Table of Contents

OSA and APS thank the following sponsors for their generous support of this meeting:

AIM photonics · OSA Industry Development Associates · Precision Optical Transceivers · Synopsys · Thorlabs · Wiley

Check the Mobile App for regular updates. Program updates and changes through 13 October may be found on the Conference Program Update Sheet distributed in the registration bags.

JW4A • Joint Poster Session I—Continued

JW4A.83 ***E-Poster***
Formation of LIPSS in nanocomposites of Poly (ethylene terephthalate)/Expanded Graphite by using UV nanosecond laser pulses, Rene I. Rodriguez Beltran[1], Margarita Hernandez[2], Tiberio A. Ezquerra[2], Anna Szymczyk[3], Sandra Paszkiewicz[3], Zbigniew Roslaniec[3], Marta Castillejo[4], Pablo Moreno[1], Esther Rebollar[4]; [1]*Universidad de Salamanca, Spain;* [2]*Instituto de Estructura de la Materia (IEM-CSIC), Spain;* [3]*West Pomeranian Univ. of Technology, Poland;* [4]*Instituto de Química Física Rocasolano (IQFR-CSIC), Spain.* We report the formation of Laser Induced Periodic Surface Structures in Poly(ethylene terephthalate) and Poly(ethylene terephthalate)/Expanded Graphite films. Some physical properties of the surfaces improve in the presence of these nanostructures.
This presentation will be presented as an E-Poster on Screen 5 from 14:30–15:15

JW4A.84
A 10-GHz Optical Frequency Comb from a SCOWA-Based Mode-Locked Laser with 600-Hz Optical Mode Linewidth, Kristina Bagnell[1], Anthony Klee[1], Peter Delfyett[1]; [1]*Univ. of Central Florida, CREOL, USA.* We present a harmonically mode-locked laser at 10-GHz repetition rate with high saturation power SCOWA gain, with a long external fiber cavity and intracavity etalon for supermode suppression, with optical mode linewidth of 600 Hz.

JW4A.85
Optical Nonlocal nonlinear properties in [EMIM][B$_4$], Israel Severiano Carrillo[1], Edgar Alvarado Méndez[1], Monica Trejo Durán[1]; [1]*DICIS, Universidad de Guanajuato, Mexico.* We used the nonlocal nonlinear model by the characterization of Ionics liquid ([EMIM][BF$_4$] by the z-scan technique to nonlinear refraction and nonlinear absorption curves. Numerical and experimental results show ionic liquid as nonlocal medium.

JW4A.86
Spectral Analysis of Bragg and non-Bragg Orders in Dynamic Holography using Photorefractive Materials, Akash Kota[1], Ujitha Abeywickrema[1], Partha P. Banerjee[1]; [1]*Univ. of Dayton, USA.* Interaction of Bragg and non-Bragg orders in a photorefractive material during two-beam coupling is studied by numerically solving the coupled differential equations for the angular plane wave spectra of all interacting orders.

JW4A.87
Quantitative Measurement of the Average Orbital Angular Momentum of Light with a Cylindrical Lens, Samuel Alperin[1], Robert Niederriter[2], Juliet T. Gopinath[3,2], Mark Siemens[1]; [1]*Univ. of Denver, USA;* [2]*Physics, Univ. of Colorado, USA;* [3]*Electrical, Computer, and Energy Engineering, Univ. of Colorado, USA.* We show that the average orbital angular momentum (OAM) of twisted light can be measured with a single stationary cylindrical lens and camera. Our method can be calibrated absolutely and measure arbitrary (non-integer) average OAM.

JW4A.88
Diffraction Gratings Prepared by HR-LIPSS for New Surface Plasmon-Polariton Photodetectors & Sensors, Iaroslav Gnilitskyi[1], Sergiy Mamykin[2], Mykhaylo Dusheyko[3], Tatiana Borodinova[4], Nataliya Maksimchuk [3], Leonardo Orazi[1]; [1]*UNIMORE, Italy;* [2]*V. E. Lashkaryov Inst. of Semiconductor Physics, National Academy of Sciences of Ukraine, Ukraine;* [3]*National Technical Univ. of Ukraine "Kiev Polytechnic Inst.", Ukraine;* [4]*National Academy of Sciences of Ukraine, F. D. Ovcharenko Inst. of Biocolloid Chemistry, Ukraine.*New method based on HR-LIPSS for diffraction grating on preliminary fabricated p-n junction on Si substrate are suggested. This allows to produce surface plasmonic photodetectors based on periodically corrugated thin metal plasmon-carrying films.

JW4A.89
Raman spectroscopy for CVD monolayer graphene: Fermi levels depending on different substrates material, Solveyga Azbite[1], Alaudi Denisultanov[1], Mikhail Khodzitsky[1]; [1]*Univ. ITMO, Russian Federation.* Energies of Fermi level of monolayer graphene on quartz, polyethylene terephthalate (PET) and Si were calculated using Raman spectroscopy data. The dependence of Fermi level energy on refractive index of the substrate was shown.

JW4A.90
Anisoplanatic Electromagnetic Image Propagation through Narrow or Extended Phase Turbulence using Altitude-Dependent Structure Parameter, Monish R. Chatterjee[1], Ali Mohamed[1]; [1]*Univ. of Dayton, USA.* The effects of turbulence on anisoplanatic imaging are often modeled through the use of a sequence of phase screens distributed along the optical path. We implement the split-step wave algorithm to examine turbulence-corrupted images.

JW4A.91
Self-Healing of Laguerre-Gauss Beams Described by Superposition of Conical-Like Traveling Waves, Jorge A. Ugalde-Ontiveros[1], Alfonso Jaimes-Najera[3], Job Mendoza-Hernández[4], Marcelo D. Iturbe-castillo[1], Sabino Chavez-Cerda[1,2]; [1]*Inst Nat Astrofisica Optica Electronica, Mexico;* [2]*Centro de Investigaciones en Optica, Mexico;* [3]*Departamento de Fisica, CINVESTAV, Mexico;* [4]*Facultad de Ciencias Fisico-Matematicas, Benemerita Universidad Autonoma de Puebla, Mexico.* We demonstrate that propagation of Laguerre-Gaussian beams has not been fully understood since some observed phenomena with them cannot be explained without the use of transverse traveling wave features similar to those of Bessel beams.

JW4A.92
Magnetic response of split nanotube type metamaterial at near infrared frequency, Nishant Shankhwar[2], Ravindra K. Sinha[1], Yogita Kalra[2]; [1]*CSIR-CSIO, India;* [2]*Department of Applied Physics, Delhi Technological Univ., India.* In this paper, we present the design of a split nanotube type metamaterial which shows strong magnetic resonance at infrared frequency. Its operation is similar to that of split ring resonator (SRR) but is easier to fabricate at nanoscale.

JW4A.93
Electro-optic dual-comb vibrometry, Vicente D. Durán[1], Elena L. Teleanu[1], Víctor Torres-Company[1]; [1]*Chalmers Univ. of Technology, Sweden.* We use an ultrafast electro-optic dual comb interferometer to perform single-point vibrometry on the submillisecond time scale. We resolve the vibration of an ultrasound speaker driven at 50 kHz, achieving a sub-nanometer axial resolution.

JW4A.94
New algorithm of adaptive focusing of laser beam developed on conservation laws of its propagation, V. A. Trofimov[1], Artem Kotkov[1], Tatiana Lysak[1]; [1]*M. V. Lomonosov Moscow State Univ., Russian Federation.* We propose a new algorithm of adaptive focusing of laser beam by using the conservation laws of optical radiation propagation in linear and non-linear medium.

JW4A.95
Withdrawn.

JW4A.96
A Point Spread Function for Fourier Telescopy, William T. Rhodes[1]; [1]*Florida Atlantic Univ., USA.* A spatial frequency domain point spread function for Fourier telescopy imaging is defined and its properties discussed. The function is given by the inverse Fourier transform of the object illumination intensity distribution.

JW4A.97
A system to control the energy of a high-power laser system and its application to x-ray generation at ultra-high intensity, Baozhen Zhao[1], Wenchao Yan[1], Ping Zhang[1], Sudeep Banerjee[1], Grigory Golovin[1], Colton Fruhling[1], Daniel Haden[1], Jun Zhang[1], Cheng Liu[1], Shouyuan Chen[1], Donald P. Umstadter[1]; [1]*Univ. of Nebraska Lincoln, USA.* We demonstrate a system to control the output energy of a high-energy, ultrashort pulse laser system by an order-of-magnitude. This technique is used to control the brightness of an Inverse-Compton x-ray source.

JW4A.98
Generation and Switching of Phase Vortices in Cylindrical Vector Beams, C Hari Krishna[1], Sourabh Roy[1]; [1]*Physics, National Inst. of Technology Warangal, India.* Cylindrical vector beams are generated using a two mode optical fiber. Vortex and anti-vortex are observed in interferograms formed by helical and plane wavefronts.Switching between them is achieved by changing input polarization state.

JW4A.99
Local and nonlocal nonlinear response of Ag nanocubes in solution as function of size and concentration, Emma V. García Ramírez[1], Jorge alejandro Reyes Esqueda[1], Daysi Ramírez Martínez[1], Sergio Sabinas Hernandez[1], Gabriela Díaz Guerrero [1]; [1]*Univ Nacional Autonoma de Mexico, Mexico.* Cubic silver nanoparticles were analyzed by Z-scan technique in the resonant and no-resonant regimes. These results were done with picosecond pulse as function of the size and concentration of the samples.

JW4A.100
Robust Statistical Parity-Time Symmetric Lasers in Fiber Cavities, Ali Kazemi Jahromi[1], Absar U. Hassan[1], Ayman Abouraddy[1], Demetrios Christodoulides[1]; [1]*Univ. of Central Florida, CREOL, USA.* We demonstrate that many features of PT-symmetric lasing, such as the lower predicted lasing threshold and PT-symmetric phase transition, are sufficiently robust to be observed in a long fiber cavity (>1 km) despite random phase fluctuations.

JW4A.101
Transparent Perfect Mirror via Non-Hermitian Systems, Ali Kazemi Jahromi[1], Soroush Shabahang[1], H. Esat Kondakci[1], Ayman Abouraddy[1]; [1]*Univ. of Central Florida, CREOL, USA.* We have experimentally demonstrated an optical device that provides 100% broadband reflection, yet transmits light. The device is a sub-lasing active cavity in which the resonances in reflection disappear at a critical gain threshold.

JW4A.102
ZnO Films Photoluminiscence and Nonlinear Optical Properties, Emma V. García Ramírez[1], Jorge Alejandro Reyes Esqueda[1], Roberto López[2], Enrique Vigueras-Santiago[2], Daysi Ramírez Martínez[1]; [1]*Univ Nacional Autonoma de Mexico, Mexico;* [2]*Universidad Autónoma del Estado de México, Mexico.* We study photoluminescence properties of direct-gap of ZnO films for different grain size and we obtained lasing threshold. The crystalline structure, surface morphology and optical properties of the thin films have been investigated.