

Infrared Technology and Applications XLIV

Monday - Thursday 16 - 19 April 2018

Conference Sessions At A Glance

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- 1: NIR/SWIR
- 2: Select Applications
- 3: T2SL I
- 4: Keynote Session
- 5: T2SL II
- 6: HgCdTe
- Posters-Tuesday
- 7: HOT
- 8: A Word from the Masters
- 9: Uncooled FPAs and Applications
- 10: Smart Processing
- 11: QWIP
- 12: Q-Dots

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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[Ami Yaacobi](#), Rafael Advanced Defense Systems Ltd. (Israel)

[Lucy Zheng](#), Institute for Defense Analyses (United States)

MONDAY 16 APRIL

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Welcome



Monday 16 April 2018

8:00 AM - 8:10 AM

Location: Ballroom Level, Osceola Ballroom B

Session Chair: [Paul Norton](#), U.S. Army Night Vision & Electronic Sensors Directorate (United States)

Session Chair: **Paul R. Norton**, U.S. Army Night Vision & Electronic Sensors Directorate (USA)

Session 1: NIR/SWIR

Monday 16 April 2018

8:10 AM - 11:50 AM

Location: Ballroom Level, Osceola Ballroom B


Session Chairs: [Martin H. Ettenberg](#), Princeton Infrared Technologies, Inc. (United States) ; [Wolfgang A. Cabanski](#), AIM INFRAROT-MODULE GmbH (Germany)

Thermoelectrically-cooled extended-SWIR FPAs using unipolar barrier detectors *(Invited Paper)*

Paper 10624-1

Time: 8:10 AM - 8:40 AM

Author(s): Michael H. MacDougal, Andrew Hood, Jeremy Thomas, Attollo Engineering, LLC (United States); Gary Wicks, Terry Golding, Amethyst Research Inc. (United States); Edward K. Huang, FLIR Systems, Inc. (United States)


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Extended SWIR imaging for targeting and reconnaissance

Paper 10624-2

Time: 8:40 AM - 9:00 AM

Author(s): Rainer Breiter, Matthias Benecke, Detlef Eich, Heinrich Figgemeier, Tobias Ihle, Alexander Sieck, Andreas Weber, Joachim Wendler, AIM INFRAROT-MODULE GmbH (Germany)


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High resolution 1.3 megapixel extended wavelength InGaAs *(Invited Paper)*

Paper 10624-3

Time: 9:00 AM - 9:30 AM

Author(s): Martin H. Ettenberg, Hai Nguyen, Chris Martin, Michael Lange, Princeton Infrared Technologies, Inc. (United States)


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Shockley-Read-Hall (SRH) recombination dark current in planar diffused P⁺n heterostructure InP/In_{0.53}Ga_{0.47}As/InP high density small pitch Focal Plane Arrays (FPAs) *(Invited Paper)*

Paper 10624-4

Time: 9:30 AM - 10:00 AM

Author(s): Roger E. DeWames, Manufacturing Techniques (United States); Eric A. DeCuir, Jonathan Schuster, U.S. Army Research Lab. (United States); Nibir K. Dhar, U.S. Army Night Vision & Electronic Sensors Directorate (United States)

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Coffee Break 10:00 AM - 10:30 AM

Low SWaP SWIR video engine for image intensifier replacement

Paper 10624-5

Time: 10:30 AM - 10:50 AM

Author(s): Itay Hirsh, Einat Louzon, Adi Aharon, Rotem Gazit, Doron Bar, Paul Kondrashov, Moshe Weinstein, Maxim Savchenko, Miriam Regensburger, Amir Navon, Edan Shunam, Ohad Rahat, Avner Mediouni, Erez Mor, Adi Shay, Roman Iosevich, SCD Semiconductor Devices (Israel); Michael Ben-Ezra, Avi Tuito, Israel Ministry of Defense (Israel); Itay Shtrichman, SCD Semiconductor Devices (Israel)


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Numerical and analytical modeling of bulk and surface generation recombination currents in InGaAs/InP SWIR photodiodes

Paper 10624-6

Time: 10:50 AM - 11:10 AM

Author(s): Andreu L. Glasmann, Enrico Bellotti, Boston Univ. (United States)


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Highly efficient MIM diodes for NIR and SWIR applications

Paper 10624-7

Time: 11:10 AM - 11:30 AM

Author(s): Elif Gul Arsoy, Emre Can Dumaz, Omer Ceylan, Meric Özcan, Yasar Gurbuz, Sabanci Univ. (Turkey)


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Colorimetry and multispectral imaging in the shortwave infrared

Paper 10624-8

Time: 11:30 AM - 11:50 AM

Author(s): Martin Gerken, Hary Schlemmer, Christofer Siemens, HENSOLDT Optronics GmbH (Germany)

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Lunch Break 11:50 AM - 1:30 PM

Session 2: Select Applications

Monday 16 April 2018

1:30 PM - 4:40 PM

Location: Ballroom Level, Osceola Ballroom B

Session Chairs: [Weida Hu](#), Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China) ; [Mario O. Münzberg](#), HENSOLDT Sensors GmbH (Germany)

A holistic approach to high performance infrared system design *(Invited Paper)*

Paper 10624-9

Time: 1:30 PM - 2:00 PM

Author(s): Ronald G. Driggers, Richard Vollmerhausen, R. Short, Univ. of Central Florida (United States); Duke Littlejohn, Michael Scholten, DRS Technologies, Inc. (United States)


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Towards ultra-small pixel pitch cooled MW and LW IR-modules *(Invited Paper)*

Paper 10624-10

Time: 2:00 PM - 2:20 PM

Author(s): Holger Lutz, Rainer Breiter, Detlef Eich, Heinrich Figgemeier, Stefan Hanna, Reinhard Oelmaier, Joachim Wendler, AIM INFRAROT-MODULE GmbH (Germany)


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Recent progress of infrared remote sensors for Chinese FY-4 Meteorological Satellite (Conference Presentation) *(Invited Paper)*

Paper 10624-11

Time: 2:20 PM - 2:50 PM

Author(s): Lei Ding, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China)


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Wide field of view visible and near infrared pushbroom airborne hyperspectral imager

Paper 10624-12

Time: 2:50 PM - 3:10 PM

Author(s): Yanan Yu, Shanghai Institute of Technical Physics (China); Yueming Wang, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China); Liyin Yuan, Shengwei Wang, Ding Zhao, Shanghai Institute of Technical Physics (China); Jianyu Wang, Shanghai Institute of Technical Physic (China)

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Coffee Break 3:10 PM - 3:40 PM

Design and test results of compact imaging spectrometer for chemical detection and identification

Paper 10624-13

Time: 3:40 PM - 4:00 PM

Author(s): Louis Moreau, François Tanguay, Sylviane Lelièvre, Gaetan P. Perron, ABB Analytical Measurement (Canada)


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Towards a compact, portable, handheld device for contactless real-time standoff detection of hazardous substances

Paper 10624-14

Time: 4:00 PM - 4:20 PM

Author(s): Christopher Carson, John Macarthur, Matthew Warden, David Stothard, Fraunhofer Ctr. for Applied Photonics (United Kingdom); Lorenz Butschek, Stefan Hugger, Jan Jarvis, Marko Haertelt, Ralf Ostendorf, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany); André Merten, Markus Schwarzenberg, Jan Grahmann, Fraunhofer-Institut für Photonische Mikrosysteme (Germany); Marcin Ratajczyk, VIGO System S.A. (Poland)


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Evaluation of space radiation effects on HgCdTe avalanche photodiode arrays for Lidar applications

Paper 10624-15

Time: 4:20 PM - 4:40 PM

Author(s): Xiaoli Sun, James B. Abshire, Jean-Marie Lauenstein, NASA Goddard Space Flight Ctr. (United States); William Sullivan, Jeff Beck, DRS Technologies, Inc. (United States); John E. Hubbs, Ball Aerospace & Technologies Corp. (United States)

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TUESDAY 17 APRIL

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Session 3: T2SL I

Tuesday 17 April 2018

8:00 AM - 10:20 AM

Location: Ballroom Level, Osceola Ballroom B


Session Chairs: [Meimei Z. Tidrow](#), U.S. Army Night Vision & Electronic Sensors Directorate (United States) ; [Lucy Zheng](#), Institute for Defense Analyses (United States) ; [Philip C. Klipstein](#), SCD Semiconductor Devices (Israel)

Very long wavelength type-II InAs/GaSb superlattice infrared detectors

Paper 10624-16

Time: 8:00 AM - 8:20 AM

Author(s): Linda Höglund, IRnova AB (Sweden); Jean-Baptiste Rodriguez, Institut d'Électronique et des Systèmes, Univ. Montpellier (France); Shagufta Naureen, Ruslan Ivanov, Carl Asplund, Rickard Marcks von Würtemberg, IRnova AB (Sweden); Remi Rossignol, Philippe Christol, Institut d'Électronique et des Systèmes, Univ. Montpellier (France); Anne Rouvié, Jeremy Brocal, Olivier Saint-Pé, Airbus Defence and Space (France); Eric M. Costard, IRnova AB (Sweden)


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Type II superlattice infrared photodetector research at Fraunhofer IAF

Paper 10624-18

Time: 8:20 AM - 8:40 AM

Author(s): Tim O. Stadelmann, Volker Daumer, Vera Gramich, Tsvetelina Hugger, Lutz Kirste, Vera Klinger, Norbert Kohn, Wolfgang Luppold, Raphael Müller, Jasmin Niemasz, Robert Rehm, Frank Rutz, Johannes Schmidt, Martin Walther, Matthias Wauro, Andreas Wörl, Fraunhofer-Institut für Angewandte Festkörperphysik (Germany)


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Strain-engineered ternary strained layer superlattice infrared detectors

Paper 10624-19

Time: 8:40 AM - 9:00 AM

Author(s): Charles J. Reyner, Gamini Ariyawansa, Josh M. Duran, Arnold M. Kiefer, John E. Scheihing, Air Force Research Lab. (United States)

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Transitioning large-diameter Type II Superlattice detector wafers to manufacturing

Paper 10624-20

Time: 9:00 AM - 9:20 AM

Author(s): Dave Forrai, L3 Space and Sensors (United States); Robert Jones, Michael Garter, Yajun Wei, Steven Allen, Laura Couch, L3 Space & Sensors Technology Ctr. (United States)


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Carrier concentration and transport in Be-doped InAsSb for infrared sensing applications

Paper 10624-21

Time: 9:20 AM - 9:40 AM

Author(s): Lilian K. Casias, The Univ. of New Mexico (United States); Christian P. Morath, Elizabeth H. Steenbergen, Preston T. Webster, Air Force Research Lab. (United States); Jin Kim, Sandia National Labs. (United States); Vincent M. Cowan, Air Force Research Lab. (United States); Ganesh Balakrishnan, Sanjay Krishna, The Univ. of New Mexico (United States)


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Vertical transport study of InAs/GaSb type-II superlattice nBp MWIR detectors using electron beam-induced current measurement

Paper 10624-22

Time: 9:40 AM - 10:00 AM

Author(s): Zahra Taghipour, The Univ. of New Mexico (United States); Elizabeth H. Steenbergen, Air Force Research Lab. (United States); Sergey I. Maximenko, U.S. Naval Research Lab. (United States); Christian P. Morath, Vincent M. Cowan, Air Force Research Lab. (United States); Sen Mathews, The Ohio State Univ. (United States); Edward H. Aifer, U.S. Naval Research Lab. (United States); Ganesh Balakrishnan, The Univ. of New Mexico (United States); Sanjay Krishna, The Ohio State Univ. (United States)


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Dual-band MWIR/LWIR focal plane arrays based on III-V strained-layer superlattices

Paper 10624-23

Time: 10:00 AM - 10:20 AM

Author(s): Alexander R. Gurga, Brett Z. Nosh, Sevag Terterian, Shuoqin Wang, Rajesh D. Rajavel, HRL Labs., LLC (United States)

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Coffee Break/Dedicated Exhibition Time 10:20 AM - 11:20 AM

**Session 4:
Keynote Session**

Tuesday 17 April 2018

11:20 AM - 11:50 AM

Location: Ballroom Level, Osceola Ballroom B


Session Chair: [Gabe F. Fulop](#), Maxtech International, Inc. (United States)

Next generation infrared imaging technologies (Keynote Presentation)

Paper 10624-24

Time: 11:20 AM - 11:50 AM

Author(s): Whitney E. Mason, DARPA (United States)

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Lunch/Exhibition Break 11:50 AM - 1:30 PM

Session 5: T2SL II

Tuesday 17 April 2018

1:30 PM - 2:20 PM

Location: Ballroom Level, Osceola Ballroom B


Session Chairs: [Meimei Z. Tidrow](#), U.S. Army Night Vision & Electronic Sensors Directorate (United States) ; [Lucy Zheng](#), Institute for Defense Analyses (United States) ; [Philip C. Klipstein](#), SCD SemiConductor Devices (Israel)

III-V infrared focal plane array development in US (Conference Presentation) (Invited Paper)

Paper 10624-25

Time: 1:30 PM - 2:00 PM

Author(s): Alicia Williams, Meimei Tidrow, U.S. Army (United States)


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Valence band features affecting carrier transport in III-V superlattice nBn detectors (Conference Presentation)

Paper 10624-26

Time: 2:00 PM - 2:20 PM

Author(s): David R. Rhiger, Edward P. Smith, Raytheon Co. (United States)

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Session 6: HgCdTe

Tuesday 17 April 2018

2:20 PM - 5:10 PM

Location: Ballroom Level, Osceola Ballroom B


Session Chair: Whitney Mason, DARPA (United States)

Dark current characterization of Au and Hg-vacancy hybrid doped p-type epitaxy long-wavelength HgCdTe infrared photodetectors

Paper 10624-27

Time: 2:20 PM - 2:40 PM

Author(s): Qing Li, Weida Hu, Chun Lin, Xiaoshuang Chen, Wei Lu, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China)


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High-performance SWIR/MWIR and MWIR/MWIR bispectral MCT detectors by AIM

Paper 10624-28

Time: 2:40 PM - 3:00 PM

Author(s): Heinrich Figgemeier, Christopher Ames, Johannes Beetz, Rainer Breiter, Detlef Eich, Stefan Hanna, Karl-Martin Mahlein, Timo Schallenberg, Alexander Sieck, Jan Wenisch, AIM INFRAROT-MODULE GmbH (Germany)

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Coffee Break 3:00 PM - 3:30 PM

Numerical simulation of passivated long-wave IR HgCdTe surfaces and their effect on detector performance

Paper 10624-29

Time: 3:30 PM - 3:50 PM

Author(s): Ilya Prigozhin, Boston Univ (United States), MIT Lincoln Lab. (United States); Andreu L. Glasmann, Enrico Bellotti, Boston Univ. (United States)

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Achievement of high image quality MCT sensors with Sofradir vertical industrial model

Paper 10624-31

Time: 3:50 PM - 4:10 PM

Author(s): Laurent Rubaldo, Pierre Guinedor, Alexandre Brunner, Vincent Destefanis, Paul Fougères, Armelle Kapferer, Diane Sam-Giao, Loic Dargent, Alexandre Kerlain, Augustin Cathignol, Valery Compain, SOFRADIR (France); François Boulard, Delphine Brellier, Olivier Gravrand, CEA-LETI (France)


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The status of MCT detector development at ASELSAN

Paper 10624-32

Time: 4:10 PM - 4:30 PM

Author(s): Suleyman Umut Eker, Melih Kaldirim, Emrah Sasmaz, ASELSAN A.S. (Turkey); Olgu Demircioglu, Middle East Technical University (Turkey); Alp Tolunguç, Burak Asici, Ayse San, Bema Barutcu, Huseyin Cuneyt Erouglu, Selcuk Ozer, ASELSAN A.S. (Turkey)


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From CdZnTe bulk growth to HgCdTe infra-red detectors: mastering the chain for high-performance and reliable imaging

Paper 10624-33

Time: 4:30 PM - 4:50 PM

Author(s): Augustin Cathignol, SOFRADIR (France); Delphine Brellier, Erik Gout, CEA-Léti (France); Paul Fougères, Marie-Christine Manzato, Cécile Roman-Tinnes, Alexandre Brunner, Yann Loreau, Stephen Giraud, Laurent Rubaldo, Sandrine Chabanet, Armelle Kapferer, Yann Reibel, Vincent Destefanis, SOFRADIR (France)

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Bulk characterization and surface analysis of epitaxy ready cadmium zinc telluride substrates for use in IRFPA manufacturing for IR imaging

Paper 10624-34

Time: 4:50 PM - 5:10 PM

Author(s): James P. Flint, Michael D. Cooper, Galaxy Compound Semiconductors, Inc. (United States); Jason Mackenzie, Francis J. Kumar, Redlen Technologies (Canada)

[Add To My Schedule](#) **Session PS1:
Posters-Tuesday**

Tuesday 17 April 2018

6:00 PM - 8:00 PM

Location: Ballroom Level, Osceola Ballroom C

All symposium attendees – You are invited to attend the evening Interactive Poster Session to view the high-quality posters and engage the authors in discussion. Enjoy light refreshments while networking with colleagues in your field. Authors may set up their posters between 10:00 am and 5:00 pm the day of their poster session. Special daytime previewing prior to the session from 10:00 am to 5:00 pm. Attendees are required to wear their conference registration badges to access the Osceola Ballroom to view the posters.


Posters that are not set up by the 5:00 pm cut-off time will be considered no-shows, and their manuscripts may not be published. Poster authors should accompany their posters from 6:00 to 8:00 pm to answer questions from attendees. All posters and other materials must be removed no later than 8:30 pm. Any posters or materials left behind at the close of the poster session will be considered unwanted and will be discarded. SPIE assumes no responsibility for posters left up after the end of each poster session.

Dark current reduction of InGaAs photodiode by low stress diffusion mask

Paper 10624-67

Time: 6:00 PM - 8:00 PM


Author(s): Young Ho Kim, Byoung Wook Lee, Sung Yong Ko, i3system, Inc. (Korea, Republic of); Chang Soo Ha, Agency for Defense Development (Korea, Republic of); Han Jung, i3system, Inc. (Korea, Republic of)

[Add To My Schedule](#) **Interface engineering in InSb crystal growth for focal plane array device performance**

Paper 10624-68

Time: 6:00 PM - 8:00 PM

Author(s): Nathan W. Gray, Andrew Prax, William B. Alexander, Jason Merrell, 5N Plus Semiconductors, LLC (United States)

[Add To My Schedule](#) **Progress towards in situ electrical characterization of 63 MeV proton-irradiation induced defects in infrared materials using deep level transient spectroscopy
(Canceled)**

Paper 10624-70

Time: 6:00 PM - 8:00 PM


Author(s):

A FEA study on thermal stress of HgCdTe infrared focal plane arrays detector

Paper 10624-71

Time: 6:00 PM - 8:00 PM


Author(s): Weiting Zhang, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China), University of Chinese Academy of Sciences (China); Zhenhua Ye, Xing Chen, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China)

[Add To My Schedule](#) **A study on ALD ZnS passivation of HgCdTe IRFPAs detectors**

Paper 10624-72

Time: 6:00 PM - 8:00 PM


Author(s): A.L. Cui, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China), Univ. of Chinese Academy of Sciences (China); Zhenhua Ye, C.H. Sun, L.F. Liu, X.N. Hu, R.J. Ding, L. He, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China)

[Add To My Schedule](#) **Recent progress on uncooled infrared sensor based on ferroelectric polymer**

Paper 10624-74

Time: 6:00 PM - 8:00 PM

Author(s): Jianlu Wang, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China)

[Add To My Schedule](#) **Implementation of SOI diode uncooled IRFPA in TEC-less and shutter-less operation**

Paper 10624-75

Time: 6:00 PM - 8:00 PM


Author(s): Daisuke Fujisawa, Yasuhiro Kosasayama, Takao Takikawa, Hisatoshi Hata, Takashi Takenaga, Tetsuya Satake, Koichi Yamashita, Daisuke Suzuki, Mitsubishi Electric Corp. (Japan)

[Add To My Schedule](#) **A low-power CMOS readout IC with on-chip column-parallel SAR ADCs for microbolometer applications**

Paper 10624-77

Time: 6:00 PM - 8:00 PM


Author(s): Atia Shafique, Ömer Ceylan, Melik Yazici, Sabanci Univ. (Turkey); Mehmet Kaynak, IHP GmbH (Germany); Yasar Gurbuz, Sabanci Univ. (Turkey)

[Add To My Schedule](#) **Improvement in NEDT characteristics of InAs/GaAs quantum dot based 320x256 focal plane array implanted with hydrogen ions**

Paper 10624-78

Time: 6:00 PM - 8:00 PM

Author(s): Sourabh Upadhyay, Debi Prasad Panda, Debabrata Das, Indian Institute of Technology Bombay (India); N.B.V. Subrahmanyam, Pramod Bhagwat, Bhabha Atomic Research Ctr. (India); Subhananda Chakrabarti, Indian Institute of Technology Bombay (India)

[Add To My Schedule](#) **WEDNESDAY 18 APRIL**[Show All Abstracts](#)**Session 7:
HOT**

Wednesday 18 April 2018

8:00 AM - 10:00 AM


Location: Ballroom Level, Osceola Ballroom B

Session Chairs: [Michael T. Eismann](#), Air Force Research Lab. (United States) ; [Antoni Rogalski](#), Wojskowa Akademia Techniczna im. Jaroslawa Dabrowskiego (Poland)**Influence of radiative recombination on performance of p-i-n HOT long wavelength infrared HgCdTe photodiodes (Invited Paper)**

Paper 10624-35

Time: 8:00 AM - 8:30 AM


Author(s): Antoni Rogalski, Małgorzata Kopytko, Krzysztof Jóźwikowski, Piotr Marcin Martyniuk, Wojskowa Akademia Techniczna im. Jaroslawa Dabrowskiego (Poland)

[Add To My Schedule](#) **HOT MWIR detectors on silicon substrates (Invited Paper)**

Paper 10624-36

Time: 8:30 AM - 9:00 AM


Author(s): Binh-Minh Nguyen, Yu Cao, Adam J. Williams, Diego E. Carrasco, James R. Jenkins, Ray Li, Terry J. De Lyon, Steven S. Bui, Brett Z. Nosh, Rajesh D. Rajavel, HRL Labs., LLC (United States)

[Add To My Schedule](#) **Antimonide e-SWIR, MWIR, and LWIR barrier infrared detector and focal plane array development**

Paper 10624-37

Time: 9:00 AM - 9:20 AM


Author(s): David Z. Ting, Alexander Soibel, Arezou Khoshakhlagh, Sam A. Keo, Sir B. Rafol, Anita Fisher, Brian J. Pepper, Edward M. Luong, Cory J. Hill, Sarath D. Gunapala, Jet Propulsion Lab. (United States)

[Add To My Schedule](#) **Potential and limitations for very-high-operating-temperature (VHOT) MWIR focal plane arrays using halogen-passivated PbSe**

Paper 10624-38

Time: 9:20 AM - 9:40 AM


Author(s): David Shelton, Justin Sigley, St. Johns Optical Systems (United States); Robert Nicholas, University of Central Florida (United States); Ronald G. Driggers, St. Johns Optical Systems (United States)

[Add To My Schedule](#) **HOT MWIR InAs/InAsSb T2SL discrete photodetector development**

Paper 10624-40

Time: 9:40 AM - 10:00 AM


Author(s): Jongwoo Kim, Henry H. Yuan, Joe Kimchi, JihFen Lei, Teledyne Judson Technologies (United States); Elizabeth Rangel, Peter Dreiske, Teledyne Imaging Sensors (United States); Amal Ikhlassi, Teledyne Scientific Co. (United States)

[Add To My Schedule](#) **Coffee Break/Dedicated Exhibition Time 10:00 AM - 11:00 AM****Session 8:
A Word from the Masters**

Wednesday 18 April 2018

11:00 AM - 11:30 AM

Location: Ballroom Level, Osceola Ballroom B

Session Chair: [Paul Norton](#), U.S. Army Night Vision & Electronic Sensors Directorate (United States) **Infrared: An Arcane Art**

Paper 10624-42

Time: 11:00 AM - 11:30 AM

Author(s): William Parrish, Seek Thermal, Inc. (United States)

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Lunch/Exhibition Break 11:30 AM - 1:30 PM

Session 9: Uncooled FPAs and Applications

Wednesday 18 April 2018

1:30 PM - 6:20 PM

Location: Ballroom Level, Osceola Ballroom B

Session Chairs: [Kevin C. Liddiard](#), Electro-optic Sensor Design (Australia) ; [Colin E. Reese](#), U.S. Army Night Vision & Electronic Sensors Directorate (United States) ; [Masafumi Kimata](#), Ritsumeikan Univ. (Japan)

Wide-angle and polarization-selective plasmonic nano-metagrating absorbers

Paper 10624-43

Time: 1:30 PM - 1:50 PM

Author(s): Shinpei Ogawa, Mitsubishi Electric Corp. (Japan); Masafumi Kimata, Ritsumeikan Univ. (Japan)

[Add To My Schedule](#) **Broadband photoresponse of graphene photodetector from visible to long-wavelength infrared wavelengths**

Paper 10624-44

Time: 1:50 PM - 2:10 PM

Author(s): Shinpei Ogawa, Masaaki Shimatani, Shoichiro Fukushima, Satoshi Okuda, Mitsubishi Electric Corp. (Japan); Yasushi Kanai, Takao Ono, Kazuhiko Matsumoto, Osaka Univ. (Japan)

[Add To My Schedule](#) **Wide-band circular polarized cross bowtie antenna in LWIR**

Paper 10624-45

Time: 2:10 PM - 2:30 PM


Author(s): Shenjie Miao, Florida Institute of Technology (United States); Yuancheng Xu, Apple Inc. (United States); Navaneeth Premkumar, Brian A. Lail, Florida Institute of Technology (United States)

[Add To My Schedule](#) **Single layer microbolometer detector pixel using ZnO material**

Paper 10624-46

Time: 2:30 PM - 2:50 PM


Author(s): M. Yusuf Tanrikulu, Cigdem Yildizak, Adana Science and Technology Univ. (Turkey); Ali K. Okyay, Okyay Technologies (Turkey); Orhan Akar, Adem Sarac, Tayfun Akin, Middle East Technical Univ. (Turkey)

[Add To My Schedule](#) **Infrared leaky-wave antenna using a uniaxial graphene metasurface**

Paper 10624-47

Time: 2:50 PM - 3:10 PM

Author(s): Navaneeth Premkumar, Michael F. Finch, Brian A. Lail, Florida Institute of Technology (United States)

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Coffee Break 3:10 PM - 3:40 PM

High-performance uncooled digital 17 μm QVGA-IRFPA-using microbolometer based on amorphous silicon with massively parallel Sigma-Delta-ADC readout

Paper 10624-48

Time: 3:40 PM - 4:00 PM


Author(s): Dirk Weiler, Frank Hochschulz, Claudia Busch, Matthias Stein, Marvin D. Michel, Daniel Würfel, Renee Lerch, Martin Petermann, Thomas Geruschke, Sebastian Blaeser, Sascha Weyers, Fraunhofer-Institut für Mikroelektronische Schaltungen und Systeme (Germany); Holger Vogt, University of Duisburg-Essen (Germany)

[Add To My Schedule](#) **Physical device modeling of Si/Si_{1-x}Ge_x multi-quantum well detector to optimize Ge content for higher thermal sensitivity**

Paper 10624-49



Time: 4:00 PM - 4:20 PM

Author(s): Atia Shafique, Shahbaz Abbasi, Ömer Ceylan, Sabanci Univ. (Turkey); Canan Baristiran Kaynak, Mehmet Kaynak, IHP GmbH (Germany); Yasar Gurbuz, Sabanci Univ. (Turkey)

[Add To My Schedule](#) **Frequency-selective metasurface integrated uncooled microbolometers**

Paper 10624-50

Time: 4:20 PM - 4:40 PM

Author(s): Mahmoud Almasri, Amjed A. Abdullah, Univ. of Missouri (United States); Tao Liu, Missouri Univ. of Science and Technology (United States); Akshai Kumar Reddy, Univ. of Missouri (United States); Chuang Qu, Missouri Univ. of Science and Technology (United States); Weinan Zhang, Omar Alkorjia, Ibrahim Jasim, Cameron Warder, Shayne Wadle, Hawa Benshatwan, Univ. of Missouri (United States); Edward Kinzel, Missouri Univ. of Science and Technology (United States) [Add To My Schedule](#) 

Implications of 1/f noise in uncooled thermal imaging

Paper 10624-51

Time: 4:40 PM - 5:00 PM

Author(s): Charles M. Hanson, SenseIR Solutions, LLC (United States)

[Add To My Schedule](#) **Small uncooled bolometers with a broad spectral response**

Paper 10624-52

Time: 5:00 PM - 5:20 PM


Author(s): Francis Généreux, Bruno Tremblay, David Gay, Sébastien Deshaies, Martin Briand, Michel Poirier, Jean-Sol Caron, Jacques-Edmond Paultre, David Béland, Francis Provencal, Daniel Desbiens, Yan Desroches, Christine Alain, INO (Canada)

[Add To My Schedule](#) **Pixel resistance optimization of a Si_{0.5}Ge_{0.5}/Si MQWs thermistor based on in-situ B doping for microbolometer applications**

Paper 10624-53

Time: 5:20 PM - 5:40 PM


Author(s): Canan Baristiran Kaynak, Yuji Yamamoto, Alexander Goritz, Falk Korndorfer, Peter Zaumseil, Philipp Kulse, Katrin Schulz, Matthias Wietstruck, Ioan Costina, IHP GmbH (Germany); Atia Shafique, Yasar Gurbuz, Sabanci Univ. (Turkey); Mehmet Kaynak, IHP GmbH (Germany), Sabanci Univ. (Turkey)

[Add To My Schedule](#) **Development of titanium oxide based 12µm pixel pitch uncooled infrared detector**

Paper 10624-54

Time: 5:40 PM - 6:00 PM


Author(s): Yongjin Jeong, Sang Gu Kang, Myung-Ho Kwon, Han Jung, i3system, Inc. (Korea, Republic of)

[Add To My Schedule](#) **Smart digital fusion between visible color and infrared sensors**

Paper 10624-57

Time: 6:00 PM - 6:20 PM

Author(s): Emmanuel Soulié, David Oriot, Damien Diaz, Benjamin Fradin de la Renaudière, Bertin Technologies (France)

[Add To My Schedule](#) **THURSDAY 19 APRIL**[Show All Abstracts](#)**Session 10:
Smart Processing**

Thursday 19 April 2018

8:00 AM - 10:00 AM


Location: Ballroom Level, Osceola Ballroom B

Session Chairs: [John T. Caulfield](#), Cyan Systems, Inc. (United States) ; [Paul L. McCarley](#), Air Force Research Lab. (United States)**Spatial and spectral filtering on focal plane arrays**

Paper 10624-55

Time: 8:00 AM - 8:20 AM


Author(s): Yoram Karni, Michal Nitzani, Eli Jacobsohn, Ilana Grimberg, Sivan Gliksman, Avihoo Giladi, Leonid Krasovitski, Eran Avnon, Itay Hirsh, Leonid Bikov, Inna Lukomsky, Lior Shkedy, Rami Fraenkel, Itay Shtrichman, SCD Semiconductor Devices (Israel); Pilar Gonzalez, Andy Lambrechts, Imec (Belgium)

[Add To My Schedule](#) **Small infrared target detection by data-driven proposal and deep learning-based classification**

Paper 10624-58

Time: 8:40 AM - 9:00 AM

Author(s): JunHwan Ryu, Sungho Kim, Yeungnam Univ. (Korea, Republic of)

[Add To My Schedule](#) **A directional-progressive search method for infrared small target detection
(Canceled)**

Paper 10624-76

Time: 9:00 AM - 9:20 AM


Author(s):

Thermal image improvement methods and their real time implementations on FPGAs

Paper 10624-59

Time: 9:20 AM - 9:40 AM

Author(s): Demet Cicek Turunc, Ismail Ozsarac, Omer Gunay, ASELSAN A.S. (Turkey)


[Add To My Schedule](#) **A 1024x512 ROIC with 30µm pixel pitch and 250Hz high frame rate for shortwave infrared detector**

Paper 10624-60

Time: 9:40 AM - 10:00 AM

Author(s): ZhangCheng Huang, Songlei Huang, Xuquan Wang, Yu Chen, Jiaxiang Fang, Shanghai Institute of Technical Physics of the Chinese Academy of Sciences (China)



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Coffee Break 10:00 AM - 10:30 AM

**Session 11:
QWIP**

Thursday 19 April 2018

10:30 AM - 11:10 AM

Location: Ballroom Level, Osceola Ballroom B


Session Chair: [Eric M. Costard](#), IRnova AB (Sweden)

Small pitch resonator-QWIP detectors and arrays

Paper 10624-61

Time: 10:30 AM - 10:50 AM

Author(s): Kwong-Kit Choi, U.S. Army Research Lab. (United States); Steven Allen, L3 Cincinnati Electronics (United States); Jason Sun, U.S. Army Research Lab. (United States); Darrel Endres, L3 Cincinnati Electronics (United States); Kimberley Olver, Richard Fu, U.S. Army Research Lab. (United States)


[Add To My Schedule](#) 

High-resolution QWIP and T2SL IDDCAs by IRnova

Paper 10624-62

Time: 10:50 AM - 11:10 AM

Author(s): Waldemar Diel, Maxime Pozzi, Dean Evans, Jörgen Alverbro, Shagufta Naureen, Linda Höglund, M. Fawakhiri, IRnova AB (Sweden); Sooho Bae, i3system, Inc. (Korea, Republic of); Eric M. Costard, IRnova AB (Sweden)

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**Session 12:
Q-Dots**

Thursday 19 April 2018

11:10 AM - 12:30 PM

Location: Ballroom Level, Osceola Ballroom B


Session Chair: [John Lester Miller](#), Cascade Electro-Optics, LLC (United States)

Low-cost II-VI colloidal quantum dots for infrared imaging and detection (Conference Presentation)

Paper 10624-63

Time: 11:10 AM - 11:30 AM

Author(s): Richard E. Pimpinella, Brendan W. Benapfl, Thomas Miynarski, Christoph Grein, Episensors, Inc. (United States)


[Add To My Schedule](#) 

Short wave infrared photodetector using p-i-p quantum dots (InAs/GaAs) for high temperature operation

Paper 10624-64

Time: 11:30 AM - 11:50 AM

Author(s): Vidya P. Deviprasad, Hemant Ghadi, Debabrata Das, Debiprasad Panda, Harshal Rawool, Subhananda Chakrabarti, Indian Institute of Technology Bombay (India)


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Modelling of dark current and noise dependence on capping thickness in quantum dots based infrared photodetectors

Paper 10624-65

Time: 11:50 AM - 12:10 PM

Author(s): Vidya P. Deviprasad, Hemant Ghadi, Swetapadma Sahoo, Subhananda Chakrabarti, Indian Institute of Technology Bombay (India)


[Add To My Schedule](#) 

Heterogeneously coupled InAs Stranski-Krastanov and submonolayer quantum dot infrared photodetector for next-generation IR imaging

Paper 10624-66

Time: 12:10 PM - 12:30 PM

Author(s): Debabrata Das, Debiprasad Panda, Jhuma Saha, Vinayak Chavan, Subhananda Chakrabarti, Indian Institute of Technology Bombay (India)

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Conference Ends

Thursday 19 April 2018

12:30 PM - 12:30 PM

Location: Ballroom Level, Osceola Ballroom B



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