08:00-10:00  FF1E • Symposium on Integrated Photonic Manufacturing I
President: Stefan Preble; Rochester Inst. of Technology, USA

08:00-10:00  FFIF • Strongly Confined Nanoscale Waveguides, Photonic Crystals and Resonator Devices
President: Andrew Poon; Hong Kong Univ of Science & Technology, Hong Kong

08:00-10:00  FF1G • Wavefront Sensing and Phase Retrieval
President: Len Zheleznyak, Univ. of Rochester, USA

08:00-10:00  FF1H • General Optical Sciences I
President: To Be Announced

08:00-10:00  LF1I • Nanophotonics II
President: Yichen Shen; MIT, USA

FF1E.1 • 08:00  AIM Photonics - Manufacturing Challenges for Photonic Integrated Circuits, Michael Liete1,2; AIM Photonics, USA; SUNY Polytechnic Inst., USA. The recently established American Inst. for Manufacturing Photonics is a manufacturing consortium headquartered in NY to advance the state of the art in design, manufacture, testing, assembly, and packaging of integrated photonic devices.

FF1F.1 • 08:30  High-Q Photonic Crystal Resonators for Nonlinear Optics, Aude Martin1; Gregory Mollé1, Sylvain Combrie1, Gaelle Lehouzé2, Thierry Debussche2, Allard, P. Mos1, Alfredo De Rossi2; Thales Research & Technology, France; Laboratoire de Photonique et de Nanostructures, ONR UPR 29, France. Physics of Light in Complex Systems, UNO, Debyse Inst. for Nanomaterials Science, Utrecht Univ., Netherlands. Small volume cavities and cavity arrays made of III-V semiconductor with large electronic gap allow very large optical fields to be established. The spectral alignment of a triplet of resonances results into ultra-efficient four-wave-mixing.

FF1G.1 • 08:00  Withdrawn.

FF1H.1 • 08:00  KALEXUS - a Potassium Laser System with Autonomous Frequency Stabilization on a Sounding Rocket, Alime N. Dinkelaar1, Max Schiemang1, Vladimir Scholz1, Robert Kähler1, Achim Peters3; Institute for Physics, Humboldt-Universität zu Berlin, Germany; Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Germany. Autonomous laser frequency stabilization is a prerequisite for future space-borne atomic physics experiments. The KALEXUS experiment performed frequency stabilization of two 767 nm extended cavity diode lasers onboard the TEXUS 53 sounding rocket.

FF1H.2 • 08:15  Controlling the Direction of Optical Power Flow in an Active Photonic Cavity, Ali Karami1; Ayman Abouzakri2; Univ. of Central Florida, CREOL, USA. We demonstrate experimentally that the direction of Poynting's vector and thus power flow in an optical cavity provided with net gain can be controlably reversed by modulating a passive intra-cavity loss element.

FF1I.1 • 08:00  Enhanced Lasing Through Tailoring of Photonic Dispersion of States, Marcin Sojotczy1; Massachus- setts Inst. of Technology, USA. Nanophotonics offers unprecedented opportunities for tailoring photonic density of states. Weyl and Dirac dispersions could thus enable single-mode lasing for substantially larger lasers. Novel gain media can be enabled as well.

FF1F.2 • 08:30  Exceptional contours and band structure design in parity-time symmetric photonic crystals, Alexander Cerjan1, Aswath Raman1, Shahnawaz Fari2; Stanford Univ., USA. We investigate the properties of 2D parity-time symmetric periodic systems whose periodicity is an integer multiple of the underlying Hermitian system's periodicity. Such systems possess novel band structure engineering, and yield supercollimation.

FF1G.2 • 08:30  Multi-plane Phase Retrieval in Generalized Two-Path Interferometry, Wesley Pariss1, James R. Fienup1, Tanya Malhotra1, A. Nick Vamivakas1; Univ. of Rochester, USA. Generalized interferometry is a novel technique that decomposes fields into transverse basis set components and weighting coefficient magnitudes. Nonlinear optimization phase retrieval algorithms using multiple intensity planes are developed.

FF1H.3 • 08:30  Optical Characteristics of Bio-Inspired Lasers Based on Fluorescent Biomaterials and Biocomplexes, Jose A. Rivera1, James G. Eden1; UUC, USA. Changes in the chemical environment of a biosensor were detected by analyzing spectral, temporal, and polarization properties. Such detailed characterizations are fundamental for biosensors to realize their potential as diagnostics tools.

FF1I.2 • 08:30  Recent Progress In Photonic Crystals, Susumu Noda1; Kyoto Univ., Japan. We report on recent progresses in manipulation of photons by photonic crystals. They include (1) ultra-large-Q nanocavities and their applications (2) thermal emission control with a very fast modulation speed, and (3) broad-area coherent photonic-crystal lasers with a high output power.
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