2022 Conference on Lasers and Electro-Optics (CLEO 2022)

San Jose, California, USA
15-20 May 2022

Pages 1-565

IEEE Catalog Number: CFP22CLE-POD
ISBN: 978-1-6654-6666-0

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22CLE-POD
ISBN (Print-On-Demand):	978-1-6654-6666-0
ISBN (Online):	978-1-957171-05-0
ISSN:	2160-8989

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

ADVANCES IN LIDAR FOR PHYSICAL AND ATMOSPHERIC SENSING APPLICATIONS

ADVANCED SPECTROSCOPY FOR MATERIAL CHARACTERIZATION

INDUSTRIAL APPLICATIONS IN LASER MICROPROCESSING

DESIGN AND APPLICATION OF ACOUSTIC AND ULTRASOUND SENSORS

LASER-BASED DEVICE FABRICATION

MULTI-SCALE FIELD MEASUREMENTS OF GREENHOUSE GASES

ADVANCES IN OPTICAL COHERENCE TOMOGRAPHY

NOVEL APPLICATIONS FOR OPTICAL ENVIRONMENTAL SENSING

VIRTUAL: LASER MATERIAL PROCESSING

VIRTUAL: IMAGING TECHNIQUES ACROSS MULTIPLE MODALITIES AND DIMENSIONS

TOPICAL REVIEW ON SPECIALTY FIBERS FOR ULTRAFAST LASERS I

DEEP LEARNING FOR ENHANCED CONTRAST IMAGING

ADVANCED TECHNIQUES IN OPTICAL FIBER BASED SENSING

PHOTONICS FOR BIOMEDICAL DIAGNOSTICS

LASER INDUCED SURFACE FUNCTIONALIZATION

CAVITY-ENHANCED DETECTION AND LIDAR INSTRUMENTATION

MID-IR AND FREQUENCY COMB LASER

ADVANCED MICROSCOPIC APPLICATIONS

MID-IR FREQUENCY COMBS AND ADVANCED COMB APPLICATIONS

CUTTING-EDGE TECHNOLOGIES AND OPTICAL DEVICES

VIRTUAL: PROGRESS IN LED AND LASERS

TOPICAL REVIEW ON COMPACT TECHNOLOGIES FOR WEARABLE DEVICES I

TOPICAL REVIEW ON SPACE OPTICS

ADVANCES IN MID-INFRARED ATMOSPHERIC SENSING

NOVEL SEMICONDUCTOR LASER CONFIGURATIONS

TOPICAL REVIEW ON LASER SURFACE FUNCTIONALIZATION FOR ANTIBACTERIAL AND MEDICAL APPLICATIONS I

QUANTUM TECHNOLOGY & QUANTUM COMPUTING

TOPICAL REVIEW ON COMPACT TECHNOLOGIES FOR WEARABLE DEVICES II

NEXT-GEN COMMUNICATIONS TECHNOLOGIES

VIRTUAL: THERMODYNAMIC OPTICS AND TAILORED MATERIALS

ADVANCES IN NANO-OPTICS: TOPOLOGICAL EFFECTS

META-OPTICS

QUANTUM COMPUTATION I

QUANTUM SOURCES AND THEIR CHARACTERIZATION

BRILLOUIN PROCESS

NONLINEAR AND QUANTUM PLASMONICS

CHIRAL AND ROTATIONAL STRUCTURES

QUANTUM COMPUTATION II

COMPONENTS FOR QUANTUM NETWORKS

ENTANGLEMENT

HETEROGENEOUS QUANTUM PLATFORMS

NONLINEAR PROCESSES IN SUB-WAVELENGTH SYSTEMS, 2D MATERIALS, AND METASURFACES

VIRTUAL: EXCITON AND PHONON DYNAMICS IN QUANTUM MATERIALS

VIRTUAL: METAMATERIALS, METASURFACES, AND METALENSES

VIRTUAL: QUANTUM NETWORKS

ADVANCES IN NANO-OPTICS: REACHING THE ATOMIC SCALE

NONLINEAR PHENOMENA IN QUANTUM PROCESSES AND QUANTUM LIGHT GENERATION I

META-IMAGING AND HOLOGRAPHY

NONLINEAR PHENOMENA IN QUANTUM PROCESSES AND QUANTUM LIGHT GENERATION II

OPTICAL METASURFACES I

PROPAGATION AND SENSING

NOVEL SPECTROSCOPY FOR PROBING MULTIBODY DYNAMICS

NON-HERMITIAN SYSTEMS AND PARITY-TIME SYMMETRY II

CONTINUOUS VARIABLES AND HIGHER DIMENSIONS

QUANTUM OPTICS WITH IONS AND ELECTRONS

OPTICAL METASURFACES II

COMPUTATIONAL DESIGN

SPECTROSCOPY INVESTIGATION OF TOPOLOGICAL AND MAGNETIC MATERIALS

SINGLE EMITTERS AND LIGHT-MATTER INTERACTIONS

VIRTUAL: SYNTHETIC DIMENSIONS AND OPTICAL/PHOTONIC SIMULATORS AND DEVICES

NONLINEAR PROCESSES IN FIBERS

ADVANCES IN PLASMONICS

RECONFIGURABLE MATERIALS AND DEVICES

TERAHERTZ AND FREE ELECTRONS

ALL DIELECTRIC NANOPHOTONICS

TEMPORAL MEDIA

QUANTUM OPTICS WITH SOLID-STATE SPIN QUBITS

MICRORESONATOR-BASED QUANTUM SOURCES

NONLINEAR AND ACTIVE NANOPHOTONICS

QUANTUM MEMORY

ENABLING TECHNOLOGIES

VIRTUAL: QUANTUM OPTICS OF ATOMS, MOLECULES AND SOLIDS

VIRTUAL: NOVEL MODES AND COUPLING PHENOMENA

QKD

LIGHT-INDUCED EMERGENT PHENOMENA IN SOLIDS

TOPOLOGICAL PROCESSES I

GENERATION AND MEASUREMENT OF QUANTUM STATES

DESIGN AND REALIZATION OF COMPOSITE QUASIPARTICLES IN SOLIDS

TOPOLOGICAL PROCESSES II

VIRTUAL: QUANTUM PHOTONICS

VIRTUAL: FREQUENCY COMBS, SOLITONS AND SPATIOTEMPORAL PHENOMENA

VIRTUAL: OPTICAL METASURFACES III

HIGH HARMONIC GENERATION AND ATTOSECOND PULSE TECHNIQUES

QUANTUM OPTOMECHANICS AND TRANSDUCTION

COMBS AND SOLITONS I

FREE-ELECTRON LASER, X-RAY, AND PARTICLE BEAM SOURCES

TOPOLOGICAL PHOTONICS

QUANTUM DOTS & COLOR CENTERS

IMAGING AND SENSING

COMBS AND SOLITONS II

SYMPOSIUM ON LIGHT CONTROL IN COMPLEX MEDIUM: FUNDAMENTALS AND APPLICATIONS I

SYMPOSIUM ON TOPOLOGICAL LASERS I

SYMPOSIUM ON LIGHT CONTROL IN COMPLEX MEDIUM: FUNDAMENTALS AND APPLICATIONS II

SYMPOSIUM ON TOPOLOGICAL LASERS II

SYMPOSIUM ON ULTRAFAST MID-IR LASER SOURCES AND APPLICATIONS I

SYMPOSIUM ON OPTICAL FREQUENCY COMBS IN DISSIPATIVE FIBER SYSTEMS I

SYMPOSIUM ON ULTRAFAST MID-IR LASER SOURCES AND APPLICATIONS II

SYMPOSIUM ON OPTICAL FREQUENCY COMBS IN DISSIPATIVE FIBER SYSTEMS II

SYMPOSIUM ON ULTRAFAST MID-IR LASER SOURCES AND APPLICATIONS III

SYMPOSIUM ON OPTICAL FREQUENCY COMBS IN DISSIPATIVE FIBER SYSTEMS III

SYMPOSIUM ON SPACE-TIME OPTICS I

JOINT POSTER SESSION III-A (IN-PERSON)

JOINT POSTER SESSION III-B (VIRTUAL)

SYMPOSIUM ON SPACE-TIME OPTICS II

SYMPOSIUM ON SPACE-TIME OPTICS III

JOINT POSTDEADLINE PRESENTATION SESSION I

JOINT POSTDEADLINE PRESENTATION SESSION II

JOINT POSTDEADLINE PRESENTATION SESSION III

JOINT POSTER SESSION I-A (IN-PERSON)

JOINT POSTER SESSION I-B (VIRTUAL)

SYMPOSIUM ON ENTANGLED TWO-PHOTON ABSORPTION: NEW OPPORTUNITIES IN MOLECULAR SCIENCE AND SPECTROSCOPY II

SYMPOSIUM ON CROSSROADS OF METAPHOTONICS: COMPUTATIONAL IMAGING AND RECONFIGURABLE METASURFACES II

JOINT POSTER SESSION II-A (IN-PERSON)

JOINT POSTER SESSION II-B (VIRTUAL)

SYMPOSIUM ON NOVEL PHENOMENA IN TIME-VARIANT PHOTONICS I

SYMPOSIUM ON CROSSROADS OF METAPHOTONICS: COMPUTATIONAL IMAGING AND RECONFIGURABLE METASURFACES III

SYMPOSIUM ON NOVEL PHENOMENA IN TIME-VARIANT PHOTONICS II

SYMPOSIUM ON CROSSROADS OF METAPHOTONICS: COMPUTATIONAL IMAGING AND RECONFIGURABLE METASURFACES IV

VIRTUAL: SHORT WAVE AND BROADBAND INFRARED LASER SYSTEMS

VIRTUAL: PHOTONIC INTEGRATION II

VIRTUAL: OPTICAL COMPUTING AND QUANTUM PHOTONICS

FEW-CYCLE PULSES AND CEP

FREQUENCY COMB-BASED SPECTROSCOPY AND SENSING

INTEGRATED LIGHT SOURCES

ULTRASHORT PULSED FIBER LASER SYSTEMS

NOVEL APPLICATIONS

BIOPHOTONIC AND HIGH POWER APPLICATIONS

PHASE CHANGE MATERIALS PHOTONICS

PHOTONIC MODULATION, ISOLATION AND SWITCHING

ULTRASHORT PULSE CHARACTERIZATION AND CONTROL

ADVANCED SPECTROSCOPIC SENSING TECHNIQUES

QUANTUM PHOTONICS

DISPERSION AND NONLINEARITY MANAGED FIBER SYSTEMS

CONTROLLING THE PROPERTIES OF LIGHT

LASER INDUCED SURFACE EFFECTS

DSP AND TECHNIQUES FOR COHERENT TRANSMISSION

LOW-LOSS INTEGRATED PHOTONICS

LASERS AND PARAMETRIC SOURCES

ULTRAFAST OSCILLATORS, AMPLIFIERS AND POST-COMPRESSION

NONLINEAR OPTICAL TECHNOLOGIES FOR NEURAL NETWORKS AND MACHINE LEARNING APPLICATIONS

NOVEL MATERIALS INTEGRATION

OPTICAL FIBER BASED FREQUENCY COMBS AND SUPERCONTINUMM SOURCES

FUNCTIONAL SURFACES AND 2D MATERIALS

RF PHOTONICS AND SECURE COMMUNICATIONS

ADVANCED PHOTONIC INTEGRATED CIRCUITRY

OPTICAL METHODS FOR CHEMICAL SENSING

VIRTUAL: ACTIVE OPTICAL SENSING

COHERENT LIGHT SOURCES FOR PRECISION TIMING APPLICATIONS

PHOTONICS OF LOW DIMENSIONAL MATERIALS AND NANOSTRUCTURES

HIGH CAPACITY TRANSMISSION

HIGH POWER FIBER LASERS AND AMPLIFIERS

GENERATING EXOTIC STATES OF LIGHT

NONLINEAR OPTICAL SOURCES IN BULK SOLID STATE AND FIBER PLATFORMS

HETEROGENOUS INTEGRATION

SPECTROSCOPY FOR OPTICAL METROLOGY

NOISE AND STABILITY IN SEMICONDUCTOR LASERS

LIGHT-MATTER INTERACTIONS ON CHIP

SHORT REACH AND ANALOG TRANSMISSION

PHOTODETECTION

FIBER-BASED IMAGING AND COMPACT BIOSENSORS

ELECTRONIC-PHOTONIC INTEGRATION

ULTRAFAST NONLINEAR OPTICS AND PULSE MANIPULATION

RECONFIGURABLE PHOTONICS AND EMISSION CONTROL

SILICON NITRIDE PHOTONICS

HIGH-SPEED TRANSMISSION TECHNIQUES

INTEGRATED NONLINEAR PHOTONICS I

SPECTROSCOPY FOR BIOSENSING AND IMAGING

NONLINEAR NANOPHOTONICS

BEAMSTEERING

LASERS IN LARGE SCALE FACILITIES

SILICON PHOTONICS

LIFI AND WIRELESS CONVERGENCE

INTEGRATED NONLINEAR PHOTONICS II

SHORT-WAVE AND MID-IR FIBRE LASERS

NOVEL MICROSCOPY TECHNIQUES

TWO DIMENSIONAL MATERIALS PHOTONICS

VIRTUAL: IMAGING AND DUAL COMB METROLOGY

VIRTUAL: LIGHT SOURCES AND METASURFACES

VIRTUAL: NONLINEAR PROCESSES IN MICRORESONATORS 2

VIRTUAL: PHOTONIC INTEGRATION I

VIRTUAL: ULTRAFAST SPECTROSCOPY & NONLINEAR PROCESSES

VIRTUAL: PHOTONIC NEURAL NETWORKS AND RELATED COMPONENTS

VIRTUAL: THZ GENERATION AND APPLICATIONS II

VIRTUAL: POWER SCALING IN SEMICONDUCTOR LASERS

VIRTUAL: HOT TOPICS IN QUANTUM SCIENCE WITH ATOMS, PHOTONS AND SPINS

PULSE SHAPING AND SPATIO-TEMPORAL COUPLING - STC

MICROCOMBS I

BEAM STEERING AND OPTICAL SWITCHING

METASURFACES

FREE SPACE OPTICAL COMMUNICATIONS

THZ GENERATION AND DETECTION

TOPOLOGICAL PHOTONICS AND QUANTUM MATERIALS

SPECIAL LIGHT SOURCES: NON-LINEAR FREQUENCY CONVERSION, SOLITONS, ORBITAL ANGULAR MOMENTUM

MICROCOMBS II

TUNABLE PHOTONICS

INTEGRATED QUANTUM PHOTONICS

OPTICAL METHODS FOR MECHANICAL AND GEOMETRIC APPLICATIONS

RESONATOR DEVICES

APPLICATIONS - IMAGING & ULTRAFAST NONLINEAR PROCESSES

SPATIAL DIVISION MULTIPLEXING

THZ GENERATION AND APPLICATIONS I

NANOFABRICATION OF NOVEL PHOTONIC DEVICES

BROADBAND AND SUPERCONTINUUM SOURCES, FREQUENCY COMBS

OPTOMECHANICS

NEUROMORPHIC PHOTONICS

LONG WAVELENGTH SEMICONDUCTOR LASER SOURCES FROM MIR TO THZ

LIGHT GENERATION, DETECTION, AND NONLINEAR EFFECTS

IMAGING-BASED TECHNIQUES FOR SENSING

BRILLOUIN FIBRE LASERS

PHOTONICS-ENABLED SIGNAL PROCESSING

TIME TRANSFER TECHNIQUES

VIRTUAL: FERROELECTRIC MATERIALS AND MICROCOMBS

TOPOLOGICAL AND NANOLASERS

INTEGRATED QUANTUM TECHNOLOGIES: DEVICES AND FABRICATION

LITHIUM NIOBATE PHOTONICS

NANOSCALE LIGHT-MATTER INTERACTIONS

THZ IMAGING AND SPECTROSCOPY

HIGH POWER AND HIGH ENERGY LASERS

MULTIMODE FIBERS AND APPLICATIONS - I

VERTICAL (PCSELS, VCSELS) AND TOPOLOGICAL LASERS

QUANTUM NETWORKS AND COMPUTATION WITH DIAMONDS AND OTHER SOLID STATE SYSTEMS

HYBRID INTEGRATION

STRUCTURING LIGHT-MATTER INTERACTIONS

THZ PHOTONICS AND COMMUNICATIONS

ADVANCED HIGH INTENSITY, ULTRASHORT LASER SYSTEMS

CLOCKS AND SENSING

MULTIMODE FIBERS AND APPLICATIONS - II

DEEP LEARNING FOR OPTICAL COMMUNICATIONS

QUANTUM METROLOGY FOR HIGH PRECISION MEASUREMENT

THZ METASURFACES AND CAVITIES

NONLINEAR PROCESSES IN MICRORESONATORS I

HOLLOW-CORE OPTICAL FIBERS

INTEGRATED PHOTONICS FOR RF SIGNAL PROCESSING

PHOTONIC NEURAL NETWORKS AND COMPONENTS

THZ NEAR-FIELD MICROSCOPY

NONLINEAR OPTICS IN MICRO AND NANO-RESONATORS

SPECIALTY OPTICAL FIBERS

INTEGRATED PHOTONICS IN EXPANDED WAVELENGTH BANDS