

Sensors and Systems for Space Applications XI

Monday - Tuesday 16 - 17 April 2018

Conference Sessions At A Glance

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- 1: Instrument and Sensor Architecture and Design for Space Applications
- 2: Emerging Systems and Architectures for Space Applications
- 3: Perception and Autonomy for Aerospace Applications
- 4: Emerging Concepts for Space Communications
- 5: Optical Detection and Analysis for Free Space Laser Communications
- 6: Space Sensors and Mission Options I
- 7: Space Sensors and Missions Options II

Important Dates

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Abstract Due:
9 October 2017

Author Notification:
11 December 2017
Notifications will be sent no later than 12/15/17

Manuscript Due Date:
21 March 2018

Conference Committee

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Conference Chairs

[Khanh D. Pham](#), Air Force Research Lab. (United States)
[Genshe Chen](#), Intelligent Fusion Technology, Inc. (United States)

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 Ryan M. Weisman, Air Force Research Lab. (United States)
[Henry Zmuda](#), Univ. of Florida (United States)

MONDAY 16 APRIL

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Session 1: Instrument and Sensor Architecture and Design for Space Applications

Monday 16 April 2018

8:00 AM - 10:00 AM

Location: Ballroom Level, Osceola 5


Session Chair: [Henrique R. Schmitt](#), U.S. Naval Research Lab. (United States)

Modelling of celestial backgrounds

Paper 10641-1

Time: 8:00 AM - 8:20 AM

Author(s): Duncan L. Hickman, Moira I. Smith, Tektonex Ltd. (United Kingdom); Jae-Wan Lim, Yun-Ho Jeon, Agency for Defense Development (Korea, Republic of)


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Compact midwave imaging system (CMIS) for weather satellite applications

Paper 10641-2

Time: 8:20 AM - 8:40 AM

Author(s): Arnold C. Goldberg, Michael A. Kelly, John Boldt, Johns Hopkins Univ. Applied Physics Lab., LLC (United States); Dong L. Wu, NASA Goddard Space Flight Ctr. (United States); Andrew Heidinger, National Oceanic and Atmospheric Administration (United States); John P. Wilson, Kyle J. Ryan, Johns Hopkins Univ. Applied Physics Lab., LLC (United States); M. F. Morgan, NASA (United States); Jeng H. Yee, Jacob M. Greenberg, Charles Hibbits, Johns Hopkins Univ. Applied Physics Lab., LLC (United States)


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Multi-band optical photometry of geosynchronous satellites

Paper 10641-3

Time: 8:40 AM - 9:00 AM

Author(s): Henrique R. Schmitt, U.S. Naval Research Lab. (United States)


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Research on camera on orbit radial calibration based on black body and infrared calibration stars

Paper 10641-4

Time: 9:00 AM - 9:20 AM

Author(s): Yudu Wang, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China); XiaoFeng Su, Shanghai Institute of Technical Physics (China); WanYing Zhang, Shanghai Institute of Technical Physics (China), Univ. of Chinese Academy of Science (China); FanSheng Chen, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China)


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Optical design of space cameras for automated rendezvous and docking systems

Paper 10641-5

Time: 9:20 AM - 9:40 AM

Author(s): Xiang Zhu, Neptec Design Group Ltd. (Canada)

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Coffee Break 10:00 AM - 10:30 AM

**Session 2:
Emerging Systems and Architectures for Space Applications**

Monday 16 April 2018

10:30 AM - 11:50 AM

Location: Ballroom Level, Osceola 5


Session Chair: Yiran Xu, Intelligent Fusion Technology, Inc. (United States)

DDDAS for space applications

Paper 10641-7

Time: 10:30 AM - 10:50 AM

Author(s): Erik Blasch, Khanh D. Pham, Air Force Research Lab. (United States); Dan Shen, Genshe Chen, Intelligent Fusion Technology, Inc. (United States)


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Investigation of the dynamic enhanced cubature Kalman filter

Paper 10641-8

Time: 10:50 AM - 11:10 AM

Author(s): Bin Jia, Intelligent Fusion Technology, Inc. (United States); Khanh D. Pham, Erik Blasch, Air Force Research Lab. (United States); Dan Shen, Genshe Chen, Intelligent Fusion Technology, Inc. (United States)


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Adaption from LWIR to visible wavebands of methods to describe the population of GEO belt debris

Paper 10641-9

Time: 11:10 AM - 11:30 AM

Author(s): Kevin Meng, Jeremy Murray-Krezan, Air Force Research Lab. (United States); Patrick Seitzer, Univ. of Michigan (United States)


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Analysis of three-dimensionally proliferated sensor architectures for flexible SSA

Paper 10641-10

Time: 11:30 AM - 11:50 AM

Author(s): Phillip M. Cunio, Air Force Research Lab. (United States); Brien R. Flewelling, ExoAnalytic Solutions, Inc. (United States)

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Lunch Break 11:50 AM - 1:30 PM

**Session 3:
Perception and Autonomy for Aerospace Applications**

Monday 16 April 2018

1:30 PM - 3:10 PM

Location: Ballroom Level, Osceola 5


Session Chair: [Dan Shen](#), Intelligent Fusion Technology, Inc. (United States)

Markov logic network based complex event detection under uncertainty

Paper 10641-11

Time: 1:30 PM - 1:50 PM

Author(s): Jingyang Lu, Bin Jia, Genshe Chen, Hua-mei Chen, Nichole Sullivan, Intelligent Fusion Technology, Inc. (United States); Khanh D. Pham, Erik Blasch, Air Force Research Lab. (United States)

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Multitask assessment of roads and vehicles network (MARVN)

Paper 10641-12

Time: 1:50 PM - 2:10 PM

Author(s): Fang Yang, Meng Yi, Yiran Cai, Temple Univ. (United States); Erik Blasch, Air Force Research Lab. (United States); Nichole Sullivan, Intelligent Fusion Technology (United States); Carolyn Sheaff, Air Force Research Lab. (United States); Genshe Chen, Intelligent Fusion Technology, Inc. (United States); Haibin Ling, Temple Univ. (United States)


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A robotic orbital emulator with lidar-based SLAM and AMCL for multiple entity pose estimation

Paper 10641-13

Time: 2:10 PM - 2:30 PM

Author(s): Dan Shen, Xingyu Xiang, Bin Jia, Zhonghai Wang, Genshe Chen, Intelligent Fusion Technology, Inc. (United States); Erik Blasch, Air Force Office of Scientific Research (United States); Khanh D. Pham, Air Force Research Lab. (United States)


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Using multiple IMUs in a stacked filter configuration for calibration and fine alignment

Paper 10641-14

Time: 2:30 PM - 2:50 PM

Author(s): Aly El-Osery, New Mexico Institute of Mining and Technology (United States); Stephen Bruder, Embry-Riddle Aeronautical Univ. (United States); Kevin Wedeward, New Mexico Institute of Mining and Technology (United States)


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Finding common ground by unifying autonomy indices to understand needed capabilities

Paper 10641-15

Time: 2:50 PM - 3:10 PM

Author(s): Trevor J. Bihl, Air Force Institute of Technology (United States); Chad Cox, KEYW Corp. (United States); Todd Jenkins, Air Force Research Lab. (United States)

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Coffee Break 3:10 PM - 3:40 PM

Session 4: Emerging Concepts for Space Communications

Monday 16 April 2018

3:40 PM - 4:40 PM

Location: Ballroom Level, Osceola 5


Session Chair: [Yu Chen](#), Binghamton Univ. (United States)

An anti-jamming GPS receiver antenna testing system

Paper 10641-16

Time: 3:40 PM - 4:00 PM

Author(s): Zhonghai Wang, Xing-Ping Lin, Tao Wang, Bin Jia, Xingyu Xiang, Intelligent Fusion Technology, Inc. (United States); Eric Fisher, James Savarese, U.S. Army Electronic Proving Ground (United States); Khanh D. Pham, Erik Blasch, Air Force Research Lab. (United States); Genshe Chen, Intelligent Fusion Technology, Inc. (United States)


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Link establishment criterion and topology optimization for hybrid GPS satellite communications with laser crosslinks

Paper 10641-17

Time: 4:00 PM - 4:20 PM

Author(s): Lun Li, Sixiao Wei, Xin Tian, Li-Tse Hsien, Intelligent Fusion Technology, Inc. (United States); Zhijiang Chen, Intelligent Fusion Technology (United States); Khanh D. Pham, James Lyke, Air Force Research Lab. (United States); Genshe Chen, Intelligent Fusion Technology, Inc. (United States)


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Intelligent path loss prediction engine design using machine learning in the urban outdoor environment

Paper 10641-18

Time: 4:20 PM - 4:40 PM

Author(s): Ruichen Wang, Jingyang Lu, Yiran Xu, Dan Shen, Genshe Chen, Intelligent Fusion Technology, Inc. (United States); Khanh Pham, Air Force Research Lab. (United States); Erik Blasch, Air Force Office Scientific Research (AFOSR) (United States)

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TUESDAY 17 APRIL

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Session 5: Optical Detection and Analysis for Free Space Laser Communications

Tuesday 17 April 2018

8:20 AM - 10:00 AM

Location: Ballroom Level, Osceola 5


Session Chair: Thomas C. Farrell, Air Force Research Lab. (United States)

Space qualification of InGaAs photodiodes and photoreceivers

Paper 10641-19

Time: 8:20 AM - 8:40 AM

Author(s): Abhay M. Joshi, Shubhashish Datta, Discovery Semiconductors, Inc. (United States)

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Sources of background light on space based laser communications links

Paper 10641-20

Time: 8:40 AM - 9:00 AM

Author(s): Thomas C. Farrell, Air Force Research Lab. (United States)


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Quantum limited performance of optical receivers

Paper 10641-21

Time: 9:00 AM - 9:20 AM

Author(s): Thomas C. Farrell, Air Force Research Lab. (United States)


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Predicting the performance of linear optical detectors in free space laser communication links

Paper 10641-22

Time: 9:20 AM - 9:40 AM

Author(s): Thomas C. Farrell, Air Force Research Lab. (United States)


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The performance of Geiger mode avalanche photo-diodes in free space laser communication links

Paper 10641-23

Time: 9:40 AM - 10:00 AM

Author(s): Thomas C. Farrell, Air Force Research Lab. (United States)

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Coffee Break and Dedicated Exhibition Time 10:00 AM - 11:00 AM

Session 6: Space Sensors and Mission Options I

Tuesday 17 April 2018

11:00 AM - 11:40 AM

Location: Ballroom Level, Osceola 5


Session Chair: Kevin Meng, Air Force Research Lab. (United States)

Alignment of the Korsch type off-axis 3 mirror optical system using sensitivity table method

Paper 10641-24

Time: 11:00 AM - 11:20 AM

Author(s): Kyungmuk Lee, Hanwha Systems Co. Ltd. (Korea, Republic of); Youngsoo Kim, Hanwha Systems Co., Ltd. (Korea, Republic of); Jinsuk Hong, Hanwha Systems Co., Ltd. (Korea, Republic of), Space Optics Laboratory, Department of Astronomy, Yonsei University (Korea, Republic of); Sug-Whan Kim, Space Optics Laboratory, Department of Astronomy, Yonsei University (Korea, Republic of); Haeng-Bok Lee, Se-Chol Choi, Agency for Defense Development (Korea, Republic of)


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Low-cost, compact, and robust gas abundance sensor package

Paper 10641-25

Time: 11:20 AM - 11:40 AM

Author(s): Dat Tran, Georges Nehmetallah, The Catholic Univ. of America (United States); Nicolas Gorius, Frank Ferguson, Jaime Esper, Natasha Johnson, Shahid Aslam, Conor Nixon, NASA Goddard Space Flight Center Planetary System Laboratory (United States)

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Lunch/Exhibition Break 11:40 AM - 1:10 PM

Session 7: Space Sensors and Missions Options II

Tuesday 17 April 2018

1:10 PM - 2:50 PM

Location: Ballroom Level, Osceola 5


Session Chair: Phillip M. Cunio, Air Force Research Lab. (United States)

Backside illuminated CMOS-TDI line scan sensor for space applications

Paper 10641-26

Time: 1:10 PM - 1:30 PM

Author(s): Omer Cohen, Oren Ofer, Gil Abramovich, Nimrod Ben-Ari, Gal Gershon, Maya Brumer, Adi Shay, Yaron Shamay, SCD Semiconductor Devices (Israel)


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Think the way to measure the Earth Radiation Budget and the Total Solar Irradiance with a small satellites constellation

Paper 10641-27

Time: 1:30 PM - 1:50 PM


Author(s): Mustapha Meftah, Philippe Keckhut, Luc Damé, Slimane Bekki, Alain Sarkissian, Alain Hauchecorne, LATMOS (France)

[Add To My Schedule](#) **A federated capability-based access control mechanism for Internet of Things (IoTs)**

Paper 10641-29

Time: 1:50 PM - 2:10 PM


Author(s): Ronghua Xu, Yu Chen, Binghamton Univ. (United States); Erik Blasch, Air Force Research Lab. (United States); Genshe Chen, Intelligent Fusion Technology, Inc. (United States)

[Add To My Schedule](#) **Facility for orbital material processing**

Paper 10641-30

Time: 2:10 PM - 2:30 PM

Author(s): Dmitry S. Starodubov, Kyle McCormick, Michael Dellosa, FOMS Inc. (United States); Emery Erdelyi, FOMS, Inc. (United States); Leo Volfson, Torrey Pines Logic, Inc. (United States)

[Add To My Schedule](#) **Characterization of detector performance via wavelength-shifted hygroscopic scintillator emission****(Canceled)**

Paper 10641-31

Time: 2:30 PM - 2:50 PM

Author(s):

