CONFERENCE OVERVIEW AND REGISTRATION INFORMATION

TAKE A SNEAK PEEK!
Early Bird Registration ends 31 Dec.

CLEO:2014

Laser Science to Photonic Applications

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8-13 JUNE 2014
TECHNICAL PROGRAM 8–13 June 2014
SHORT COURSES 8–10 June 2014
EXPOSITION: 10–12 June 2014

San Jose Convention Center • San Jose, CA, USA

CLEO: QELS–Fundamental Science
CLEO: Science & Innovations
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CLEO: 2014 – the one conference for late-breaking, full spectrum research, world-class engineering and market-ready applications.

- World-renowned, peer-reviewed program organized by esteemed leaders in the industry and academia
- Technical registration includes access to all QELS-Fundamental Science, Science & Innovations and Applications & Technology programming
- 1,700+ technical presentations
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- 18 short courses offering expert instruction on essential topics
- 13 captivating Symposia
- 24 Tutorials
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- More than 300 participating companies highlighting the latest products at CLEO: Expo
- Free exhibit floor programming on market trends, commercial development, technology transfer and more
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CLEO: 2014 Chairs

CLEO: Applications & Technology

Iain T. McKinnie, *Lockheed Martin Advanced Technology Center, USA,* **General Co-Chair**

James C. Wyant, *Univ. of Arizona, Coll of Opt Sciences, USA,* **General Co-Chair**

Yu Chen, *Univ. of Maryland at College Park, USA,* **Program Co-Chair**

Eric Mottay, *Amplitude Systemes, France,* **Program Co-Chair**

CLEO: Science & Innovations

Craig Arnold, *Princeton Univ., USA,* **General Co-Chair**

René-Jean Essiambre, *Alcatel-Lucent, USA,* **General Co-Chair**

Seth Bank, *Univ. of Texas at Austin, USA,* **Program Co-Chair**

Valdas Pasiskevicius, *Kungliga Tekniska Hogskolan, Sweden,* **Program Co-Chair**

CLEO: QELS–Fundamental Science

Demetrios Christodoulides, *Univ. of Central Florida, CREOL, USA,* **General Co-Chair**

Norbert Lütkenhaus, *Univ. of Waterloo, Canada,* **General Co-Chair**

Roberto Morandotti, *INRS, Univ. of Quebec, Canada,* **Program Co-Chair**

Bill Munro, *NTT Basic Res. Labs, Japan,* **Program Co-Chair**

"I appreciated the enormous volume of knowledge and technical expertise that was shared during the conference. I expect this will be valuable to my future research."

Robert Niederriter, Univ. of Colorado at Boulder, USA

PRELIMINARY CONFERENCE SCHEDULE

TIMES AND DATES ARE SUBJECT TO CHANGE. ALL TIMES ARE PACIFIC STANDARD TIME.

EVENTS	SUNDAY 8 JUNE	MONDAY 9 JUNE	TUESDAY 10 JUNE	WEDNESDAY 11 JUNE	THURSDAY 12 JUNE	FRIDAY 13 JUNE
GENERAL						
Registration	07:30-17:30	07:00-18:00	07:00-18:00	07:30-18:30	07:30-18:30	07:30-12:00
CLEO Technical Programming						
Short Courses	08:30-17:30	12:30-19:30	9:00-17:00			
Technical Sessions, Tutorials, & Symposia		08:00-18:00	11:00-18:30	10:30-18:30	08:00-18:30	08:30-12:30
Plenary & Awards Sessions			08:15-10:00	08:30-10:00		
Postdeadline Paper Sessions					20:00-22:00	
Poster Sessions			18:30-20:30 (with conference reception)	13:30-15:00	11:30-13:00	
CLEO: Expo and Show Floor Activities						
CLEO: Expo			10:00-17:00	10:00-17:00	10:00-15:00	
Unopposed Expo-Only Time			10:00-11:00, 13:00-14:00	12:30-13:30, 15:00-16:30	10:30-11:30, 13:00-14:00	
CLEO: Market Focus			10:30-12:30, 14:00-16:00	10:30-12:30, 14:00-16:00		
CLEO: Technology Transfer Program					09:30-12:30	
SPECIAL EVENTS						
Conference Reception			18:30-20:30			

IMPORTANT DATES

22 JANUARY 2014, 17:00 GMT
Paper Submission Deadline

21 APRIL 2014, 16:00 GMT
Paper Post Deadline
Submission Deadline

APRIL 2014
Conference Program Planner Available

6 MAY 2014
Hotel Reservations Deadline

12 MAY 2014
Advance Registration Deadline

8-13 JUNE 2014
Technical Conference

8-10 JUNE 2014
Short Courses

10-11 JUNE 2014
CLEO: Market Focus

10-12 JUNE 2014
CLEO: Expo
Tech Transfer Exhibits

10-12 JUNE 2014
Tech Transfer Program

SPECIAL PROGRAMS

PLENARY SESSION

Gerhard Rempe, Max-Planck-Institut fur Quantenoptik, Germany
QELS-FUNDAMENTAL SCIENCE: Quantum Coherent Networks

Larry A. Coldren, UC-Santa Barbara, USA
SCIENCE & INNOVATIONS: Photonic Integrated Circuits as Key Enablers for Datacom, Telecom and Sensor Systems

David Payne, Optoelectronics Research Centre at the Univ. of Southampton, UK
APPLICATIONS & TECHNOLOGY: High Powered Lasers

SPECIAL SYMPOSIA

ADVANCED ULTRASHORT PULSE LASER TECHNOLOGIES IN BIOPHOTONICS AND NANOBIOPHOTONICS

ADVANCES IN MOLECULAR IMAGING

ADVANCES IN NEUROPHOTONICS

ENABLING PHOTONICS TECHNOLOGIES FOR MINIATURIZATION

HIGH PERFORMANCE OPTICS

LARGE-SCALE SILICON PHOTONIC INTEGRATION

LASER-DRIVEN SOURCES OF PARTICLE AND X-RAY BEAMS

LASER PROCESSING FOR CONSUMER ELECTRONICS

MICROCAVITY EXCITON-POLARITONS, DEVICES AND APPLICATIONS

NOVEL LIGHT SOURCES AND PHOTONIC DEVICES IN OPTICAL IMAGING

OPTOFLUIDICS MICROSYSTEMS

QUANTUM REPEATERS

SCIENCE AND APPLICATIONS OF STRUCTURED LIGHT IN COMPLEX MEDIA

For complete details on invited speakers and topics, please visit **www.cleoconference.org/symposia**

CLEO: 2014 INCLUDES INVALUABLE, PEER-REVIEWED TECHNICAL CONTENT covering the latest hot topics in laser science and electro-optics. In addition to the Plenary and Symposia, the technical program features technical sessions, tutorials and short courses organized by category.

Please visit **www.cleoconference.org/info** for detailed category descriptions and programming updates.

PROGRAM AS OF 6 DECEMBER 2013

QELS-FUNDAMENTAL SCIENCE (FS)

FS 1: QUANTUM OPTICS OF ATOMS, MOLECULES AND SOLIDS

TUTORIAL SPEAKER

Strong Photon-photon Interactions, *Vladan Vuletic; Massachusetts Institute of Technology, USA*

INVITED SPEAKERS

Building Quantum Networks with Ions in Optical Cavities, *Tracy Northup; Univ. of Innsbruck, Austria*

Optical Quantum Networks with Spins in Diamond, *Tim Taminiau; ICFO -The Institute of Photonic Sciences, Netherlands*

SHORT COURSES

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC339: Optical Atomic Clocks: New Science and Technology, *Scott Diddams, Chris Oats; NIST, USA*

SC402: Transformational Optics, *Ulf Leonhardt; Weizmann Inst. of Science in Israel, Israel*

SC403: NanoCavity Quantum Electrodynamics and Applications, *Jelena Vuckovic; Stanford Univ., USA*

FS 2: QUANTUM SCIENCE, ENGINEERING AND TECHNOLOGY

TUTORIAL SPEAKER

Quantum Optomechanics, *Markus Aspelmeyer; Universitat Wien, Austria*

INVITED SPEAKERS

Atoms, Ions and Photons for Quantum Tasks: Strengths and Weaknesses, *Julio Barreiro; Univ. of California at San Diego, USA*

Title to be Determined, *Yuao Chen; Univ. of Science and Tech. of China (USTC), China*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC271: Quantum Information-Technologies and Applications, *Greg Kanter[1], Paul Toliver[2]; [1]NuCrypt, [2]Telcordia, USA*

SC301: Quantum Cascade Lasers: Science, Technology, Applications and Markets, *Federico Capasso; Harvard Univ., USA*

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC362 Cavity Optomechanics: Fundamentals and Applications of Controlling and Measuring Nano- and Micro-mechanical Oscillators with Laser Light, *Tobias Kippenberg; Ecole Polytechnique Federale de Lausanne, Switzerland*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC402: Transformational Optics, *Ulf Leonhardt; Weizmann Inst. of Science in Israel, Israel*

SC403: NanoCavity Quantum Electrodynamics and Applications, *Jelena Vuckovic; Stanford Univ., USA*

FS 3: METAMATERIALS AND COMPLEX MEDIA

TUTORIAL SPEAKER

Spin-Optical Metamaterial Route to Spin-Controlled Photonics, *Erez Hasman; Technion-Israel Institute of Technology, Israel*

INVITED SPEAKERS

Shaping the Intensity Profile Inside Opaque Media by Selective Excitation of Transmission Eigenchannels, *Azriel Genack; CUNY Queens College, USA*

Thermal Emission Control with Surface Waves, *Jean-Jacques Greffet; Institut d'Optique, France*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optics, *Ben Eggleton; Univ. of Sydney, Australia*

SC402: Transformational Optics, *Ulf Leonhardt; Weizmann Inst. of Science in Israel, Israel*

FS 4: OPTICAL EXCITATIONS AND ULTRAFAST PHENOMENA IN CONDENSED MATTER

TUTORIAL SPEAKER

Quantum Fluids of Light, *Cristiano Ciuti; Université Paris Diderot-Paris 7, France*

INVITED SPEAKERS

Observation of Floquet-Bloch States in Topological Insulators, *Nuh Gedik; Massachusetts Institute of Technology, USA*

Optoelectronic Investigation of Spin and Pseudospins in Transition Metal Dichalcogenides, *Xiadong Xu; Univ. of Washington, USA*

SHORT COURSES

SC149: Foundations of Nonlinear Optics, *Robert Fisher; R. A. Fisher Associates, USA*

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC352: Introduction to Ultrafast Pulse Shaping--principles and Applications, *Marcos Dantus; Michigan State Univ., USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optics, *Ben Eggleton; Univ. of Sydney, Australia*

FS 5: NONLINEAR OPTICS AND NOVEL PHENOMENA

TUTORIAL SPEAKER

Nonlinear THz Control in Quantum Solids, *Andrea Cavalleri; Max-Planck Structural Dynamics Center , Germany*

INVITED SPEAKERS

Giant Nonreciprocity without Magnetism: Angular-momentum-biased Resonators, *Andrea Alu; Univ. of Texas at Austin, USA*

Self Accelerating Beams of Photons and Electrons, *Ady Arie; Tel-Aviv Univ., Israel*

SHORT COURSES

SC149: Foundations of Nonlinear Optics, *Robert Fisher; R. A. Fisher Associates, USA*

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC339: Optical Atomic Clocks: New Science and Technology, *Scott Diddams, Chris Oats; NIST, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optics, *Ben Eggleton; Univ. of Sydney, Australia*

SC403: NanoCavity Quantum Electrodynamics and Applications, *Jelena Vuckovic; Stanford Univ., USA*

FS 6: NANO-OPTICS AND PLASMONICS

TUTORIAL SPEAKER

Optical Properties on Demand: Reconfigurable and Coherently Controlled Metamaterials, *Nikolay Zheludev; Univ. of Southampton, UK*

INVITED SPEAKERS

Coherent Plasmonics: Optimized for Sensing and Energy Transfer, *Naomi Halas; Rice Univ., USA*

Plasmonic Biosensors and their Analytical Applications, *Jiri Homola; Academy of Sciences of the Czech Republic, Czech Republic*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC402: Transformational Optics, *Ulf Leonhardt; Weizmann Inst. of Science in Israel, Israel*

SC403: NanoCavity Quantum Electrodynamics and Applications, *Jelena Vuckovic; Stanford Univ., USA*

NEW! SC410: Finite Element Modelling Methods for Photonics and Optics, *Arti Agrawal; City Univ., UK*

FS 7: HIGH-FIELD PHYSICS AND ATTOSCIENCE

TUTORIAL SPEAKER

Approaching the Atomic Unit of Time with Isolated Attosecond Pulses, *Zenghu Chang; Univ. of Central Florida, CREOL, USA*

INVITED SPEAKERS

Lightwave Control of Plasma Dynamics, *Rodrigo B. Lopez-Martens; Laboratoire d'Optique Appliquée, France*

High Energy Ion Acceleration and Neutron Production using Relativistic Transparency in Solids , *Markus Roth; Technische Universität Darmstadt, Germany*

SHORT COURSES

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC378: Introduction to Ultrafast Optics, *Rick Trebino; Swamp Optics LLC, USA*

SCIENCE & INNOVATIONS (S&I)

S&I 1: LIGHT-MATTER INTERACTIONS AND MATERIALS PROCESSING

TUTORIAL SPEAKER

Femtosecond Laser Materials Processing, *Chunlei Guo; Univ. of Rochester, USA*

INVITED SPEAKER

Ultrafast Electron Dynamics in Photo-excited Semiconductors Studied by Time and Angle-resolved Two Photon Photoelectron Spectroscopy, *Jun'ichi Kanasaki; Osaka Univ., Japan*

Ultafast Laser Plasma Spectroscopy, *Vassilia Zorba; Lawrence Berkeley National Lab., USA*

SHORT COURSES

SC149: Foundations of Nonlinear Optics, *Robert Fisher; R. A. Fisher Associates, USA*

SC318: Coherent and Incoherent Laser Beam Combining: Theory and Methods, *James Legar; Univ. of Minnesota, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

S&I 2: ADVANCED SCIENCE AND TECHNOLOGY FOR LASER SYSTEMS AND FACILITIES

TUTORIAL SPEAKER

Rapid Manufacturing with Laser: The Next Revolution, *Reinhart Poprawe; Fraunhofer Institute for Laser Technology, Germany*

INVITED SPEAKERS

Advances in High Intensity Laser Science, *Todd Ditmire; Univ. of Texas at Austin, USA*

Cryogenic Composite Disk Laser for Peak and Average Power Scaling, *Luis Zapata; MIT, USA*

SHORT COURSES

SC149: Foundations of Nonlinear Optics, *Robert Fisher; R. A. Fisher Associates, USA*

SC270: High Power Fiber Lasers and Amplifiers, *W. Andrew Clarkson; Optoelectronics Res. Ctr., Univ. of Southampton, UK*

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC318: Coherent and Incoherent Laser Beam Combining: Theory and Methods, *James Legar; Univ. of Minnesota, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

S&I 3: SEMICONDUCTOR LASERS

TUTORIAL SPEAKER

Dealing with Loss in Plasmonics and Metamaterials, *Jacob Khurgin; Johns Hopkins Univ., USA*

INVITED SPEAKERS

Asymmetric Heterogeneously Integrated InP Microdisk Lasers on Si for Optical Interconnect and Optical Logic, *Geert Morthier; Ghent Univ., INTEC, Belgium*

Quantum Teleportation using Entangled LEDs, *R. Mark Stevenson; Toshiba Research Europe Ltd, UK*

Advances in the Epitaxial Growth and Design of Optically-pumped Surface-emitting Semiconductor Laser Structures, *Wolfgang Stolz; Phillips Univ. of Marburg, Germany*

Polariton Lasers and Quantum Effects in Novel Lasers, *Yoshihisa Yamamoto; Stanford Univ., USA*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC301: Quantum Cascade Lasers: Science, Technology, Applications and Markets, *Federico Capasso; Harvard Univ., USA*

SC318: Coherent and Incoherent Laser Beam Combining: Theory and Methods, *James Legar; Univ. of Minnesota, USA*

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SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida*

SC403: NanoCavity Quantum Electrodynamics and Applications, *Jelena Vuckovic; Stanford Univ., USA*

S&I 4: NONLINEAR OPTICAL TECHNOLOGIES

TUTORIAL SPEAKER

Supercontinuum and Solitons, What's Up?, *Goëry Genty; Tampere Univ. of Technology, Finland*

INVITED SPEAKERS

Sources and Diagnostics for Attosecond Science, *Cord Arnold; Lunds Universitet, Sweden*

Asynchronous Mid-infrared OPO Frequency Combs and Applications in Spectroscopy, *Derryck Reid; Heriot-Watt Univ., UK*

Room-temperature Bonding and its Applications to Solid-state Lasers and Wavelength-conversion Devices, *Ichiro Shoji; Chuo Univ., Japan*

New Applications and Devices for Quantum Frequency Conversion, *Kartik Srinivasan; National Inst of Standards & Technology, USA*

SHORT COURSES

SC149: Foundations of Nonlinear Optics, *Robert Fisher; R. A. Fisher Associates, USA*

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SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida*

SC378: Introduction to Ultrafast Optics, *Rick Trebino; Swamp Optics LLC, USA*

SC379: Silicon Photonic Devices and Applications, *Michal Lipson; Cornell Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optics, *Ben Eggleton; Univ. of Sydney, Australia*

S&I 5: TERAHERTZ TECHNOLOGIES AND APPLICATIONS

TUTORIAL SPEAKER

Intense Terahertz Pulses: Probing and Controlling Fundamental Motions of Electrons, Spins, and Ions, *Tobias Kampfrath; Max-Planck-Gesellschaft, Germany*

INVITED SPEAKERS

The Development and Applications of Terahertz Quantum Cascade Lasers, *Edmund Linfield; Univ. of Leeds, UK*

Title to be Determined, *Willie Padilla; Boston College, USA*

Silicon-based Sources and Detectors for Terahertz Applications, *Ulrich Pfeiffer; Univ. of Wuppertal, Germany*

Terahertz Electron-hole Recollisions, *Mark Sherwin; Univ. of California Santa Barbara, USA*

SHORT COURSES

SC149: Foundations of Nonlinear Optics, *Robert Fisher; R. A. Fisher Associates, USA*

SC301: Quantum Cascade Lasers: Science, Technology, Applications and Markets, *Federico Capasso; Harvard Univ., USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC378: Introduction to Ultrafast Optics, *Rick Trebino; Swamp Optics LLC, USA*

S&I 6: OPTICAL MATERIALS, FABRICATION AND CHARACTERIZATION

TUTORIAL SPEAKER

Light Emission from Silicon Photonic Crystals, *Thomas Krauss; Univ. of York, UK*

INVITED SPEAKERS

Semiconductor Plasmonic Devices for Interconnects, *Meir Orenstein; Technion Israel Inst. of Technology, Israel*

Nano-focused Spectroscopy and Imaging Reaching the Single Molecule Level, *Markus B. Raschke; Univ. of Colorado at Boulder, USA*

Si-based Microcavity Devices with Ge Quantum Dots, *Jinsong Xia; Wuhan National Lab for Optoelectronics, China*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

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SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optics, *Ben Eggleton; Univ. of Sydney, Australia*

NEW! SC410: Finite Element Modelling Methods for Photonics and Optics, *Arti Agrawal; City Univ., UK*

S&I 7: MICRO- AND NANO-PHOTONIC DEVICES

TUTORIAL SPEAKER

Organic Electro-optic Materials and Devices: From Molecular Engineering to Technology Innovation, *Alex Jen; Univ. of Washington, USA*

INVITED SPEAKERS

Ga(In)N Nanowire Light Emitting Diodes and Single Photon Sources, *Pallab Bhattacharya; Univ. of Michigan, USA*

Cavity Quantum Electrodynamics in Quantum dot–photonic Crystal Nanocavity Coupled System with Large g/, *Satoshi Iwamoto; Univ. of Tokyo, Japan*

Quantum Nonlinear Optics with Single Photons, *Mikhail Lukin; Harvard Univ., USA*

Nano-Optical Scan Probes: Opening Doors to Previously-Inaccessible Parameter Spaces, *James Schuck; Lawrence Berkeley National Laboratory, USA*

Photonic Topological Insulators, *Mordechai Segev; Technion Israel Institute of Technology, Israel*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC302: MetaMaterials, *Vladimir M. Shalaev; Purdue Univ., USA*

SC318: Coherent and Incoherent Laser Beam Combining: Theory and Methods, *James Legar; Univ. of Minnesota, USA*

SC339: Optical Atomic Clocks: New Science and Technology, *Scott Diddams, Chris Oats; NIST, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida*

SC362 Cavity Optomechanics: Fundamentals and Applications of Controlling and Measuring Nano- and Micro-mechanical Oscillators with Laser Light, *Tobias Kippenberg; Ecole Polytechnique Federale de Lausanne, Switzerland*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC379: Silicon Photonic Devices and Applications, *Michal Lipson; Cornell Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optics, *Ben Eggleton; Univ. of Sydney, Australia*

SC403: NanoCavity Quantum Electrodynamics and Applications, *Jelena Vuckovic; Stanford Univ., USA*

NEW! SC410: Finite Element Modelling Methods for Photonics and Optics, *Arti Agrawal; City Univ., UK*

S&I 8: ULTRAFAST OPTICS, OPTOELECTRONICS AND APPLICATIONS

TUTORIAL SPEAKER

Laser Processing of Semiconductors and Applications, *Eric Mazur; Harvard Univ., USA*

INVITED SPEAKERS

Isolated Attosecond Continua in the Water Window via High Harmonic Generation using a Few-cycle Infrared Light Source, *Nobuhisa Ishii; Institute for Solid State Physics, Japan*

Synthesizing Arbitrary Optical Field Waveforms, *Andy Kung; National Tsing Hua Univ., Taiwan*

Performance Scaling of Ultrafast Lasers by Coherent Combination, *Jens Limpert; Friedrich-Schiller-Universität Jena, Germany*

SHORT COURSES

SC149: Foundations of Nonlinear Optics, *Robert Fisher; R. A. Fisher Associates, USA*

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC339: Optical Atomic Clocks: New Science and Technology, *Scott Diddams, Chris Oats; NIST, USA*

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SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC378: Introduction to Ultrafast Optics, *Rick Trebino; Swamp Optics LLC, USA*

SC379: Silicon Photonic Devices and Applications, *Michal Lipson; Cornell Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optic, *Ben Eggleton; Univ. of Sydney, Australia*

S&I 9: COMPONENTS, INTEGRATION, INTERCONNECTS AND SIGNAL PROCESSING

TUTORIAL SPEAKER

Single Photon Imagers, *Edoardo Charbon; Technische Universiteit Delft, Netherlands*

INVITED SPEAKERS

Breaking the Conventional Limitations of Microring Resonators, *Joyce Poon; Univ. of Toronto, Canada*

InP-Based 100 Gb/s Coherent Receiver Technologies, *Hideki Yagi; Sumitomo Electric Industries Ltd, Japan*

SHORT COURSES

SC318: Coherent and Incoherent Laser Beam Combining: Theory and Methods, *James Legar; Univ. of Minnesota, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

SC379: Silicon Photonic Devices and Applicatio, *Michal Lipson; Cornell Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optic, *Ben Eggleton; Univ. of Sydney, Australia*

NEW! SC410: Finite Element Modelling Methods for Photonics and Optics, *Arti Agrawal; City Univ., UK*

S&I 10: BIOPHOTONICS AND OPTOFLUIDICS

TUTORIAL SPEAKER

Smartphone-Based Molecular Diagnostics, *David Erickson; Cornell Univ., USA*

INVITED SPEAKERS

Shaping the Future of Biophotonics: Imaging and Manipulation, *Kishan Dholakia; Univ. of St Andrews, UK*

Fluorescence Lifetime Imaging for Biomedicine, *Paul French; Imperial College London, UK*

Computational Imaging and Sensing for Biophotonics Applications, *Aydogan Ozcan; Univ. of California Los Angeles, USA*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

S&I 11: FIBERS, PROPAGATION AND NONLINEAR EFFECTS, LASERS, DEVICES AND MATERIALS

TUTORIAL SPEAKER

Emerging Fiber Technology for Space Division Multiplexed Optical Communications, *David Richardson; Univ. of Southampton, UK*

INVITED SPEAKERS

The Photonic Lantern, *Timothy A. Birks; Univ. of Bath, UK*

Fiber Laser for Accelerators, *Ingmar Hartl; DESY, Germany*

Phase-locked Multicore Fiber Lasers for Power and Energy Scaling, *Akira Shirakawa; Univ. of Electro-Communications, Japan*

Tunable Sources from the Visible to Vacuum-UV based on Gas-filled Hollow-core Photonic Crystal Fibers, *John Travers; Max-Planck-Inst Physik des Lichts, Germany*

Ultra-long Fibre based Random Lasers, *Sergei Turitsyn; Aston Univ., UK*

SHORT COURSES

SC270: High Power Fiber Lasers and Amplifiers, *W. Andrew Clarkson; Optoelectronics Res. Ctr., Univ. of Southampton, UK*

SC318: Coherent and Incoherent Laser Beam Combining: Theory and Methods, *James Legar; Univ. of Minnesota, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

"Excellent technical sessions. Strong program around the conference, great location."

Kaertner, CFEL/UHH, USA

SC396: Frontiers of Guided Wave Nonlinear Optics, *Ben Eggleton; Univ. of Sydney, Australia*

NEW! SC410: Finite Element Modelling Methods for Photonics and Optics, *Arti Agrawal; City Univ., UK*

S&I 12: LIGHTWAVE COMMUNICATIONS AND OPTICAL NETWORKS

TUTORIAL SPEAKER

Phase-sensitive Amplification in Communications and Signal Processing, *Zhi Tong; Univ. of California San Diego, USA*

INVITED SPEAKERS

Novel Fiber and Devices for Space-multiplexed Transmission, *Guifang Li; Univ. of Central Florida, USA*

Signal Regeneration Techniques for Advanced Modulation Formats, *Francesca Parmigiani; Univ. of Southampton, UK*

SHORT COURSES

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC396: Frontiers of Guided Wave Nonlinear Optics, *Ben Eggleton; Univ. of Sydney, Australia*

S&I 13: ACTIVE OPTICAL SENSING

TUTORIAL SPEAKER

Airborn Laser-based Trace-gas Sensing for Environmental Studies, *Steven Wofsy; Harvard Univ., USA*

INVITED SPEAKERS

Instantaneous Volumetric Combustion Diagnostics, *Lin Ma; Virginia Tech, USA*

Solvent-driven Ionic Processes Surface Adsorption and Cation-Cation Pairing, Studied by X-ray Absorption and UV-SHG Spectroscopy, *Richard James Saykally; Univ. of California Berkeley, USA*

SHORT COURSES

SC301: Quantum Cascade Lasers: Science, Technology, Applications and Markets, *Federico Capasso; Harvard Univ., USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

S&I 14: OPTICAL METROLOGY

TUTORIAL SPEAKER

Title to be Determined, *Nergis Mavalvala; Massachusetts Institute of Technology, USA*

INVITED SPEAKERS

High Sensitivity Gravity Measurement with Cold Atom Interferometry, *Zhongkun Hu; Huazhong Univ. of Science and Technology, China*

Optical Atomic Clocks for a Future New Definition of the Second, *Fritz Riehle; Physikalisch Technische Bundesanstalt, Germany*

SHORT COURSES

SC339: Optical Atomic Clocks: New Science and Technology, *Scott Diddams, Chris Oats; NIST, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC378: Introduction to Ultrafast Optics, *Rick Trebino; Swamp Optics LLC, USA*

S&I 15: LEDS, PHOTOVOLTAICS AND ENERGY-EFFICIENT ("GREEN") PHOTONICS

TUTORIAL SPEAKER

Flexible, Microscale Inorganic LEDs and Solar Cells, *John Rodgers; Univ of Illinois at Urbana-Champaign, USA*

INVITED SPEAKERS

Energy Yield, Trackers and Concentration PV, *Geoffrey Kinsey; Fraunhofer Center for Sustainable Energy Systems, USA*

Auger Recombination in Light Emitting Materials, *Emmanouil Kiopakis; Univ. of Michigan, USA*

SHORT COURSES

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC376: Plasmonics, *Mark Brongersma; Stanford Univ., USA*

APPLICATIONS & TECHNOLOGY (A&T)

A&T 1: BIOMEDICAL

TUTORIAL SPEAKER

Multimode Optical Bioimaging, from the Lab to the Clinic: A Translational Story, *Daniel Farkas; Cedars-Sinai Medical Center, USA*

INVITED SPEAKERS

Methods for Enhancing Visualization of Subsurface Tissue Structures in Real Time, *Stavros Demos; Lawrence Livermore National Lab., USA*

Mueller Polarimetric Endoscopy, *Daniel Elson; Imperial College London, UK*

Searching for Biomarkers of Glaucoma using Adaptive Optics Scanning Ophthalmoscopy, *Alfredo Dubra; Medical College of Wisconsin, USA*

In Vivo Photothermal Optical Coherence Tomography of Drug Delivery in Tumors, *Melissa Skala; Vanderbilt Univ., USA*

Title to be Determined, *Melissa Suter; Harvard Medical School, Mass General Hos, USA*

Title to be Determined, *Robert J. Zawadzki; Univ. of California Davis, USA*

Photoacoustic Microscopy: Current Situation and New Ultrasonic Detectors, *Hao Zhang; Northwestern Univ., USA*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

A&T 2: ENVIRONMENT/ENERGY

INVITED SPEAKERS

Concentrator Solar Cells for the Built Environment and Architecture, *Anna Dyson; Rensselaer Univ., USA*

Frontiers of Eco-Efficient Ultraviolet Water Treatment Technologies, *Gordon Knight; Trojan UV, Canada*

Artificial Photosynthesis – Helping Nature Regain Control of the Global Carbon Cycle, *Thomas Moore; Arizona State Univ., USA*

SHORT COURSES

SC221: Nano Photonics: Physics and Techniques, *Axel Scherer; Caltech, USA*

SC301: Quantum Cascade Lasers: Science, Technology, Applications and Markets, *Federico Capasso; Harvard Univ., USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

A&T 3: GOVERNMENT & NATIONAL SCIENCE, SECURITY & STANDARDS APPLICATIONS

INVITED SPEAKERS

Quantum Noise Reduction in the LIGO Gravitational Wave Interferometer by using Squeezed States of Light, *Lisa Barsotti; MIT, USA*

Infrared Digital Holography as New 3D Imaging Tool for First Responders Firefighters: Recent Achievements and Prospectives, *Pietro Ferraro; Istituto Nazionale di Ottica , Italy*

Nanowire Superconducting Single Photon Detectors Progress and Promise, *Sae Woo Nam; National Inst of Standards & Technology, USA*

Ultrafast X-ray Absorption Spectroscopy using Superconducting Microcalorimeter Sensors, *Joel Ullum; NIST, USA*

SHORT COURSES

SC301: Quantum Cascade Lasers: Science, Technology, Applications and Markets, *Federico Capasso; Harvard Univ., USA*

SC318: Coherent and Incoherent Laser Beam Combining: Theory and Methods, *James Legar; Univ. of Minnesota, USA*

SC339: Optical Atomic Clocks: New Science and Technology, *Scott Diddams, Chris Oats; NIST, USA*

SC352: Introduction to ultrafast pulse shaping--principles and applications, *Marcos Dantus; Michigan State Univ., USA*

SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

A&T 4: INDUSTRIAL

TUTORIAL SPEAKER

Nonlinear Dynamics of Laser Processing, *Wolfgang Schulz; Fraunhofer-Institut für Lasertechnik, RWTH Aachen Univ., Germany*

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> *Antoine Godard, ONERA*

INVITED SPEAKERS

Laser Fabrication for Medical Devices, *Nils-Agne Feth; Universität Karlsruhe, Germany*

Ultrafast Beam Modulation and Delivery for Printing and Embossing Applications, *Guido Henning; Daetwyler Graphics AG, Switzerland*

Waveguides and Integrated Optics, *Nicholas Psaila; Heriot-Watt Univ., UK*

Innovative Applications of Femtosecond Laser Induced Nanostructure, *Yasuhiko Shimotsuma; Kyoto Univ., Japan*

SHORT COURSES

SC270: High Power Fiber Lasers and Amplifiers, *W. Andrew Clarkson; Optoelectronics Res. Ctr., Univ. of Southampton, UK*

SC301: Quantum Cascade Lasers: Science, Technology, Applications and Markets, *Federico Capasso; Harvard Univ., USA*

SC318: Coherent and Incoherent Laser Beam Combining: Theory and Methods, *James Legar; Univ. of Minnesota, USA*

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PROGRAM SCHEDULE*

10-12 June
Tabletop Displays During Exhibit Hours

Thursday 12 June

9:30-10:30 Tutorial: Technology Transfer 101: Technology Licensing and Tech Startups

10:30-12:00 Technology Transfer Showcase

12:00-12:30 Keynote Speaker

**schedule is subject to change*

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Again this year, every entry is entered into a drawing for the chance to win an iPad mini or Apple gift card equivalent.

Visit **cleoconference.org/innovationawards** for details.

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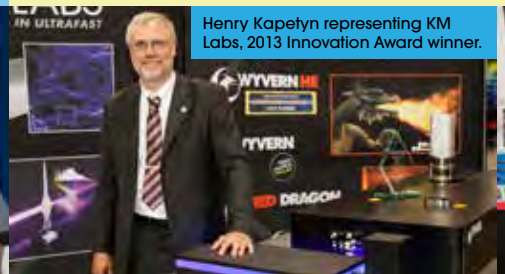
>
> *Giacomo Vacca, Kinetic River*



Henry Kapetyn representing KM Labs, 2013 Innovation Award winner.

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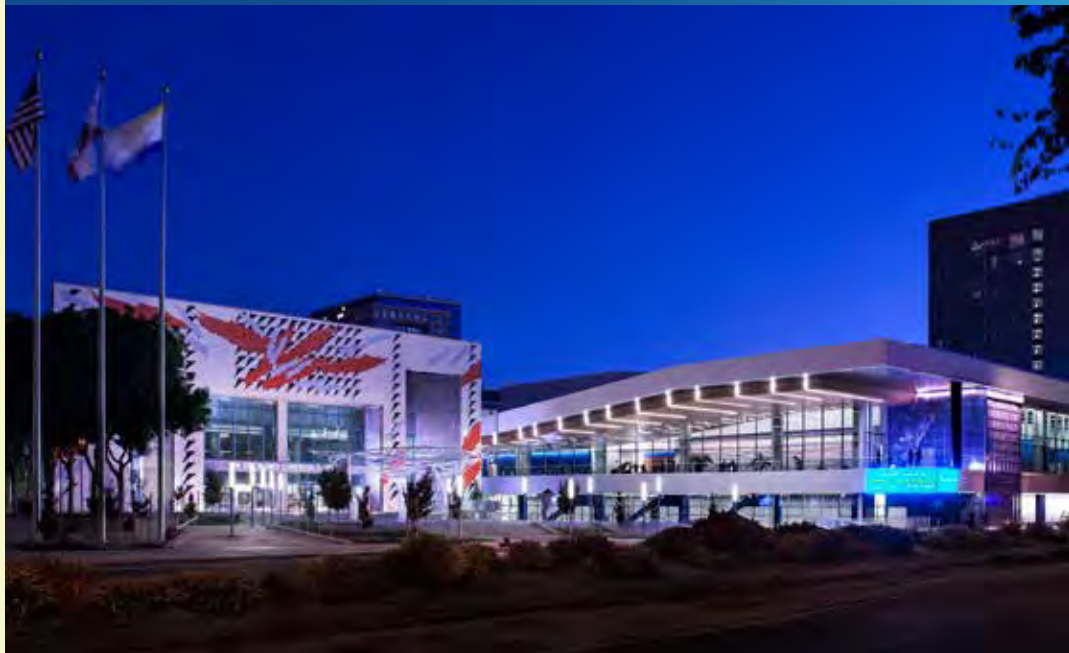

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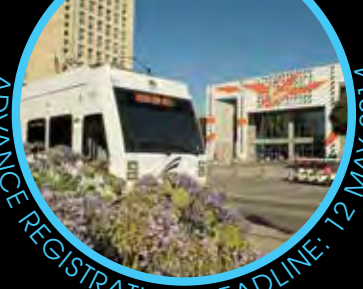

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