

Novel Optical Systems Design and Optimization XXI

Tuesday 21 August 2018

Conference Sessions At A Glance

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1: Unconventional and Light Field Optics
2: Multi- and Hyperspectral Applications
3: Novel Optical Systems and Methods I
4: Novel Optical Systems and Methods II
 Posters-Monday
 Illumination Technical Event

Important Dates

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Abstract Due:
7 February 2018

Author Notification:
16 April 2018

Manuscript Due Date:
25 July 2018

Conference Committee

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Conference Chairs

[Cornelius F. Hahlweg](#), bbw Hochschule (Germany)
[Joseph R. Mulley](#), Melles Griot (United States)

Program Committee

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[Joseph S. Choi](#), Raytheon Space and Airborne Systems (United States)
[Arthur J. Davis](#), ORAFOL Americas, Inc. (United States)
[Stephan Fahr](#), JENOPTIK Optical Systems GmbH (Germany)
[Peter I. Goldstein](#), Philips Color Kinetics (United States)
[G. Groot Gregory](#), Synopsys, Inc. (United States)
[Eric Herman](#), Zygo Corporation (United States)

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[Udo Zölzer](#), Helmut-Schmidt Univ. (Germany), Univ. of the Federal Armed Forces Hamburg (Germany)

MONDAY 20 AUGUST[Show All Abstracts](#)

Welcome and Introduction

Monday 20 August 2018
 8:20 AM - 8:30 AM
 Location: Conv. Ctr. Room 24C

[Cornelius F. Hahlweg](#), bbw Hochschule (Germany); [Joseph R. Mulley](#), Melles Griot (USA)


Session 1: Unconventional and Light Field Optics

Monday 20 August 2018
 8:30 AM - 10:00 AM
 Location: Conv. Ctr. Room 24C

Session Chair: [R. Hamilton Shepard](#), Waymo, LLC (United States)


Switchable virtual, augmented, and mixed reality system through optical cloaking *(Invited Paper)*

Paper 10746-1
 Time: 8:30 AM - 8:50 AM
 Author(s): [Joseph S. Choi](#), Univ. of Rochester (United States)

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The potential synergies of visual scene reconstruction and medical image reconstruction

Paper 10746-26
 Time: 8:50 AM - 9:10 AM
 Author(s): [Aron Cserkaszy](#), Holografika Kft. (Hungary); [Peter Andras Kara](#), Kingston Univ. (United Kingdom); [Attila Barsi](#), Holografika Kft. (Hungary); [Maria G. Martini](#), Kingston Univ. (United Kingdom)

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Development of 3D photography by incoherent digital holography**(Canceled)**

Paper 10746-2

Time: 8:50 AM - 9:10 AM


Author(s):

Light-field capture and display systems: limitations, challenges, and potentials *(Invited Paper)*

Paper 10746-3

Time: 9:10 AM - 9:40 AM


Author(s): Aron Cserkaszkzy, Holografika Kft. (Hungary); Peter Andras Kara, Kingston Univ. (United Kingdom); Roopak Tamboli, Attila Barsi, Holografika Kft. (Hungary); Maria Martini, Kingston Univ. (United Kingdom); Tibor Balogh, Holografika Kft. (Hungary)

[Add To My Schedule](#) **The hyperspectral imaging achieved by aberration-corrected freeform concave blaze grating with variable line spacing**

Paper 10746-4

Time: 9:40 AM - 10:00 AM

Author(s): Cheng-Hao Ko, National Taiwan Univ. of Science and Technology (Taiwan); Jih-Run Tsai, Bang-Ji Wang, Shin-Fa Lin, National Space Organization (Taiwan); Chitsung Hong, Wei-Huai Chiu, National Taiwan Univ. of Science and Technology (Taiwan)

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Coffee Break 10:00 AM - 10:30 AM

**Session 2:
Multi- and Hyperspectral Applications**

Monday 20 August 2018

10:30 AM - 11:50 AM

Location: Conv. Ctr. Room 24C


Session Chair: [Craig Olson](#), L-3 Sonoma EO (United States)

Visible and near-IR range linear variable filter with two-dimensional modeling

Paper 10746-7

Time: 10:30 AM - 10:50 AM

Author(s): Cheng-Hao Ko, National Taiwan Univ. of Science and Technology (Taiwan); Jih-Run Tsai, Bang-Ji Wang, Shin-Fa Lin, Natl. Space Organization (Taiwan); Chitsung Hong, Wei-Huai Chiu, National Taiwan Univ. of Science and Technology (Taiwan)

[Add To My Schedule](#) **Broadband optical sensing/detection technology for missile systems**

Paper 10746-8

Time: 10:50 AM - 11:10 AM


Author(s): Carlton Farley, Aschalew Kassu, Sandra Sadate-Moualeua, Jonathan Mills, Alabama A&M Univ. (United States); Christina L. Brantley, Eugene Edwards, U.S. Army Research, Development and Engineering Command (United States); Paul Ruffin, Anup Sharma, Alabama A&M Univ. (United States)

[Add To My Schedule](#) **MEMS SpectroChip in visible and near-infrared range for home healthcare, food safety, and blockchain applications**

Paper 10746-9

Time: 11:10 AM - 11:30 AM

Author(s): Cheng-Hao Ko, Zetta Chip Inc. (Taiwan), SpectroChip Inc. (Taiwan)

[Add To My Schedule](#) **IR GRIN optics (Conference Presentation)**

Paper 10746-10

Time: 11:30 AM - 11:50 AM

Author(s): Shyam S. Bayya, Daniel Gibson, Vinh Nguyen, Jasbinder Sanghera, U.S. Naval Research Lab. (United States); Mikhail Kotov, KeyW Corp. (United States); Collin McClain, Univ. Research Foundation (United States); Jay Vizgaitis, optX Imaging Systems (United States)

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Lunch Break 11:50 AM - 1:30 PM

**Session 3:
Novel Optical Systems and Methods I**

Monday 20 August 2018

1:30 PM - 3:00 PM

Location: Conv. Ctr. Room 24C


Session Chair: [Stephan Fahr](#), JENOPTIK Optical Systems GmbH (Germany)

A novel application of photogrammetry to ground convergence monitoring in underground excavations *(Invited Paper)*

Paper 10746-11

Time: 1:30 PM - 2:00 PM

Author(s): Donovan J. Benton, Sean N. Warren, Carl B. Sunderman, Jerald R. Richardson, The National Institute for Occupational Safety and Health (United States)


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Parallel spectroscopic ellipsometry system for fast correction of surface variability in metrology-based systems (Conference Presentation)

Paper 10746-13

Time: 2:20 PM - 2:40 PM

Author(s): Andrey Nazarov, Michael Ney, Ibrahim Abdulhalim, Ben-Gurion Univ. of the Negev (Israel)


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Further development of an imaging inspection system for layered surfaces

Paper 10746-14

Time: 2:40 PM - 3:00 PM

Author(s): Janine Brennförder, Cornelius F. Hahlweg, bbw Hochschule (Germany)

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Coffee Break 3:00 PM - 3:30 PM

Session 4: Novel Optical Systems and Methods II

Monday 20 August 2018

3:30 PM - 5:30 PM

Location: Conv. Ctr. Room 24C


Session Chair: [G. Groot Gregory](#), Synopsys, Inc. (United States)

Relaxing alignment tolerance in single-mode fiber connections using 3D nanoprinted beam expanders

Paper 10746-15

Time: 3:30 PM - 3:50 PM

Author(s): Koen Vanmol, Vrije Univ. Brussel (Belgium); Salvatore Tuccio, Vivek Panapakkam, CommScope, Inc. (Belgium); Hugo Thienpont, Vrije Univ. Brussel (Belgium); Jan Watté, CommScope, Inc. (Belgium); Jürgen Van Erps, Vrije Univ. Brussel (Belgium)


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Statistical variation of color uniformity for solid-state illumination systems (Invited Paper)

Paper 10746-16

Time: 3:50 PM - 4:20 PM

Author(s): Michael W. Zollers, G. Groot Gregory, Synopsys, Inc. (United States)


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Standard specifications vs metrology of LED illumination systems (Invited Paper)

Paper 10746-17

Time: 4:20 PM - 4:50 PM

Author(s): Stefan Marschall, NBS Northern Business School (Germany), Elbpatent Marschall & Partner (Germany); Nikolai Schedrick, bbw Hochschule (Germany); Cornelius F. Hahlweg, bbw Hochschule (Germany), NBS Northern Business School (Germany)


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Optical system design for characterization of photo-response non-uniformity (PRNU) of CMOS image sensors

Paper 10746-18

Time: 4:50 PM - 5:10 PM

Author(s): Changhui Ye, Jeong Ah Hwang, Pixelplus Co., Ltd. (Korea, Republic of); Seong Chong Park, Dong-Hoon Lee, Korea Research Institute of Standards and Science (Korea, Republic of)


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A comparison of encoding methods for automated design of optical architectures

Paper 10746-19

Time: 5:10 PM - 5:30 PM

Author(s): Colin C. Olson, U.S. Naval Research Lab. (United States); Luke Evans, Naval Research Laboratory, Naval Research Enterprise Internship Program (United States); Neal R. Bayya, Naval Research Laboratory, Science and Engineering Apprentice Program (United States); Jason Edelberg, U.S. Naval Research Lab. (United States)

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Session PMon: Posters-Monday

Monday 20 August 2018

5:30 PM - 7:30 PM

Location: Conv. Ctr. Room 20C


Conference attendees are invited to view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines at <http://spie.org/OPPosterGuidelines>.

Optical designs of non standard objectives for use in biological microscope

Paper 10746-22

Time: 5:30 PM - 7:30 PM


Author(s): Dmitry N. Frolov, Olga A. Vinogradova, Alexey D. Frolov, Labor-Microscopes (Russian Federation)

[Add To My Schedule](#) **Cat eye effect weaken based on achromatic prism and phase corrector**

Paper 10746-24

Time: 5:30 PM - 7:30 PM


Author(s): Dalin Song, Beijing Institute of Technology (China), First Research Institute of the Ministry of Public Security (China); Jun Chang, Beijing Institute of Technology (China); Yifei Zhao, First Research Institute of the Ministry of Public Security (China); Zexia Zhang, Beijing Institute of Technology (China)

[Add To My Schedule](#) **Effects of aperture size on the performance of CMOS image sensor with pixel aperture for depth extraction**

Paper 10746-25

Time: 5:30 PM - 7:30 PM

Author(s): Byoung-Soo Choi, Sang-Hwan Kim, Jimin Lee, Donghyun Seong, Kyungpook National Univ. (Korea, Republic of); Seunghyuk Chang, JongHo Park, Sang-Jin Lee, Ctr. for Integrated Smart Sensors (Korea, Republic of); Jang-Kyoo Shin, Kyungpook National Univ. (Korea, Republic of)

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Illumination Technical Event

Monday 20 August 2018

8:00 PM - 10:00 PM

Location: Marriott Marquis, Marina Ballroom F

Chair: **Jake Jacobsen**, Synopsys, Inc. (United States)

Please join us for an evening of stimulating discussion, networking, and conversation. This year we will hear from Dr. Bill Cassarly, SPIE Fellow and Synopsys Scientist, who will give his talk *De-mystifying Etendue*. At the end of the presentation any member of the audience may present information within the broad field of illumination. Light refreshments will be served.

Light refreshments sponsored by:

The Optical Solutions Group at 