

Exceptional service in the national interest



SPIE Optics + Photonics 2017

Invited Papers

Active Photonic Platforms IX

Active Photonic Devices I: Sources and Modulators (CONV. CTR. ROOM 6C)

Ultrafast carrier capture and Auger recombination in individual InGaN nanowires

Author(s): Stephane A. Boubanga Tombet, Los Alamos National Lab. (USA); Jeremy B. Wright, Ping Lu, Sandia National Labs. (USA); Michael R. C. Williams, Los Alamos National Lab. (USA); Changyi Li, George T. Wang, Sandia National Labs. (USA); Rohit P. Prasankumar, Los Alamos National Lab. (USA)

Session 1 Conference 10345 | 6 August • 8:15AM

Terahertz Emitters, Receivers, and Applications VIII

QCL THz Sources (CONV. CTR. Room 17B)

Terahertz metasurface quantum-cascade VECSEL

Authors: Luyao Xu, Christopher A. Curwen, Dagan Chen, Univ. of California, Los Angeles (USA); John L. Reno, Sandia National Labs. (USA); Tatsuo Itoh, Benjamin S. Williams, Univ. of California, Los Angeles (USA)

Session 2 Conference 10383 | 6 August • 11:15AM

Target Diagnostics Physics and Engineering for Inertial Confinement Fusion VI

X-Ray Diagnostics (CONV. CTR. ROOM 13)

X-ray Doppler velocimetry for diagnosis of fluid motion in ICF implosions

Author(s): Jeffrey A. Koch, National Security Technologies, LLC (USA); John E. Field, Lawrence Livermore National Lab. (USA); Joseph D. Kilkenny, General Atomics (USA); Eric Harding, Gregory A. Rochau, Sandia National Labs. (USA); Aaron M. Covington, Univ. of Nevada, Reno (USA); Eric C. Dutra, Richard R. Freeman, National Security Technologies, LLC (USA); Gareth N. Hall, Lawrence Livermore National Lab. (USA); Michael J. Haugh, James A. King, National Security Technologies, LLC (USA)

Session 2 Conference 10390 | 8 August • 11:00AM

Sixteenth International Conference on Solid State Lighting and

LED-based Illumination Systems

Applications for Solid State Lighting using LEDs and OLEDs (CONV. CTR. ROOM 16B)

Efficiency droop mitigation progress in blue and green InGaN LEDs

Author(s) Hee Jin Kim, Robert Armitage, Tsutomu Ishikawa, Isaac Wildeson, Parijat Deb, Lumileds, LLC (USA); Andrew M. Armstrong, Sandia National Labs. (USA); Zhibo Zhao, Akshay Singh, Silvija Gradecak, Massachusetts Institute of Technology (USA); Eric A. Stach, Brookhaven National Lab. (USA)

Session 1 Conference 10378 | 8 August • 1:50PM

Low-Dimensional Materials and Devices 2017

Nanoionics for Energy and Computing (CONV. CTR. ROOM 5B)

Superionic conductivity in low-dimensional polyborate nanocages

Author: Vitalie Stavila, Alec Talin, Sandia National Labs. (USA); Terrence Udovic, National Institute of Standards and Technology (USA)

Session 4 Conference 10349 | 9 August • 3:25PM

Nanoionics for Energy and Computing (CONV. CTR. ROOM 5B)

Nanowire and Quantum Dot LEDs

Top-down etching of GaN nanostructures for optoelectronics and beyond

Author(s): George T. Wang, Benjamin Leung, Sandia National Labs. (USA); Miao-Chan Tsai, Changyi Li, Ganesh Balakrishnan, The Univ. of New Mexico (USA)

Session 6 Conference 10349 | 10 August • 1:25PM



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA-0003525



Exceptional service in the national interest



SPIE Optics + Photonics 2017

Presentations and Posters

Social Networking Event

(Marriott Marquis, Marina Ballroom F)

Women in Optics Presentation and Reception

The presentation will be followed by a panel discussion on overcoming mid-career obstacles moderated by Ms. Katie Schwertz, Optical Research Engineer at Edmund Optics Inc. Panelists include: Dr. Julia Craven, Principal Member of Technical Staff at Sandia National Labs; Dr. Eva Campo, Program Director at the National Science Foundation (NSF); Dr. Pernille Pedersen, Postdoctoral Fellow at Brown Univ.; and Prof. Julie Bentley, Associate Professor at the Univ. of Rochester.

Social Networking Event

7 August • 5:00 pm

Metamaterials, Metadevices, and Metasystems

Session 7

Session Chair: Augustine M. Urbas, Air Force Research Lab. (USA)
(CONV. CTR. ROOM 6D)

Sensitivities of large aperture multi-element plasmonic metasurface

Bryan Adomanis, Stephen E. Nauyoks, Air Force Research Lab. (USA); D. Bruce Burckel, Sandia National Labs. (USA); Michael A. Marciniak, Air Force

Metadevices and Metasystems I

8 August • 8:35 am

Active Photonic Platforms IX

Session 12 Session 10345

Session Chair: Sanjay Krishna, The Ohio State Univ.
(CONV. CTR. ROOM 6C)

Topological photonics research at Sandia Labs

Author: Ganapathi S. Subramania, Sandia National Labs. (USA); P. Duke Anderson, Sandia National Labs. (USA) and The Univ. of Southern California (USA)

Topological Photonic Systems II

9 August • 11:25 am

Low-Dimensional Materials and Devices 2017

Session 4 Conference 10349

Session Chair: A. Alec Talin, Sandia National Labs. (USA)
(CONV. CTR. Room 5B)

The challenge of dimensional scaling of the non-volatile redox transistor to achieve ultrafast switching

Author(s): Elliot Fuller, Francois Leonard, A. Alec Talin, Sandia National Labs. (USA)

Nanoionics for Energy and Computing

9 August • 3:50 pm

UV and Higher Energy Photonics: From Materials to Applications 2017

10351 Poster-Monday

(CONV. CTR. Exhibit Hall B2, 5:30 PM)

Probing Li-ion transport at carbon anode/solid electrolyte interfaces using in operando SEM

Author(s): Alexander Yulaev, National Institute of Standards and Technology (USA) and UMD (USA); Vladimir Oleshko, Paul Haney, National Institute of Standards and Technology (USA); A. Alec Talin, Sandia National Laboratories (USA); Marina S. Leite, Univ. of Maryland, College Park (USA); Andrei Kolmakov, National Institute of Standards and Technology (USA)

Thermal Radiation Management for Energy Applications

Session 5 Conference 10369

Session Chairs: Mowafak M. Al-Jassim, National Renewable Energy Lab. (USA); Luke A. Sweatlock, Northrop Grumman Aerospace Systems (USA)
(CONV. CTR. Exhibit Hall 12)

Demonstration of 24% efficient thermophotovoltaic energy conversion using 1055 C selective emitter.

Authors: David Woolf, Physical Sciences Inc. (USA); Emil A. Kadlec, Don Bethke, Eric A. Shaner, Sandia National Labs. (USA); Joel Hensley, Physical Sciences Inc. (USA)

Novel Applications for Thermal Radiation

9 August • 4:10 pm

Target Diagnostics Physics and Engineering for Inertial Confinement Fusion VI

10390 Poster-Monday

(CONV. CTR. EXHIBIT HALL B2, 5:30 PM)

Solid-state streak camera prototype electronic performance testing and characterization

Author(s): Yekaterina P. Opachich, Lawrence P. MacNeil, National Security Technologies, LLC (USA); John L. Porter, Sandia National Labs. (USA); Alicia Alarie, National Security Technologies, LLC (USA); Mark W. Kimmel, Joel Long, Quinn Looker, Sandia National Labs. (USA); Don Max, National Security Technologies, LLC (USA); John W. Stahoviak, Sandia National Labs. (USA); Vu Tran, National Security Technologies, LLC (USA); Caleb Wolf, Northwest Nazarene Univ. (USA); Thomas B. Waltman, National Security Technologies, LLC (USA)



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA-0003525



Session 1 Conference 10390

Session Chair: Gary P. Grim, Lawrence Livermore National Lab. (USA)
(CONV. CTR. ROOM 13)

Design of a line-VISAR interferometer system for the Sandia Z-Machine

Author(s): Justin D. Galbraith, John R. Celeste, Todd J. Clancy, Simon J. Cohen, Michael K. Crosley, Phillip S. Datte, Dayne Fratanduono, James Hammer, John L. Jackson, Lawrence Livermore National Lab. (USA); Michael C. Jones, Sandia National Labs. (USA); Don Koen, Jeremy Lusk, Thomas J. McCarville, Harry S. McLean, Kumar Raman, Samuel Rodriguez, Lawrence Livermore National Lab. (USA); Decker Spencer, Sandia National Labs. (USA); Paul T. Springer, Nan J. Wong, Lawrence Livermore National Lab. (USA); Kevin Austin, Jacob Baker, Drew Johnson, Sandia National Labs. (USA)

Optical Diagnostics and Recording 8 August • 8:30 am

Performance of a 2ns gated hybrid CMOS burst mode imager

Author(s): Pratik Patel, Arthur C. Carpenter, Matthew S. Dayton, Brad T. Funsten, Jeremy Hill, Christopher C. Macaraeg, Brian Pepmeier, Lawrence Livermore National Lab. (USA); Brandon Mitchell, Liam D. Claus, Marcos Sanchez, Sandia National Labs. (USA)

Optical Diagnostics and Recording 8 August • 9:50 am

Session 2 Conference 10390

Session Chair: Jay J. Ayers, Lawrence Livermore National Lab. (USA)
(CONV. CTR. ROOM 13)

Design and characterization of an improved 2-ns multi-frame imager for the Ultra-Fast X-ray Imager (UXI) program at Sandia National Laboratories

Author(s): Liam D. Claus, Marcos Sanchez, Gideon A. Robertson, Mark W. Kimmel, John L. Porter, Lu Fang, Douglas Trotter, John W. Stahoviak, Troy England, Andrew Montoya, Brandon Mitchell, Gregory A. Rochau, Sandia National Labs. (USA); Arthur C. Carpenter, Matthew S. Dayton, Pratik Bhogilal, Lawrence Livermore National Lab. (USA)

X-Ray Diagnostics 8 August • 11:50 am

Hard X-Ray, Gamma-Ray, and Neutron Detector Physics XIX

10392 Poster-Monday
(EXHIBIT HALL B2, 5:30 PM)

Challenges in the quantitative optical detection of radiation

Author(s): Sean Fournier, Jeffrey B. Martin, Richard Harrison, Dora K. Wiemann, Sandia National Labs. (USA)

Radiation Detectors in Medicine, Industry, and National Security XVIII Session 4 10393

Session 4 Conference 10393

Session Chair: Xin Li, College of Optical Sciences, The Univ. of Arizona (USA)
(CONV. CTR. ROOM 13)

Leveraging multi-channel detector technology to improve quality metrics for industrial and security applications

Author(s): Edward S. Jimenez, Kyle R. Thompson, Noelle M. Collins, Srivathsan Koundinyan, Sandia National Labs. (USA)

Simulations and Data Acquisition 9 August • 4:30 pm

Optimization of input parameters to improve big-data computed tomography reconstruction performance

Author(s): Celia J. Flicker, Edward S. Jimenez, Sandia National Labs. (USA)

Simulations and Data Acquisition 9 August • 5:10 pm

Optics for EUV, X-Ray, and Gamma-Ray Astronomy VIII

10399 Poster-Wednesday
(CONV. CTR. EXHIBIT HALL B2)

Characterization of multilayer coated replicated Wolter optics for fusion experiments at the Z Pulsed Power Facility

Andrew Ames, Harvard-Smithsonian Ctr. for Astrophysics (USA); David Ampleford, Sandia National Labs. (USA); Ricardo Bruni, Harvard-Smithsonian Ctr. for Astrophysics (USA); Chris Bourdon, Sandia National Labs. (USA); Bernard Koziolowski, Lawrence Livermore National Lab. (USA); Suzanne E. Romaine, Harvard-Smithsonian Ctr. for Astrophysics (USA); Brian D. Ramsey, National Space Sciences and Technology Ctr. (USA); Michael J. Pivovarov, Julia Vogel, Christopher Walton, Lawrence Livermore National Lab. (USA); M. Wu, Sandia National Labs. (USA)

Session 10 Conference 10399

Session Chair: Zhanshan Wang, Tongji Univ. (China)
(CONV. CTR. ROOM 9)

Cross-fertilization of multilayer coated Wolter optics: developing optics for fusion experiments at the Z Pulsed Power Facility

Author(s): Suzanne E. Romaine, Andrew Ames, Harvard-Smithsonian Ctr. for Astrophysics (USA); David Ampleford, Chris Bourdon, Sandia National Labs. (USA); Bernard Koziolowski, Lawrence Livermore National Lab. (USA); Ricardo Bruni, Harvard Smithsonian Ctr. for Astrophysics (USA); Michael J. Pivovarov, Lawrence Livermore National Lab. (USA); Brian D. Ramsey, National Space Sciences and Technology Ctr. (USA); Julia Vogel, Christopher Walton, Lawrence Livermore National Lab. (USA); M. Wu, Sandia National Labs. (USA)

Multilayer Coatings 10 August • 8:40 am

Infrared Sensors, Devices, and Applications VII

Session 1 Conference 10404

Session Chairs: Priyalal Wijewarnasuriya, U.S. Army Research Lab. (USA); Arvind I. D'Souza, DRS Sensors & Targeting Systems, Inc. (USA)
(CONV. CTR. ROOM 33A)

Resonantly enhanced infrared detectors based on type-II superlattice absorbers

Author(s): Michael D. Goldflam, Emil A. Kadlec, Benjamin V. Olson, John F. Klem, Samuel D. Hawkins, S. Parameswaran, Wesley T. Coon, Gordon A. Keeler, Torben R. Fortune, Anna Tauke-Pedretti, Joel R. Wendt, Eric A. Shaner, Paul S. Davids, Jin K. Kim, David W. Peters, Sandia National Labs. (USA)

SLS & Barrier Detectors I 9 August • 8:40 am

Effects of 4.5 MeV and 63 MeV proton irradiation on carrier lifetime of InAs/InAsSb type-II superlattices

Author(s): Emil A. Kadlec, Michael D. Goldflam, Edward Bielejec, Jin K. Kim, Benjamin V. Olson, John F. Klem, Samuel D. Hawkins, Johnathan Moussa, Peter A. Schultz, Sandia National Labs. (USA); Christian P. Morath, Geoffrey D. Jenkins, Vincent M. Cowan, Air Force Research Lab. (USA); Eric A. Shaner, Sandia National Labs. (USA)

SLS & Barrier Detectors I 9 August • 9:20 am

Polarization Science and Remote Sensing VIII

Session 3 Conference 10407

Session Chair: J. Scott Tyo, UNSW Canberra (Australia)
(CONV. CTR. ROOM 33C)

Channeled linear imaging polarimetry using iterative reconstruction

Author(s): Dennis J. Lee, Charles F. LaCasse IV, Julia M. Craven, Sandia National Labs. (USA)

Polarimetric Data Analysis

8 August • 2:10 pm