around Quantum Systems”
- Aleksander Rebane**, Montana State University
“Background-free femtosecond CARS detection of porphyrins in solids”
- John Reintjes**, Naval Research Laboratory
“Femtosecond CARS for real time spore detection”
- Jorge Rocca**, Colorado State University
“Applications of Very Compact Soft X-Ray Lasers”
- Yuri Rostovtsev**, Texas A&M University
“Free Electron Lasers without Inversion: Concept and First Numerical Experiments”
- Lewis Rothberg**, University of Rochester
“Photophysics of Conjugated Polymers”
- Barry Sanders**, Macquarie University, Australia
“Requirements for quantum computation”
- Zoe Sariyanni**, Texas A&M University
“Photo-Carnot quantum engine”
- Vladimir A. Sautenkov**, Texas A&M University
“Effect of gold nanoparticles on the photoluminescence of conjugated polymers”
- Vladimir A. Sautenkov**, Texas A&M University
“Dramatic narrowing of Autler-Townes components in dipole-dipole broadened atomic vapor”
- Vern Schlie**, AFRL/DE
“Propagation Summary”
- Hans Schuessler**, Texas A&M University
“Heart and brain reseach at the molecular and subcellular levels with laser excited surface plasmons”
- Heinrich Schwoerer**, Friedrich-Schiller-Universitaet Jena
“Relativistic laser plasmas and laser-induced nuclear reactions”
- Marlan O. Scully**, Texas A&M University
“FAST CARS Detection of Large Molecules”
- Tamar Seideman**, National Research Council of Canada
“Current-Triggered Dynamics in Molecular-Scale Devices”
- Alexander Sergienko**, Boston University
“Quantum Metrology with Entangled Photons”

- Vladimir M. Shalaev**, Purdue University
“Plasmonic Nanophotonics: Manipulating Light and Sensing Molecules”
- M. Shapiro**, Weizmann Institute
“Dark states: An analytical solution to the non-degenerate quantum control problem and a proposed mechanism for quantum jumps”
- D. P. Sheehan**, University of San Diego
“Hammers, anvils and stirrups: sounding second law tests”
- Yanhua Shih**, UMBC
“Classical and Quantum Imaging”
- Gennady Shvets**, Illinois Institute of Technology and Fermilab
“Electromagnetically Induced Transparency of Plasma: From Quantum to Classical Mechanics, and Back”
- Gennady Shvets**, Illinois Institute of Technology and Fermilab
“Phononic Nanostructures and What You Can Do With Them: Left-handed Metamaterials, Perfect Lenses, and All That”
- Louis Sica**, NRL
“A new view of Bell’s inequalities”
- David Smith**, NASA Huntsville
“Enhancement of Optical Nonlinearities in Composite Media and Structures via Local Fields and Electromagnetic Coupling Effects”
- Alexei V. Sokolov**, Texas A&M University
“Ultra-Short Optical Pulse Generation by the Adiabatic Raman Technique”
- Phil Sprangle**, Naval Research Laboratory
“Propagation of Intense, Short Laser Pulses in Atm”
- Aephraim M. Steinberg**, University of Toronto
“Quantum information with photons and atoms: from tomography to error correction”
- Szymon Suckewer**, Princeton University
“Some New Approaches to Generation of Ultrashort and Ultraintense Pulses and Potential Applications”
- Phillip Szuromi**, Science Magazine
- Takashi Tanaka**, Institute of Physical and Chemical Research, Japan
“Theoretical investigation of misalignment effects in the FEL based on self-amplified spontaneous emission”
- Richard J. Tansey**, Boeing
- Antonio Ting**, Naval Research Laboratory
“Optical Guiding fs-TW Experiments in Air/Plasmas”
- Paolo Tombesi**, U. Camerino, Italy
“Beating the standard quantum limit with entangled meters”
- Mark Trainoff**, Raytheon
- Patrick J. Treado**, Chemicon Inc.
“Raman Chemical Imaging for Rapid, Non-Invasive and Reagentless BioThreat Detection”

- Jorge R. Tredicce**, Institut Non Lineaire de Nice, France
“Cavity solitons as pixels in semiconductor microcavities”
- Simeon T. Trendafilov**, Texas A&M University
- Z. Vally Vardeny**, University of Utah
“Random Lasers in Organics”
- Regina de Vivie-Riedle**, MPI für Quantenoptik
“Conversion of an atomic to a molecular Bose-Einstein-Condensate with optimized pulses in the n- and fs-regime”
- Ian Walmsley**, University of Oxford
“Looking for peace and quiet: Using learning control to avoid decoherence”
- Hailin Wang**, University of Oregon
“Electromagnetically induced transparency from spin coherence in semiconductors”
- L. J. Wang**, NEC
“Light transmission through nano-apertures”
- Jonathan Weinstein**, NIST
“Photoassociation spectroscopy of Na₂ and electromagnetically-induced matter-wave transparency”
- George R. Welch**, Texas A&M University
“Ellipticity-dependent magneto-optical polarization rotation via multi-photon coherence”
- Ben Williams**, Massachusetts Institute of Technology
“Development of THz quantum-cascade lasers”
- Frank Wise**, Cornell University
“Semiconductor Quantum Dots: New Capabilities for Fluorescence Microscopy”
- Stuart Wolf**, University of Virginia
- Jonathan S. Wurtele**, University of California at Berkeley
“Magnetically Induced Transparency of Plasma: Applications to Particle Acceleration and Pulse Compression”
- Ludger Wöste**, Freie Universität Berlin
““First” fs-TW Generated Artificial Beacons”
- Ludger Wöste**, Freie Universität Berlin
“Coherent Control of Metal Clusters: Learning Dynamics with Self-Learning Algorithms”
- Koichi Yamakawa**, Japan Atomic Energy Research Institute, Kyoto
“Ultrafast, petawatt Ti:sapphire laser and its applications to relativistic ionization of atoms and clusters”
- Cunyun Ye**, Texas A&M University
- Nan Yu**, Jet Propulsion Laboratory
“Atom interferometry in space - from fundamental physics to practical applications”
- Ulvi Yurtsever**, Jet Propulsion Laboratory
“using entangled particles to do metrology on the gravitational metric”

Shi-Yao Zhu, Hong Kong Baptist College

“Light propagation in one-dimensional photonic crystals with dispersion”

Max Zolotarev, LBNL

Suhail Zubairy, Texas A&M University

“Cavity QED based quantum phase gate and applications”