

## Current Developments in Lens Design and Optical Engineering XIX

Tuesday - Wednesday 21 - 22 August 2018

### Conference Sessions At A Glance

[SHOW](#) | [HIDE](#)

- 1: 3D Imaging
- 2: Analysis and Applications I
- 3: Lens Design Methodology
- 4: Analysis and Applications II  
Lens Design Technical Event
- 5: Solid State Lighting
- 6: Analysis And Applications III  
Posters-Wednesday

### Important Dates

[SHOW](#) | [HIDE](#)

Abstract Due:  
7 February 2018

Author Notification:  
16 April 2018

Manuscript Due Date:  
25 July 2018

### Conference Committee

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#### Conference Chairs

[R. Barry Johnson](#), Alabama A&M Univ. (United States)  
[Virendra N. Mahajan](#), College of Optical Sciences, The Univ. of Arizona  
(United States)  
[Simon Thibault](#), Univ. Laval (Canada)

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[Pierre H. Chavel](#), Institut d'Optique (France)  
[Apostolos Desiis](#), JENOPTIK Optical Systems (United States)  
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[Yongtian Wang](#), Beijing Institute of Technology (China)  
[Cornelius Willers](#), Airbus DS Optronics (Pty) Ltd. (South Africa)  
[Andrew P. Wood](#), Excelitas Qioptiq (United Kingdom)  
[María J. Yzuel](#), Univ. Autònoma de Barcelona (Spain)

#### TUESDAY 21 AUGUST

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### Session 1: 3D Imaging


Tuesday 21 August 2018  
 8:30 AM - 10:20 AM  
 Location: Conv. Ctr. Room 25C

Session Chair: [Robert M. Bunch](#), Rose-Hulman Institute of Technology (United States)

#### Review of indoor 3D imaging and the application on positioning and navigation (*Invited Paper*)

Paper 10745-1


Time: 8:30 AM - 9:00 AM

Author(s): [Ching-Cherng Sun](#), [Yeh-Wei Yu](#), [Chih-Wei Huang](#), [Chi-Chung Lau](#), [Jann-Long Chern](#), [Jia-Ching Wang](#), [Tsung-Hsun Yang](#), [Li-Ching Wu](#), [Xuan-Hao Lee](#), [Sierfa Chang](#), National Central Univ. (Taiwan)[Add To My Schedule](#) 

#### Field-of-view enhancement for commercially available active imaging camera using time-of-flight technology

Paper 10745-2

Time: 9:00 AM - 9:20 AM

Author(s): [Anne-Sophie Poulin-Girard](#), Univ. Laval (Canada); [Michael Smith](#), Centre for optics, photonics and lasers, Université Laval (Canada); [Mathieu Gagnon](#), Univ. Laval (Canada); [Marc-Antoine Legault](#), Innovative Vehicle Institute (Canada); [Simon Thibault](#), Univ. Laval (Canada)[Add To My Schedule](#) 

#### Design of coded structured light based on square-shaped primitives

Paper 10745-3

Time: 9:20 AM - 9:40 AM


Author(s): [Chi-Chung Lau](#), [Ching-Cherng Sun](#), [Tsung-Hsun Yang](#), [Yeh-Wei Yu](#), [Si-Min Chou](#), National Central Univ. (Taiwan)

[Add To My Schedule](#) **Repairing IR depth image with 2D RGB image**

Paper 10745-4

Time: 9:40 AM - 10:00 AM


Author(s): Yeh-Wei Yu, Tzu-Kai Wang, Chi-Chung Lau, Jia-Ching Wang, Tsung-Hsun Yang, Jann-Long Chern, Ching-Cherng Sun, National Central Univ. (Taiwan)

[Add To My Schedule](#) **System matrix generation for 3D tomographic reconstructions using an optical design software**

Paper 10745-5

Time: 10:00 AM - 10:20 AM

Author(s): Madison Rilling, Univ. Laval (Canada), CHU de Québec (Canada); François Bourassa, Univ. Laval (Canada); Louis Archambault, Univ. Laval (Canada), CHU de Québec (Canada); Simon Thibault, Univ. Laval (Canada)

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**Coffee Break 10:20 AM - 10:50 AM**

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**Session 2:  
Analysis and Applications I**

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Tuesday 21 August 2018

10:50 AM - 12:10 PM


Location: Conv. Ctr. Room 25C

Session Chair: [Pantazis Mouroulis](#), Jet Propulsion Lab. (United States)**Simulation of multi-channel microlens array for image stitching**

Paper 10745-6

Time: 10:50 AM - 11:10 AM


Author(s): Chien Chao, Guo-Dung Su, National Taiwan Univ. (Taiwan)

[Add To My Schedule](#) **Design and prototyping of a freeform light-guide for automotive lighting**

Paper 10745-8

Time: 11:30 AM - 11:50 AM

Author(s): Audrey C. Brand, Hossein Alisafaei, Rose-Hulman Institute of Technology (United States)

[Add To My Schedule](#) **Application and analysis of wavefront coding technology on zoom optical system****(Canceled)**

Paper 10745-9

Time: 11:50 AM - 12:10 PM

Author(s):

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**Lunch/Exhibition Break 12:10 PM - 1:30 PM**

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**Session 3:  
Lens Design Methodology**

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Tuesday 21 August 2018

1:30 PM - 3:30 PM


Location: Conv. Ctr. Room 25C

Session Chair: [Simon Thibault](#), Univ. Laval (Canada)**Correction of wavefront aberrations in focal and afocal TMAs**

Paper 10745-11

Time: 1:50 PM - 2:10 PM


Author(s): Torben B. Andersen, Zachary A. Granger, Lockheed Martin Space Systems Co. (United States)

[Add To My Schedule](#) **Athermal glass for infrared optics**

Paper 10745-12

Time: 2:10 PM - 2:30 PM


Author(s): Mark J. Davis, SCHOTT North America, Inc. (United States); Michaelene Kocher, SCHOTT North America (United States)

[Add To My Schedule](#) **Caustic surfaces produced by a plane wavefront refracted through cemented doublet lenses**

Paper 10745-13

Time: 2:30 PM - 2:50 PM

Author(s): Maximino Avendaño Alejo, M. Carmen López-Bautista, Univ. Nacional Autónoma de México (Mexico); Luis Castañeda, IPN Escuela Superior de Medicina (Mexico)


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#### New phase method for designing highly efficient metasurface devices

Paper 10745-14

Time: 2:50 PM - 3:10 PM

Author(s): LiYi Hsu, Matthieu Dupré, Abdoulaye Ndao, Boubacar Kanté, Univ. of California, San Diego (United States)


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#### Holographic progressive lenses

Paper 10745-45

Time: 3:10 PM - 3:30 PM

Author(s): Jannik Trapp, Manuel Decker, Carl Zeiss AG (Germany); Jörg Petschulat, Carl Zeiss SMT GmbH (Germany); Thomas Pertsch, FSU Jena (Germany); Toufic Jabbour, Carl Zeiss AG (Germany)

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### Coffee Break 3:30 PM - 4:00 PM

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## Session 4: Analysis and Applications II

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Tuesday 21 August 2018

4:00 PM - 5:40 PM

Location: Conv. Ctr. Room 25C

Session Chair: [Simon Thibault](#), Univ. Laval (Canada)


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#### Using effective medium theories to design tailored nanocomposite materials for optical systems

Paper 10745-15

Time: 4:00 PM - 4:20 PM

Author(s): Daniel Werdehausen, Carl Zeiss Jena GmbH (Germany); Toralf Scharf, École Polytechnique Fédérale de Lausanne (Switzerland); Friedrich-Schiller-Univ. Jena (Germany); Isabelle Staude, Friedrich-Schiller-Univ. Jena (Germany); Sven Burger, JCMwave GmbH (Germany); Jörg Petschulat, Carl Zeiss AG (Germany); Thomas Pertsch, Friedrich-Schiller-Univ. Jena (Germany); Manuel Decker, Carl Zeiss AG (Germany)


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#### Toward semantic loop closure in simultaneous localization and mapping systems

Paper 10745-16

Time: 4:20 PM - 4:40 PM

Author(s): Che-Yu Yang, National Central Univ. (Taiwan); Yu-Cheng Zhang, Yu-Hsiu Chen, Chih-Wei Huang, National Central Univ. (Taiwan)


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#### Optic design and manufacturing issues of a high numerical broadband IR solid immersion microscope objective

Paper 10745-17

Time: 4:40 PM - 5:00 PM

Author(s): Thomas Sure, Technische Hochschule Mittelhessen (Germany); Prasad Sabbineni, Euan Ramsay, Thermo Fisher Scientific (United States)


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#### Optical design and predicted performance of the WFIRST phase-b imaging optics assembly and wide field instrument

Paper 10745-18

Time: 5:00 PM - 5:20 PM

Author(s): Bert A. Pasquale, NASA Goddard Space Flight Ctr. (United States); Thomas M. Casey, AS and D, Inc. (United States); Catherine T. Marx, NASA Goddard Space Flight Ctr. (United States); Guangjun Gao, Sigma Space Corp. (United States); Nerses V. Armani, SGT Inc. (United States); David A. Content, NASA Goddard Space Flight Ctr. (United States); John G. Hagopian, ATA Aerospace, Inc. (United States); Alden S. Jurling, NASA Goddard Space Flight Ctr. (United States); Clifton E. Jackson, SGT Inc. (United States); Alice Liu, NASA Goddard Space Flight Ctr. (United States); Arthur L. Whipple, Conceptual Analytics, LLC (United States); Jacob J. Murray, Rose-Hulman Institute of Technology (United States)


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#### Novel designs for minimizing diffraction effects of large segmented mirror telescopes

Paper 10745-19

Time: 5:20 PM - 5:40 PM

Author(s): James E. Harvey, Photon Engineering LLC (United States); James B. Breckinridge, College of Optical Sciences, The Univ. of Arizona (United States); Ryan G. Irvin, Richard N. Pfisterer, Photon Engineering LLC (United States)

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## Lens Design Technical Event

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Tuesday 21 August 2018

8:00 PM - 10:00 PM

Location: Marriott Marquis, Marina Ballroom F

Session Chair: **Rich Pfisterer**, Photon Engineering, LLC (USA)

**"Let's Give 'Em Something to Talk About!"**

Lens designers! Join us for our annual gathering to meet and discuss... lens design! Let's talk about what we're designing, how we're going about doing it (what materials, software, techniques, etc.), and which problems we're encountering. We'll also explore current technical and commercial trends in the marketplace. This year's invited speaker will be Joseph M. Howard of NASA's James Webb Space Telescope Project, whose talk is entitled, "Current and Future NASA Space Telescopes."

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**WEDNESDAY 22 AUGUST**

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## Session 5: Solid State Lighting

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Wednesday 22 August 2018  
8:20 AM - 10:10 AM  
Location: Conv. Ctr. Room 25C

Session Chair: [Ching-Cherng Sun](#), National Central Univ. (Taiwan)

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### **CCT stabilization and phosphor temperature detection in pc-WLEDs** (*Invited Paper*)

Paper 10745-20

Time: 8:20 AM - 8:50 AM

Author(s): Tsung-Hsun Yang, Hsu-Yi Huang, Hsin-Mei Wu, Xuan-Hao Lee, Yeh-Wei Yu, Ching-Cherng Sun, National Central Univ. (Taiwan)

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### **Optical design of LED marine beacons**

Paper 10745-22

Time: 9:10 AM - 9:30 AM

Author(s): Shih-Kang Lin, Yung-Chang Jen, Xuan-Hao Lee, Yeh-Wei Yu, Tsung-Hsun Yang, Ching-Cherng Sun, National Central Univ. (Taiwan)

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### **Light spectrum for maximum luminous efficacy of radiation and high color quality**

Paper 10745-23

Time: 9:30 AM - 9:50 AM

Author(s): Ivan Moreno, Univ. Autónoma de Zacatecas (Mexico)

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### **A novel laser headlight module**

Paper 10745-24

Time: 9:50 AM - 10:10 AM

Author(s): Yung-Peng Chang, Taiwan Color Optics, Inc. (Taiwan), National Chung Hsing Univ. (Taiwan); Jin-Kai Chang, Shih-Hsin Chang, Hsin-An Chen, Taiwan Color Optics, Inc. (Taiwan); Chun-Nien Liu, Han Pin, Wood-Hi Cheng, National Chung Hsing Univ. (Taiwan)

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**Coffee Break 10:10 AM - 10:40 AM**

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## Session 6: Analysis And Applications III

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Wednesday 22 August 2018  
10:40 AM - 12:00 PM  
Location: Conv. Ctr. Room 25C

Session Chair: [Robert M. Bunch](#), Rose-Hulman Institute of Technology (United States)


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### **Tunable GRIN PDMS-made lenses with aspheric profile**

Paper 10745-25

Time: 10:40 AM - 11:00 AM


Author(s): Emilio R. Reyes Pérez, Angel S. Cruz-Felix, Agustín Santiago-Alvarado, Josimar Marquez-Garcia, Univ. Tecnológica de la Mixteca (Mexico)

[Add To My Schedule](#) **Random metasurface concentrator**

Paper 10745-26

Time: 11:00 AM - 11:20 AM


Author(s): LiYi Hsu, Matthieu Dupré, Junhee Park, Abdoulaye Ndao, Boubacar Kanté, Univ. of California, San Diego (United States)

[Add To My Schedule](#) **Optomechanical system to induce low-order refractive errors on a biconical surface**

Paper 10745-27

Time: 11:20 AM - 11:40 AM

Author(s): Rafael Cruz Amador, Angel S. Cruz-Felix, Agustín Santiago-Alvarado, Univ. Tecnológica de la Mixteca (Mexico)

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## Session PWed: Posters-Wednesday

Wednesday 22 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/OPPPosterGuidelines>.

**Comparison between the Arclight Ophthalmoscope and a standard handheld direct ophthalmoscope: a clinical study**

Paper 10745-29

Time: 5:30 PM - 7:30 PM

Author(s): Mohana Kuppaswamy Parthasarathy, Univ. of Waterloo (Canada); Ibrahim Faruq, Costco Optical (Canada); Eugene Arthurs, SPIE (United States); Vasudevan Lakshminarayanan, Univ. of Waterloo (Canada)

[Add To My Schedule](#) **Laser strength multilayer interference coatings with the Gaussian profile for Nd:YAG lasers****(Canceled)**

Paper 10745-30

Time: 5:30 PM - 7:30 PM

Author(s):

**Optical design of CCF PlanApo microobjectives 50 mm observation and super long working distance**

Paper 10745-31

Time: 5:30 PM - 7:30 PM


Author(s): Dmitry N. Frolov, Olga A. Vinogradova, Alexey D. Frolov, Labor-Microscopes (Russian Federation); Liyun Wen, Fanhua Jing, Nanjing Kozo Optical and Electrical Instrument Co., Ltd. (China)

[Add To My Schedule](#) **Optical designs of the objectives for special studies in polarizing microscope**

Paper 10745-32

Time: 5:30 PM - 7:30 PM


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

[Add To My Schedule](#) **Design of ergonomic handpieces for a CO<sub>2</sub> laser system for surgical and cosmetological applications**

Paper 10745-33

Time: 5:30 PM - 7:30 PM


Author(s): Kseniia Zavatskaia, Anna Voznesenskaya, ITMO Univ. (Russian Federation)

[Add To My Schedule](#) **The design of the prism film on the optical concentrator for photovoltaic applications**

Paper 10745-34

Time: 5:30 PM - 7:30 PM


Author(s): Shang-Ping Ying, Bing-Mau Chen, Pao-Keng Yang, Cheng-Chung Jaing, Minghsin Univ. of Science and Technology (Taiwan)

[Add To My Schedule](#) **Optical coatings for the optical concentrator with the prism film**

Paper 10745-35

Time: 5:30 PM - 7:30 PM


Author(s): Cheng-Chung Jaing, Wei-Li Wan, Pao-Keng Yang, Shang-Ping Ying, Bing-Mau Chen, Minghsin Univ. of Science and Technology (Taiwan)

[Add To My Schedule](#) **Abbe experiment with inclined grating**

Paper 10745-37

Time: 5:30 PM - 7:30 PM

Author(s): Volodymyr N. Borovytsky, Oleksii Hudz, National Technical Univ. of Ukraine (Ukraine)


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**Reducing the reabsorption effect in an optical concentrator by using a luminescent layer with multiple phosphors**

Paper 10745-38

Time: 5:30 PM - 7:30 PM

Author(s): Pao-Keng Yang, Hua-Yu Tseng, Cheng-Chung Jaing, Shang-Ping Ying, Bing-Mau Chen, Minghsin Univ. of Science and Technology (Taiwan)


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**Design and analysis of the mirror system with off-axis field-of-view**

Paper 10745-39

Time: 5:30 PM - 7:30 PM

Author(s): Galina E. Romanova, Kseniia D. Butylkina, ITMO Univ. (Russian Federation)


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**Optimizing trefoil phase plates design for color wavefront coding**

Paper 10745-40

Time: 5:30 PM - 7:30 PM

Author(s): Juan-Miguel Olvera-Angeles, Alfonso Padilla-Vivanco, Karina Ortega, Univ. Politécnica de Tulancingo (Mexico); José Sasián, J. Schwiegerling, College of Optical Sciences, The Univ. of Arizona (United States); Justo Arines, Eva Acosta, Univ. de Santiago de Compostela (Spain)

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**Implementation of a Wavefront coded microscope by the use of a spatial light modulator**

Paper 10745-41

Time: 5:30 PM - 7:30 PM

Author(s): Karina Ortega Sanchez, Carina Toxqui-Quitl, Alfonso Padilla-Vivanco, Univ. Politécnica de Tulancingo (Mexico)


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**Design of an adaptive Fresnel lens using design thinking methodology and cost analysis**

Paper 10745-42

Time: 5:30 PM - 7:30 PM

Author(s): Agustín Santiago-Alvarado, Angel S. Cruz-Felix, Stephanie Lizeth Santiago Gómez, Soledad Ruiz Zavala, Adelita Osorio García, Fernando Itubide Jimenez, Univ. Tecnológica de la Mixteca (Mexico)

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**Design of lens hoods for the "Lira-B" space telescope**

Paper 10745-43

Time: 5:30 PM - 7:30 PM

Author(s): Artem Muratov, Vyacheslav Olyunin, Alexey Bakholdin, Anna Voznesenskaya, ITMO Univ. (Russian Federation)

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