CONFERENCE OVERVIEW AND REGISTRATION INFORMATION

CLEO:2015

Laser Science to Photonic Applications

HEAR INNOVATIVE SCIENCE. SHARE IDEAS. COLLABORATE.

10-15 MAY 2015

TECHNICAL CONFERENCE 10–15 May 2015
EXPOSITION 12–14 May 2015

San Jose Convention Center
San Jose, CA, USA

CLEO: QELS–Fundamental Science
CLEO: Science & Innovations
CLEO: Applications & Technology

Also featuring:
CLEO: Market Focus
CLEO: Expo

CLEO®: Conference on Lasers and Electro-Optics®

You Don't Want to Miss CLEO: 2015

Hear Innovative Science. Share Ideas. Collaborate.

CLEO: 2015 – 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
- 1,900+ technical presentations
- More than 160 prominent invited speakers
- Plenary Sessions – 6 esteemed keynote speakers offer insights on timely topics
- 18 short courses offering expert instruction on essential topics
- 8 captivating symposia
- 4 Topical Reviews
- 22 Tutorials
- 3 Poster Sessions featuring over 300 presentations
- More than 250+ participating companies highlighting the latest products at CLEO: Expo
- Free exhibit floor programming on market trends, commercial development, technology transfer and more
- Online Job Fair
- Opportunity to connect with colleagues, experts from academia and industry, forge new relationships and exchange ideas at more than 10 networking events

CLEO: 2015 Chairs

CLEO: Applications & Technology

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

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

Nicusor Iftimia, *Physical Sciences, Inc., USA,* **Program Co-Chair**

Christian Wetzel, *Rensselaer Polytechnic Institute, USA,* **Program Co-Chair**

CLEO: Science & Innovations

Thomas R. Schibli, *Univ. of Colorado at Boulder, USA,* **General Co-Chair**

Peter M. Smowton, *Cardiff Univ., UK,* **General Co-Chair**

Siddharth Ramachandran, *Boston Univ., USA,* **Program Co-Chair**

Jonathan D. Zuegel, *Univ. of Rochester, USA,* **Program Co-Chair**

CLEO: QELS–Fundamental Science

Alfred Leitenstorfer, *Univ. of Konstanz, Germany,* **General Co-Chair**

Mikhail A. Noginov, *Norfolk State Univ., USA,* **General Co-Chair**

Junichiro Kono, *Rice Univ., USA,* **Program Co-Chair**

Yurii A. Vlasov, *IBM TJ Watson Research Center, USA,* **Program Co-Chair**

> "Ground-breaking science in both fundamental and applied side. I did enjoy my attendance very much. It offered me a unique experience.

REGISTER ON OR BEFORE **13 APRIL 2015** FOR SPECIAL REGISTRATION DISCOUNTS.
For more information, visit **www.cleoconference.org/info**

PRELIMINARY CONFERENCE SCHEDULE

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

EVENTS	SUNDAY 10 MAY	MONDAY 11 MAY	TUESDAY 12 MAY	WEDNESDAY 13 MAY	THURSDAY 14 MAY	FRIDAY 15 MAY
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	12:30-16:30	09:00-12:00			
Technical Sessions, Tutorials, & Symposia		08:00-18:00	08:00-18:00	08:00-17:30	08:00-18:30	08:00-12:30
Plenary & Awards Sessions			13:30-14:30	13:00-15:00		
Postdeadline Paper Sessions					20:00-22:00	
Poster Sessions (on show floor)			18:00-20:00 (with conference Reception)	10:00-12:00	11:30-13:00	
CLEO: EXPO & SHOW FLOOR ACTIVITIES						
CLEO: Expo			14:30-20:00	10:00-18:30	10:00-15:00	
Unopposed Expo-Only Time			14:30-16:00	15:00-15:30, 17:30-18:30	13:00-14:00	
CLEO: Market Focus			15:00-17:00	10:30-12:30, 15:00-17:00	13:00-14:30	
CLEO: Technology Transfer Program					09:30-12:30	
Pizza Lunch					12:30-14:00	
SPECIAL EVENTS						
Conference Reception			18:00-20:00			
International Year of Light Celebration		18:30-20:30				

IMPORTANT DATES

MARCH 2015
Online Conference Program Planner Available

19 MARCH 2015, 16:00 GMT
Post Deadline Submission Deadline

13 APRIL 2015
Advance Registration Deadline

6 MAY 2015
Housing Deadline

10-15 MAY 2015
Technical Conference

10-12 MAY 2015
Short Courses

12-14 MAY 2015
CLEO: Market Focus

12-14 MAY 2015
CLEO: Expo
CLEO: Tech Transfer Exhibits

14 MAY 2015
Tech Transfer Program

SPECIAL PROGRAMS

PLENARY SESSION
Keynote Speakers

Eric Betzig, *Howard Hughes Medical Institute, USA*
Nobel Prize Winner in Chemistry 2014
Imaging Life at High Spatiotemporal Resolution

Steven Chu, *Stanford Univ., USA*
Nobel Prize Winner in Physics 1997
Microscopy 2.0

Tony Heinz, *Columbia Univ., USA*
Electrons in Atomically Thin Two-Dimensional Crystals

Miles Padgett, *Univ. of Glasgow, Scotland, UK*
Light's Twist

INTERNATIONAL YEAR OF LIGHT
Plenary Speakers

Hiroshi Amano, *Nagoya Univ., Japan*
Nobel Prize Winner in Physics 2014
Current and Future of Solid State Lighting

Shuji Nakamura, *Univ. of California Santa Barbara, USA*
Nobel Prize Winner in Physics 2014
Energy Savings by LED Lighting

SPECIAL SYMPOSIUM

ADVANCED OPTICAL MICROSCOPY FOR BRAIN IMAGING

BREAKING LIMITS WITH UNCONVENTIONAL OPTICAL FIELDS

CAVITY QUANTUM ELECTRODYNAMICS

OPA/OPCPA - NEXT GENERATION OF ULTRA-SHORT PULSE LASER TECHNOLOGY

PHOTONICS IN SURGERY

REMOTE ATMOSPHERIC LASING

SCIENCE AND TECHNOLOGY OF LASER THREE DIMENSIONAL PRINTING

SINGLE-PHOTON NONLINEAR OPTICS

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

TECHNICAL PROGRAM BY CATEGORY

CLEO: 2015 INCLUDES SUPERLATIVE, 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.

Technical registration includes access to all QELS-Fundamental Science, Science & Innovations and Applications & Technology programming.

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

**Short Courses are an additional fee*

PROGRAM AS OF 12 DECEMBER 2014

QELS-FUNDAMENTAL SCIENCE (FS)

FS 1: QUANTUM OPTICS OF ATOMS, MOLECULES AND SOLIDS

TUTORIAL

Optical Atomic Clock, *Jun Ye; Univ. of Colorado at Boulder JILA, USA*

INVITED SPEAKERS

Ronald Walsworth; *Harvard Univ., 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*

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

FS 2: QUANTUM SCIENCE, ENGINEERING AND TECHNOLOGY

TUTORIAL

Quantum Measurement Techniques: Modern Approaches and Trends, *Aephraim Steinberg; Univ. of Toronto, Canada*

INVITED SPEAKERS

Antonio Acin; *ICFO -The Institute of Photonic Sciences, Spain*

Julio Barreiro; *Univ. of California, San Diego, USA*

SHORT COURSES

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

SC271: Quantum Information–Tecnologies and Applications, *Greg Kanter[1], Paul Tolliver[2]; [1]NuCrypt, [2]Applied Communication Sciences, 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*

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*

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

FS 3: METAMATERIALS AND COMPLEX MEDIA

TUTORIAL

Nonlinear Optics in Metamaterials, *Xiang Zhang; Univ. of California Berkley, USA*

INVITED SPEAKERS

Stefano Lupi; *Universitá, of Roma, Italy*

Doug Stone; *Yale Univ., USA*

SHORT COURSES

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

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

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

FS 4: OPTICAL EXCITATIONS AND ULTRAFAST PHENOMENA IN CONDENSED MATTER

TUTORIAL

Manipulating Quantum Fluids of Light in Microstructured Semiconductor Cavities, *Jacqueline Bloch; LPN/CNRS, France*

INVITED SPEAKERS

Adrian Cavalieri; *Max-Plank Inst. Physik, Germany*

Kin Mak; *Pennsylvania State Univ., USA*

SHORT COURSES

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

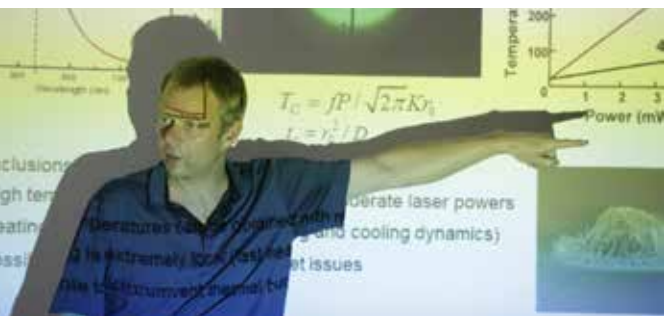
SC352: Introduction to Ultrafast Pulse Shaping—Principles and Applications, *Marcos Dantus; Michigan State Univ., USA*

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

SC378: Introduction to Ultrafast Optics, *Rick Trebino; Georgia Institute of Technology, USA*

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

NEW! SC424: Optical Terahertz Science and Technology, *David G. Cooke; McGill Univ., Canada*



FS 5: NONLINEAR OPTICS AND NOVEL PHENOMENA

TUTORIALS

Probing and Controlling Quantum Matter in Crystals of Light, *Immanuel Bloch; Max-Planck-Institut fur Quantenoptik, Germany*

INVITED SPEAKERS

Stephane Coen; *Univ. of Auckland, Netherlands*

Yuri Kivshar; *Australian National Univ., Australia*

SHORT COURSES

SC149: Foundations of Nonlinear Optics, *Robert Fisher; R. A. Fisher Associates, 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 Optic, *Ben Eggleton; Univ. of Sydney, Australia*

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

FS 6: NANO-OPTICS AND PLASMONICS

TUTORIALS

Nanophotonics in Material-systems of Large Sizes, *Marin Soljacic; Massachusetts Institute of Technology, USA*

INVITED SPEAKERS

Dmitri Basov; *Univ. of California, San Diego, USA*

Christoph Lienau; *Univ. of Oldenburg, Germany*

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*

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

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

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

FS 7: HIGH-FIELD PHYSICS AND ATTOSCIENCE

TUTORIALS

Attosecond Ionization Dynamics and Time Delays, *Ursula Keller; ETH, Zurich, Switzerland*

INVITED SPEAKERS

Oren Cohen; *Technion Israel Institute of Technology, Israel*

Omar Hurricane; *Lawrence Livermore National Laboratory, USA*

SHORT COURSES

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*

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*

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

Nano-ablation by Femtosecond Laser-matter Interactions, *Shuji Sakabe; Kyoto Univ., Japan*

INVITED SPEAKERS

Cyril Hnatovsky; *Australian National Univ., Australia*

Yi Liu; *Laboratoire d'Optique Appliquée, France*

SHORT COURSES

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

SC157: Laser Beam Analysis, Propagation, and Shaping Techniques, *James Leger; 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

High Power Diode Lasers for Pumping High Energy Solid State Lasers, *Paul Crump; Ferdinand-Braun Institut, Germany*

INVITED SPEAKERS

John Collier; *STFC Rutherford Appleton Laboratory, UK*

Alan Fry; *SLAC National Accelerator Laboratory, USA*

SHORT COURSES

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

SC157: Laser Beam Analysis, Propagation, and Shaping Techniques, *James Leger; Univ. of Minnesota, USA*

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

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

High-Brightness Interband Cascade Lasers, *Jerry Meyer; US Naval Research Laboratory, USA*

INVITED SPEAKERS

Raffaele Colombelli; *Universite Paris Sud and CNRS, France*

Gadi Eisenstein; *Technion Israel Institute of Technology, Israel*

Yong-Hee Lee; *Korea Advanced Inst of Science & Tech, South Korea*

SHORT COURSES

SC157: Laser Beam Analysis, Propagation, and Shaping Techniques, *James Leger; Univ. of Minnesota, USA*

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*

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

S&I 4: NONLINEAR OPTICAL TECHNOLOGIES

TUTORIAL

Engineering Nonlinear Interactions with Aperiodic QPM, *Martin Fejer; Stanford Univ., USA*

INVITED SPEAKERS

Aleksandr Aleksandrovsky; *L.V.Kirensky Insitute of Physics, Russia*

Giuseppe Leo; *Universite Paris-Diderot Paris VII, France*

Espen Lippert; *Forsvarets Forskningsinstitutt, Norway*

Dmitry Strekalov; *Jet Propulsion Laboratory, USA*

SHORT COURSES

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

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*

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

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

S&I 5: TERAHERTZ TECHNOLOGIES AND APPLICATIONS

TUTORIAL

Nonlinear THz Optics and Control in Complex Solids, *Andrea Cavalleri; Univ. of Oxford, UK*

INVITED SPEAKERS

Jure Demsa; *Universitat Konstanz, Germany*

Koichiro Tanaka; *Kyoto Univ., Japan*

Alessandro Tredicucci; *Universitá di Pisa, Italy*

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

Heterogeneous 2D and 3D Photonic Integration for Future Chip-Scale Microsystems, *S. J. Ben Yoo; Univ. of California Davis, USA*

INVITED SPEAKERS

Jonathan Finley; *Walter Schottky Institut, Germany*

Delphine Marris-Morini; *Institut d'Electronique Fondamentale, France*

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*

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

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

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

TUTORIAL

Nanophotonics on Metasurfaces, *Federico Capasso; Harvard Univ., USA*

INVITED SPEAKERS

Keren Bergman; *Columbia Univ., USA*

Nader Engheta; *Univ. of Pennsylvania, USA*

A. Mark Fox; *Univ. of Sheffield, UK*

Philip Russell; *Max-Planck-Inst Physik des Lichts, Germany*

Fengnian Xia; *Yale Univ., USA*

SHORT COURSES

SC157: Laser Beam Analysis, Propagation, and Shaping Techniques, *James Leger; Univ. of Minnesota, USA*

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*

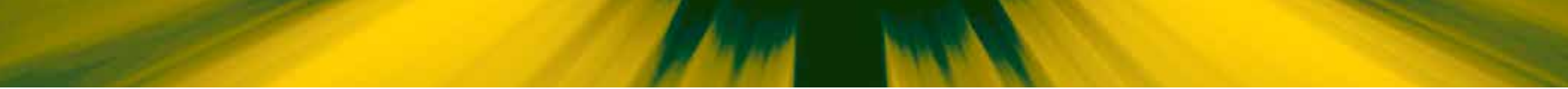
SC361: Coherent MidInfrared Sources and Applications, *Konstantin Vodopyonov; CREOL, The College of Optics & Photonics, Univ. Central Florida, USA*

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

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

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

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



S&I 8: ULTRAFAST OPTICS, OPTOELECTRONICS AND APPLICATIONS

TUTORIAL

Nonlinear Engineering with Ultrafast Lasers and Photonic Systems, *Ömer Ilday; Bilkent Univ., Turkey*

INVITED SPEAKERS

Peter Hommelhoff; *Friedrich-Alexander-Universität Erlangen, Germany*

Robert Levis; *Temple Univ., USA*

Tim Paasch-Colberg; *TOPTICA Photonics, 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*

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

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

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

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

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

TUTORIAL

Selected Applications of Ultra-high Q Whispering Gallery Mode Resonators, *Lute Maleki; OEwaves Inc., USA*

INVITED SPEAKERS

Minghua Chen; *Tsinghua Univ., China*

Shayan Mookherjea; *Univ. of California, San Diego, USA*

SHORT COURSES

SC157: Laser Beam Analysis, Propagation, and Shaping Techniques, *James Leger; 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*

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

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

S&I 10: BIOPHOTONICS AND OPTOFLUIDICS

TUTORIAL

Accelerating Localisation Microscopy, *Susan Cox; King's College London, UK*

INVITED SPEAKERS

Nils Kronenberg; *Univ. of St Andrews, UK*

Giuliano Scarcelli; *Harvard Medical School, 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

New Directions for Chip-based Nonlinear Optics, *Benjamin Eggleton; Univ. of Sydney, Australia*

INVITED SPEAKERS

Ayman Abouraddy; *Univ. of Central Florida, CREOL, USA*

Joss Bland-Hawthorn; *Univ. of Sydney, Australia*

Jungwon Kim; *Korea Advanced Inst of Science & Tech, South Korea*

Patrick Windpassinger; *Johannes Gutenberg Universitat Mainz, Germany*

Andrew Yablon; *Interfiber Analysis, USA*

SHORT COURSES

SC157: Laser Beam Analysis, Propagation, and Shaping Techniques, *James Leger; Univ. of Minnesota, USA*

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

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*

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

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

S&I 12: LIGHTWAVE COMMUNICATIONS AND OPTICAL NETWORKS

TUTORIAL

Optical and Hybrid Processing in Networks, *Stojan Radic, Univ. of California, San Diego, USA*

INVITED SPEAKERS

Takayuki Mizuno; *NTT Network Innovation Laboratories, Japan*

Tiejun Xia; *Verizon Communications Inc, USA*

SHORT COURSES

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

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

S&I 13: ACTIVE OPTICAL SENSING

TUTORIAL

Advances in Tunable Diode Laser Absorption Spectroscopy (TDLAS) for Measurements of Gas Properties in Combustion Systems, *Ronald Hanson; Stanford Univ., USA*

INVITED SPEAKERS

Bernhard Lendl; *Technische Universität Wien, Austria*

Frank Vollmer; *Max-Planck-Inst Physik des Lichts, Germany*

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

Frequency and Timing Distribution using Optical Methods, *Nathan Newbury; NIST, USA*

INVITED SPEAKERS

Kjeld Eikema; *Vrije Univ., Amsterdam, Netherlands*

Hidetoshi Katori; *Univ. of Tokyo Japan*

SHORT COURSES

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*

APPLICATIONS & TECHNOLOGY (A&T)

A&T 1: BIOMEDICAL

INVITED SPEAKERS

Stephen Boppart; *Univ. of Illinois at Urbana-Champaign, USA*

Robert Campbell; *Univ. of Alberta, Canada*

Audrey Ellerbee; *Stanford Univ., USA*

Nam Seong Kim; *Lutronic, Inc., South Korea*

Do-Hyun Kim; *Food and Drug Administration, USA*

Seemantini Nadkarni; *Harvard Medical School, USA*

Mark Schnitzer; *Stanford Univ., USA*

Shy Shoham; *Technion Israel Institute of Technology, Israel*

Yuankai Tao; *Cole Eye Institute, Cleveland Clinic, USA*

Ping Xue; *Tsinghua Univ., China*

Yoshiaki Yasuno; *Univ. of Tsukuba, Japan*

Seok-Hyun Yun, Harvard Medical School, 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: INDUSTRIAL APPLICATIONS

INVITED SPEAKERS

Ilya Bezel; *KLA-Tencor Corp., USA*

Mark Dugan; *Translume, USA*

Lukas Emmenegger; *EMPA, Switzerland*

Akira Endo; *HiLase Center, Czech Republic*

Peter Herman; *Univ. of Toronto, Canada*

Tony Hoult; *IPG Photonics Corp., USA*

Seung-Woo Kim; *Korea Advanced Inst of Science & Tech, South Korea*

Stefan Nolte; *Friedrich-Schiller-Universität Jena, Germany*

Rainer Paetzel; *Coherent GmbH, Germany*

Dimitrij Walter; *MANZ, Germany*

SHORT COURSES

SC157: Laser Beam analysis, Propagation, and Shaping Techniques, *James Legar; Univ. of Minnesota, USA*

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*

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: PHOTONIC INSTRUMENTATION & TECHNIQUES FOR METROLOGY & INDUSTRIAL PROCESS

TUTORIAL

Miniature and Handheld Spectroscopic Instruments for Chemical Sensing and Security Applications: Enabled by Photonics, *Richard Crocombe; Thermo Fisher Scientific Inc., USA*

INVITED SPEAKERS

Christopher Chunnilall; *National Physics Lab, UK*

William Kessler; *Physical Sciences Inc., USA*

Mark Witinski; *EOS Photonics, 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*

NEW! APPLICATIONS & TECHNOLOGY TOPICAL REVIEWS

ADVANCES IN MOLECULAR IMAGING
Javier A. Jo; *Texas A&M Univ., USA, Organizer*

PHOTONICS IN CONSUMER ELECTRONICS
Michael Mielke; *Raydiance, USA, Organizer*

HIGH PERFORMANCE OPTICS
Vladimir Pervak; *Ultrafast Innovations GmbH, Germany/ Ludwig-Maximillians- Universität Munchen, Germany, Organizer*

OPTOFLUIDICS MICROSYSTEMS
Xudong Fan, *Univ. of Michigan, USA, Organizer*

A&T 4: LASER & PHOTONICS APPLICATIONS FOR ENERGY & ENVIRONMENT

INVITED SPEAKERS

Roger Angel; *REhnu, Inc, USA*

Ronald Cohen; *Univ. of California Berkeley, USA*

Peter Kozodoy; *Glint Photonics, Inc., USA*

Roland Winston; *Univ. of California Merced, USA*

SHORT COURSES

SC157: Laser Beam analysis, Propagation, and Shaping Techniques, *James Legar; Univ. of Minnesota, USA*

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*

ATTEND TIMELY BUSINESS PROGRAMMING.

CLEO: MARKET FOCUS

The CLEO: Market Focus program focuses on the latest trends in the photonics marketplace and provides a forum to discuss new products and emerging technologies and markets while also providing a networking opportunity within the high-quality atmosphere of the CLEO Conference.

Chair:
Viswa Velur, *Business Development, Zygo Corporation, USA, 2015 Chair*

12-14 May 2015
Planned Topics Include:

- Biophotonics
- Industrial
- Defense
- Energy

CLEO: TECHNOLOGY TRANSFER PROGRAM

The Technology Transfer Program provides a forum for entrepreneurs and researchers from start-ups, major universities, businesses and national laboratories to present exciting new technologies which are ready and available for commercialization.

Chair:
Rick Plympton, *Optimax Systems, USA*

PROGRAM SCHEDULE*

12-14 May 2015
CLEO: Expo
CLEO: Technology Transfer Exhibits

14 May 2015
Tech Transfer Program

**schedule is subject to change*

Sponsored by PHOTONICS MEDIA

BUILD VALUABLE RELATIONSHIPS. DEVELOP BUSINESS OPPORTUNITIES.

2015 CLEO/*LASER FOCUS WORLD* INNOVATION AWARDS

The CLEO/*Laser Focus World* Innovation Awards recognize outstanding companies that have made major contributions to advancing the field of optics and photonics through recently launched products and services.

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.

CLEO: EXPO TECHNOLOGY PLAYGROUND

CLEO:EXPO techplayground

Visit with participating exhibitors during CLEO Tech Playground to network with representatives and explore the latest technologies and advancements. Discover how company products and services can benefit you in your work at hands-on, interactive exhibits.

Last year's Tech Playground included the opportunity for attendees to win one of three mini iPads. Look out for more details on the 2015 "play to win" prize opportunity.

> "I thought CLEO was very well organized. I especially got a lot of information at the Exhibits.

PAST AND PRESENT EXHIBITORS AS OF 12 DECEMBER 2014

A MUST ATTEND FOR ANYONE WORKING IN THE OPTICS AND PHOTONICS INDUSTRY!

Connect with global leaders in the optics and photonics industry. Discover the latest market trends, "new to market" products and pioneering advancements. CLEO: Expo gathers more than 250 participating companies from around the globe to introduce new products and demonstrate their latest innovations. This well-established exhibition engages customers from top research institutions in addition to emerging commercial firms, representing the fastest growing markets in optics and photonics.

3SPGroup
4AD Enterprises, Inc.
A.R.T Photonics
Access Laser Co.
Actoprobe LLC
ACUPHASE
AdValue Photonics, Inc.
Advanced Fiber Resources, Ltd.
Advanced Thin Films
AdvR
Aerotech, Inc.
AGM Container Controls
Ainair Labs Corporation
ALOM
Alpine Research Optics
Altos Photonics, Inc.
American Elements
American Physical Society (APS)
Amplitude Systemes
Amplitude Technologies
Analog Modules, Inc.
Andover Corporation
AP&E - Applied Physics & Electronics, Inc.
APE GmbH
APIC (Advanced Photonics Integrated Circuits) Corp
Applied Research and Photonics, Inc. (ARP)
Applied Surface Technologies
Arrayed Fiberoptics Corporation
Arroyo Instruments
Artemis Optical
attocube systems AG
AUREA Technology
Avo Photonics, Inc.
Axiom Optics
B&W Tek, Inc.
Baikowski International Corp.
BaySpec, Inc.
BioPhotonic Solutions, Inc.
Block Engineering
BNC Scientific/Zurich Instruments
Boston Electronics Corporation
Boston Micromachines Corporation
Boulder Nonlinear Systems, Inc.
Brimrose Corporation of America
Bristol Instruments, Inc.
Brockton Electro-Optics Corp.
Brolis Semiconductors
Calmar Laser
Cambridge Univ. Press
Canon U.S.A
Carl Hanser Verlag Gmbh & Co.
Carr & Ferrell LLP
CASTECH, Inc.
Celight, Inc
CeramOptec Industries
Changchun New Industries Optoelectronics Tech. Co. Ltd.
Chroma Technology Corp.
Citizen Holdings Co., LTD.
Coherent, Inc.
Cold Quanta, Inc.
Continuum
CorActive High-Tech, Inc.
CRC Press - Taylor & Francis
Crestec Corporation
Crosslight Software
CrystaLaser LC
CST of America, Inc.
Cybel, LLC
DataRay, Inc.
Daylight Solutions, Inc.
De Gruyter
Diamond USA, Inc.
Discovery Semiconductors, Inc.
DPM Photonics
Eagleyard Photonics
Ealing
Edmund Optics, Inc.
EigenLight Corporation
EKSMA Optics
EKSPLA UAB
Electro-Optics Technology, Inc.
Element Six
Elforlight Ltd.
Elliot Scientific Ltd.
Energetiq Technology, Inc.
EOSPACE, Inc.
Europa Science, Ltd.
F&T Fibers and Technology GmbH
FASTLITE
Fastpulse Technology
Femtochrome Research, Inc.
Femtolasers, Inc.
Fianium Inc.
Fiberguide Industries
FiberLabs, Inc.
FiberPro
Finisar
FJW Optical Systems, Inc.
Fusion Photonics Ltd.
GAM Laser, Inc.
GAMDAN Optics
General Photonics Corp.
Genia Photonics
Gentec Electro-Optics, Inc.
GIGAOPTICS GMBH
Go!Foton
Gooch and Housego, PLC
GPD Optoelectronics Corp.
Grinding & Dicing Services Inc.
GT Advanced Technologies / GT Crystal Systems
Hagitec Co.
Hamamatsu Corporation
Hellma USA, Inc.
Heraeus Quartz America, LLC
HC Photonics Corp.
High Q Laser (US), Inc.
Hiwin Corporation
HMS Technology Sales
HOLOEYE Photonics AG
Horiba Scientific
Hübner GmhH & Co. KG
Ibsen Photonics A/S
ID Quantique
Idesta QE
IDEX Optics & Photonics
IEEE Institute of Electrical and Electronics Engineers
IEEE Photonics Society
II-VI Photonics, Inc.
ILX Lightwave Corp.
Imagine Optic
IMRA America, Inc.
InnoLas Lasers
Innovation Photonics
Inrad Optics
Inspired Photonics, Inc.
IOP Publishing Ltd.
IPG Photonics Corp.
IRflex Corporation
IWAKI America, Inc.
JDSU
Julabo USA Inc.
Keopsys
Kinetic Systems, Inc.
KLA-Tencor Corporation
KMLabs (Kapteyn-Murnane Laboratories)
Kohoku Kogyo Co., Ltd.
Krell Technologies, Inc.
Kyosemi Corporation
LASCAD
Laser + Photonics
Laser Focus World/Pennwell
Laser Materials Corporation
Laser Quantum
Lattice Electro Optics, Inc.
Lawrence Livermore National Laboratory
Leoni Fiber Optics, Inc.
Light Conversion, Ltd.
Lighthouse Photonics
Lincoln Lab, Massachusetts Institute of Technology
Linear Photonics
Luna Technologies, Inc.
M Squared Lasers Ltd.
m2k-laser GmbH
Market Tech, Inc.
Martek Power Laser Drive, LLC (Formerly Laser Drive, Inc)
Maxion Technologies, Inc.
MediaWelt GmbH - Opto Index
Menlo Systems
Mesa Photonics, LLC
Messe Muenchen International U.S. Office
Micro Laser Systems, Inc.
Microtech Instruments, Inc.
Midwest Optical Systems
Mildex, Inc.
MIRTHE Center - Princeton Univ.
Molecular Technology GmbH
Montana Instruments
MONTFORT Laser GmbH
Nalux Co. Ltd
Nanonics Imaging Ltd.
nanoplus Nanosystems & Technologies GmbH
Nanoscribe GmbH
NANOLN, Jinan Jingzheng Electronics Co., Ltd.
NASA
National Energetics
National Reconnaissance Office
Nature Publishing Group
Navitar, Inc.
Neaspec GmbH
New England Photoconductor Corp
Newport Corporation
NKT Photonic Inc.
Northrop Grumman Cutting Edge Optronics, Inc.
Nova Write
NP Photonics
nPoint, Inc.
NT-MDT
NTT Advanced Technology Corporation
NTT Electronics Corporation
NuCrypt LLC
Nufern
Nuphoton Technologies, Inc.
Ocean Optics, Inc.
OEwaves, Inc.
Ondax, Inc.
Onefive GmbH
Oneida Research Services, Inc.
Onyx Optics, Inc.
Ophir Optronics Ltd
OPN, A Publication of OSA
Optica Software
Optical Building Blocks Corporation
Optics.org
OptiGrate
Optimax Systems, Inc.
OptoElectronic Components
Optoelectronics Industry Development Association (OIDA)
OptoSigma Corporation
Optronics Co., Ltd., The
Orbits Lightwave, Inc.
Osela
OSA
OSA Foundation
OSA Publishing
OSI Optoelectronics, Inc
Oxford Univ. Press
Oxide Corporation
OZ Optics Ltd.
PD-LD, Inc.
Phaseview
PHASICS
Photodigm, Inc.
PhotoMed GmbH
Photon Design
Photon Technology International, Inc.
Photonics Industries International, Inc.
Photonics Media/Laurin Publishing
Photonics Online
Photonics Society of Chinese-Americans
Photonic-Sourcing
Photop Technologies, Inc.
Physics Today
PI (Physik Instrumente) LP
PicoLuz
PicoQuant GmbH
piezosystem jena, Inc.
Polymicro Technologies, a subsidiary of Molex Incorporated
Power Technology, Inc.
Precision Glassblowing of Colorado
Precision MicroDynamics, Inc.
Precision Photonics Corp.
Princeton Instruments
PriTel, Inc.
PROMET International, Inc.
Pure Photonics
Qioptiq
Quantel Laser
Quantel-USA Inc.
Quantronix Corporation
Raicol Crystals Ltd.
Research Electro-Optics, Inc.
RESOLUTION spectra systems
Rigaku Raman Technologies
RPMC Lasers, Inc.
RSoft Design Group
Sacher Lasertechnik GmbH
Sandia National Laboratories
Santec USA Corporation
SCHOTT North America - Advanced Optics
Scientific Materials Corp.
Sentinel Photonics
Sercalo Microtechnology Ltd.
Shasta Crystals
Simphotek Inc.
Siskiyou Corporation
Solid State Cooling Systems
Sparkle Optics Corporation
Spartan Felt Company, Inc.
Specialised Imaging, Inc.
Spectra Quest Lab
Spectra-Physics, a Division of Newport Corporation
Spectrogon US, Inc.
Spectroscopy Magazine
Springer
Srico, Inc.
STANDA
Stanford Photonics Research Center (SPRC)
Stanford Research Systems
StellarNet, Inc.
Swamp Optics, LLC
Synopsys
Technical Manufacturing Corp.
Technohands Corp.
TecOptics
Teledyne Judson Technologies
TeraComm, LLC
Thales Optronique S.A.
ThermoTek, Inc.
Thorlabs
Time-Bandwidth Products, Inc.
TMC Ametek
Toptica Photonics, Inc.
Triad Technology, Inc.
Trimatiz Limited
Trioptics GmbH
u2t Photonics
ULTRA TEC Mfg., Inc.
UltraFast Innovations
UltraVolt, Inc.
Univ. of Central Florida, CREOL
Vescent Photonics, Inc.
VLOC Incorporated
Vytran LLC
Wiley-Blackwell
Wuhan Insdustrial Institute for Optoelectronics
Yokogawa Corporation of America
Zaber Technologies
Zurich Instruments

CONFERENCE REGISTRATION

REGISTER EARLY AND SAVE MONEY!

	CLEO: 2015 Full Conference Registration	CLEO: EXPO Exhibit Pass Plus Only*
Plenary Sessions	✓	✓
Technical Sessions	✓	
CLEO: EXPO	✓	✓
CLEO: Market Focus	✓	✓
CLEO: Tech Transfer	✓	✓
Poster Sessions	✓	✓
Conference Reception - Tuesday	✓	
Conference Program Book	✓	
FREE early, perpetual access to conference papers via OSA Publishing's Digital Library	✓	
Postdeadline Papers Book	✓	
CLEO: Expo 2015 Buyers Guide	✓	✓
Advance Registration Price on or before 13 April 2015	**Member US$610 Non Member US$910 Student Member US$240 Non Student Mbr US$370	$0
ONSITE Registration Price after 13 April 2015	**Member US$740 Non Member US$1,110 Student Member US$300 Non Student Mbr US$440	$0
YOUR US$ SAVINGS	**Member US$130 Non Member US$190 Student Member US$60 Non Student Mbr US$70	n/a

**Exhibits Pass Plus is not for use by presiders, poster presenters or speakers. You must register for full conference attendance.
**Members of The Optical Society, IEEE Photonics Society, or American Physical Society

EXCEL AT YOUR JOB: TAKE A PROFESSIONAL TRAINING COURSE

Make the most of the conference by adding one of several essential courses to your technical registration. These advancement courses cover the latest information on laser science to photonic applications. Short Course notes are provided to share with your colleagues.

- Learn from world-class instructors in academia, government and private industry in a small class, personalized environment
- Gain exposure to emerging fields; choose from courses covering a variety of cutting-edge topics in laser science and electro-optics
- Earn Certificates of Attendance
- Network with experts in your field
- Gain entry to more than just Short Courses. Access the CLEO: Expo, valuable business programming like Market Focus and Technology Transfer, and the Plenary session

SCAN & WATCH A QUICK VIDEO ON HOW SHORT COURSES BENEFIT YOU!

Student Members–Register for a special discounted rate of $80 USD by 13 April 2015.

Visit **www.cleoconference.org/info** and go to Short Courses for pricing and details.

NOTE: *Each Short Course requires a separate egistration fee and ticket. Seating is limited and advance registration is required.*

TRAVEL TO SAN JOSE

In the heart of Silicon Valley, the leading hub for technological innovations, San Jose continues to be a great destination for CLEO attendees to convene and collaborate. San Jose has billed itself "The capital of Silicon Valley" because of the large concentration of high-technology engineering, computer, and microprocessor companies surrounding the San Jose area.

Also known for its vibrant downtown scene, San Jose offers more than 125 restaurants within walking distance of the San Jose Convention Center. Experience great weather, beautiful parks and many outstanding local attractions.

Visit **www.cleoconference.com/travelinformation** and find out about special travel discounts.

GREAT DISCOUNTS THROUGH THE SHOW YOUR BADGE PROGRAM!

Show Your Badge and receive discounts up to 25% off at some of San Jose's finest restaurants and attractions.

Offers in the past included attractions like:

- San Jose Tech Museum Gallery
- San Jose Museum of Art
- Broadway San Jose
- Top Restaurants such as Mezcal, Gordon Biersch and more

Visit the CLEO website travel page for an updated list of participating establishments and other great discounts offered to CLEO attendees.

BOOK WITH TRAVEL PLANNERS, CLEO: 2015 OFFICIAL HOUSING PARTNER

Enjoy CLEO: 2015 benefits by booking your hotel reservation with Travel Planners

- Immediately see all hotels' availability before you book.
- Low rates beat any you will find on the internet or by calling the hotel directly.
- No pre-payment! You book today but don't pay a penny until you pay the hotel directly upon your departure.
- You can access our exclusive hotel profiles online –see descriptions, amenities, photos and maps of every official hotel.
- Take advantage of receiving free guest room benefits like complimentary internet, daily bottled water and no booking service fees.

Visit **www.cleoconference.org/info** and link to housing for details.

REGISTER TODAY!

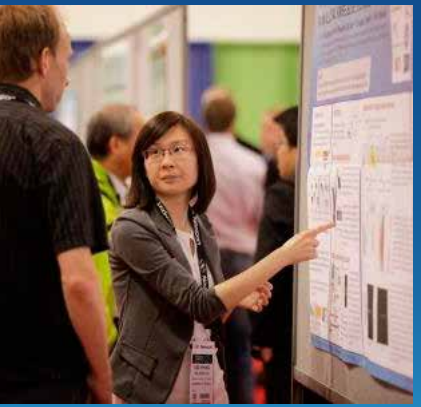
CLEO:2015

Laser Science to Photonic Applications

REGISTER ON OR BEFORE 13 APRIL FOR SPECIAL DISCOUNTS!

SAN JOSE CONVENTION CENTER
SAN JOSE, CA, USA
Technical Conference: 10-15 May 2015
Short Courses: 10-11 May 2015
Exhibit: 12-14 May 2015

HIGH QUALITY, PEER-REVIEWED RESEARCH. VALUABLE CONNECTIONS.



- 1,900 talks
- 6 esteemed plenary speakers
- 8 engaging symposia
- 4 topical reviews
- 22 tutorials
- 300 poster presentations
- 10+ professional exchange events
- 18 professional training courses
- CLEO: Expo featuring hot topic business programming

and much, much more!

VISIT **WWW.CLEOCONFERENCE.ORG/INFO** FOR MORE INFORMATION

Sponsored by:

APS physics · IEEE Photonics Society · OSA

Managed by OSA

INTERNATIONAL YEAR OF LIGHT 2015

CLEO:2015
c/o The Optical Society
2010 Massachusetts Ave., NW
Washington, DC 20036 USA

NONPROFIT ORG.
US POSTAGE
PAID
PERMIT NO. 6418
MERRIFIELD, VA