

Active Photonic Platforms X

Sunday - Thursday 19 - 23 August 2018

Conference Sessions At A Glance

SHOW | HIDE

- 1: Novel Nonlinear Photonic Phenomena I
- 2: Novel Nonlinear Photonic Phenomena II
- 3: New Platforms for Harnessing and Probing Thermal Effects
- 4: Phase-Change Materials for Tuneable Photonics
Sunday Evening Plenary Session
Nanoscience + Engineering Plenary Session
- 5: Photonics with Atomically Thin Materials I
- 6: Photonics with Atomically Thin Materials II
- 7: Topological and Non-Reciprocal Photonics I
- 8: Twisted Light: Orbital Angular Momentum and Vortex States
- 9: Topological Photonics in Non-Hermitian and Non-Linear Systems I
- 10: Topological and Non-Reciprocal Photonics II
- 11: Topological Photonics in Non-Hermitian and Non-Linear Systems II
- 12: Advanced Tunable and Dynamic Platforms with Structured Materials
- 13: Harnessing Light-Matter Interaction I
- 14: Photonic Memories and Neuromorphic Computing
- 15: Non-Hermitian Photonics and PT-Symmetric Systems
Posters-Wednesday
- 16: Addressing Modeling Challenges in Emerging and Active Photonic Systems
- 17: Enhancing and Measuring Optical Forces
- 18: New Materials for Photonics: From "Nature's Lab" to Advanced Fabrication
- 19: Harnessing Light-Matter Interaction II

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

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[Stavroula Foteinopoulou](#), The Univ. of New Mexico (United States)

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SUNDAY 19 AUGUST

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Opening Remarks

Sunday 19 August 2018
8:10 AM - 8:20 AM
Location: Conv. Ctr. Room 33B

Session Chair: [Ganapathi S. Subramania](#), Sandia National Labs. (United States)


Session 1: Novel Nonlinear Photonic Phenomena I

Sunday 19 August 2018
8:20 AM - 10:05 AM
Location: Conv. Ctr. Room 33B

Session Chair: Michael Scalora, U.S. Army Aviation and Missile Command (United States)


Time-dependent nonlinear metasurfaces (Conference Presentation) (Keynote Presentation)

Paper 10721-1
Time: 8:20 AM - 9:00 AM
Author(s): Gennady B. Shvets, Cornell Univ. (United States)

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Giant nonlinear response at a plasmonic nanofocus drives efficient four-wave mixing over a micron (Conference Presentation) (Invited Paper)

Paper 10721-2
Time: 9:00 AM - 9:25 AM
Author(s): Michael P. Nielsen, Paul Dichtl, Xingyuan Shi, Stefan A. Maier, Rupert F. Oulton, Imperial College London (United Kingdom)

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Recent advances in linear and nonlinear all-dielectric metamaterials (Keynote Presentation)

Paper 10721-3
Time: 9:25 AM - 10:05 AM
Author(s): Igal Brener, Sandia National Labs. (United States)

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Coffee Break 10:05 AM - 10:35 AM


Session 2: Novel Nonlinear Photonic Phenomena II

Sunday 19 August 2018
10:35 AM - 12:25 PM
Location: Conv. Ctr. Room 33B

Session Chair: [Igal Brener](#), Sandia National Labs. (United States)


Catching light with metamaterials (Conference Presentation) (Keynote Presentation)

Paper 10721-4
Time: 10:35 AM - 11:15 AM
Author(s): Vladimir M. Shalaev, Purdue Univ. (United States)

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Epsilon-near-zero plasmonic waveguides to enhance nonlinear coherent light-matter interactions

Paper 10721-5
Time: 11:15 AM - 11:30 AM
Author(s): Ying Li, Christos Argyropoulos, Univ. of Nebraska-Lincoln (United States)

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The role of a discontinuous free-electron density in harmonic generation from metal surfaces and metal/oxide boundaries (Conference Presentation) (Invited Paper)

Paper 10721-6
Time: 11:30 AM - 11:55 AM
Author(s): Michael Scalora, U.S. Army (United States); Crina Cojocaru, Jose Trull, Univ. Politècnica de Catalunya (Spain); Maria Vincenti, Univ. degli Studi di Brescia (Italy); Domenico de Ceglia, Univ. degli Studi di Padova (Italy); Mark Bloemer, U.S. Army (United States); Neset Akozbek, The AEGIS Technologies Group, Inc. (United States); Joseph Haus, Univ. of Dayton (United States); Ramon Vilaseca, Univ. Politècnica de Catalunya (Spain); Costantino De Angelis, Univ. degli Studi di Brescia (Italy)

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Realization of multi-dimensional synthetic space and state measurement on a spectral lattice (Conference Presentation)


Paper 10721-7
Time: 11:55 AM - 12:10 PM
Author(s): Kai Wang, James G. Titchener, The Australian National Univ. (Australia); Bryn A. Bell, The Univ. of Sydney (Australia); Alexander S. Solntsev, The Univ. of Technology, Sydney (Australia), The Australian National Univ. (Australia); Dragomir N. Neshev, The Australian National Univ. (Australia); Benjamin J. Eggleton, The Univ. of Sydney (Australia); Andrey A. Sukhorukov, The Australian National Univ. (Australia)

[Add To My Schedule](#) **Double blind ultrafast pulse characterisation by mixed frequency generation in gold antennas (Conference Presentation)**

Paper 10721-8

Time: 12:10 PM - 12:25 PM

Author(s): Sylvain D. Gennaro, Yi Li, Stefan A. Maier, Rupert F. Oulton, Imperial College London (United Kingdom)

[Add To My Schedule](#) **Lunch Break 12:25 PM - 1:45 PM****Session 3:
New Platforms for Harnessing and Probing Thermal Effects**

Sunday 19 August 2018

1:45 PM - 3:20 PM


Location: Conv. Ctr. Room 33B

Session Chair: [Thomas Taubner](#), RWTH Aachen Univ. (Germany)**Approaches towards actively tunable mid- to far-infrared nanophotonics (Conference Presentation) (Invited Paper)**

Paper 10721-9

Time: 1:45 PM - 2:10 PM


Author(s): Joshua D. Caldwell, Vanderbilt Univ. (United States); Adam Dunkelberger, Chase T. Ellis, U.S. Naval Research Lab. (United States); Evan Runnerstrom, Kyle Kelley, The Pennsylvania State Univ. (United States); Thomas G. Folland, Vanderbilt Univ. (United States); Virginia Wheeler, U.S. Naval Research Lab. (United States); J. Ryan Nolen, Vanderbilt Univ. (United States); Joseph Tischler, Jeffrey C. Owrutsky, Igor Vurgafman, Daniel Ratchford, Chul Soo Kim, Mijin Kim, U.S. Naval Research Lab. (United States); Jon-Paul Maria, The Pennsylvania State Univ. (United States)

[Add To My Schedule](#) **Ultrathin phonon-polariton near-perfect absorber**

Paper 10721-10

Time: 2:10 PM - 2:25 PM

Author(s): Stavroula Foteinopoulou, The Univ. of New Mexico (United States); Ganga Chinna Rao Devarapu, Cork Institute of Technology (Ireland)

[Add To My Schedule](#) **Using phonon-polaritonic nanoantennas for controlling infrared radiation at the nanoscale (Conference Presentation) (Invited Paper)**

Paper 10721-11

Time: 2:25 PM - 2:50 PM


Author(s): Dmitry N. Chigrin, RWTH Aachen Univ. (Germany)

[Add To My Schedule](#) **Mapping temperature distribution of optically pumped gap plasmon structure using thermoreflectance imaging (Conference Presentation)**

Paper 10721-12

Time: 2:50 PM - 3:05 PM


Author(s): Di Wang, Kerry Maize, Yee Rui Koh, Purdue Univ. (United States); Maowen Song, Purdue Univ. (United States), Chongqing Univ. (China); Alexandra Boltasseva, Purdue Univ. (United States), Technical Univ. of Denmark (Denmark); Vladimir M. Shalaev, Ali Shakouri, Alexander V. Kildishev, Purdue Univ. (United States)

[Add To My Schedule](#) **Optical thermal management and real - time molecular sensing with hybrid nanocavity (Conference Presentation)**

Paper 10721-13

Time: 3:05 PM - 3:20 PM

Author(s): Dmitry Zuev, Valentin Milichko, ITMO Univ. (Russian Federation); Denis Baranov, Moscow Institute of Physics and Technology (Russian Federation), Chalmers Univ. of Technology (Sweden); George Zograf, Katerina Volodina, ITMO Univ. (Russian Federation); Andrey Krasilin, ITMO Univ. (Russian Federation), Ioffe Institute (Russian Federation); Ivan Mukhin, ITMO Univ. (Russian Federation), St. Petersburg Academic Univ. (Russian Federation); Pavel Dmitriev, Vladimir Vinogradov, Sergey Makarov, Pavel Belov, ITMO Univ. (Russian Federation)

[Add To My Schedule](#) **Coffee Break 3:20 PM - 3:50 PM****Session 4:
Phase-Change Materials for Tuneable Photonics**

Sunday 19 August 2018

3:50 PM - 5:45 PM

Location: Conv. Ctr. Room 33B


Session Chair: Simeon Bogdanov, Purdue Univ. (United States)

Local addressing and individual tuning of infrared nanophotonic structures enabled by phase-change materials (Invited Paper)

Paper 10721-14

Time: 3:50 PM - 4:15 PM


Author(s): Thomas Taubner, RWTH Aachen Univ. (Germany)

[Add To My Schedule](#) **Thermal-emission engineering using phase-transition materials** *(Invited Paper)*

Paper 10721-15

Time: 4:15 PM - 4:40 PM


Author(s): Mikhail A. Kats, Univ. of Wisconsin-Madison (United States)

[Add To My Schedule](#) **Dynamically tunable reflective color filters using germanium telluride**

Paper 10721-16

Time: 4:40 PM - 4:55 PM


Author(s): Mohsen Jafari, L. Jay Guo, Mina Rais-Zadeh, Univ. of Michigan (United States)

[Add To My Schedule](#) **Using phase-change materials to switch the direction of reflectionless light propagation in non-PT-symmetric structures** *(Invited Paper)*

Paper 10721-17

Time: 4:55 PM - 5:20 PM


Author(s): Georgios Veronis, Louisiana State Univ. (United States); Yin Huang, Central South Univ. (China); Yuecheng Shen, Caltech (United States); Changjun Min, Shenzhen Univ. (China)

[Add To My Schedule](#) **Wide band gap phase change material tuned photonics** *(Invited Paper)*

Paper 10721-18

Time: 5:20 PM - 5:45 PM

Author(s): Robert Simpson, Li Liu, Yun Meng, Weiling Dong, Singapore Univ. of Technology & Design (Singapore)

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Session Plen: Sunday Evening Plenary Session

Sunday 19 August 2018

6:00 PM - 7:05 PM


Location: Conv. Ctr. Ballroom 20A

6:00 to 6:05 pm: **Welcome and opening remarks**6:05 to 6:35 pm: **Attosecond pulses generated in gases and solids**, Paul B. Corkum, Univ. of Ottawa and National Research Council of Canada (Canada)6:35 to 7:05 pm: **Metasurface flat optics: unifying semiconductor manufacturing and lens making**, Federico Capasso, John A. Paulson School of Engineering and Applied Sciences, Harvard Univ. (United States)**Attosecond pulses generated in gases and solids (Conference Presentation)** *(Plenary Presentation)*

Paper 10753-201

Time: 6:05 PM - 6:35 PM


Author(s): Paul B. Corkum, Univ. of Ottawa (Canada)

[Add To My Schedule](#) **Metasurface flat optics: Unifying semiconductor manufacturing and lens making (Conference Presentation)** *(Plenary Presentation)*

Paper 10719-202

Time: 6:35 PM - 7:05 PM

Author(s): Federico Capasso, Harvard John A. Paulson School of Engineering and Applied Sciences (United States)

[Add To My Schedule](#) **MONDAY 20 AUGUST**[Show All Abstracts](#)

Session Plen: Nanoscience + Engineering Plenary Session

Monday 20 August 2018

8:30 AM - 12:00 PM


Location: Conv. Ctr. Ballroom 20A

Session Chairs: **Halina Rubinsztein-Dunlop**, The Univ. of Queensland (Australia) and **Mark L. Brongersma**, Geballe Lab. for Advanced Materials (GLAM), Stanford Univ. (USA)**Plasmonic nanostructures for molecular sensing and actuation (Conference Presentation)** *(Plenary Presentation)*

Paper 10722-500

Time: 8:30 AM - 9:15 AM

Author(s): Mikael Käll, Chalmers Univ. of Technology (Sweden)


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Rapidly time-variant metadevices for linear frequency conversion (Conference Presentation) (Plenary Presentation)

Paper 10719-500

Time: 9:15 AM - 10:00 AM


Author(s): Bumki Min, KAIST (Korea, Republic of)

[Add To My Schedule](#) **Coffee Break 10:00 AM - 10:30 AM****Structured light on the nanoscale (Conference Presentation) (Plenary Presentation)**

Paper 10730-500

Time: 10:30 AM - 11:15 AM


Author(s): Natalia M. Litchinitser, Univ. at Buffalo (United States)

[Add To My Schedule](#) **Wave control with "time materials" (Conference Presentation) (Plenary Presentation)**

Paper 10719-501

Time: 11:15 AM - 12:00 PM

Author(s): Mathias Fink, Institut Langevin Ondes et Images (France)

[Add To My Schedule](#) **Lunch Break 12:00 PM - 1:15 PM****Session 5:
Photonics with Atomically Thin Materials I**

Monday 20 August 2018

1:15 PM - 3:15 PM

Location: Conv. Ctr. Room 33B


Session Chair: Joshua D. Caldwell, Vanderbilt Univ. (United States)

Ballistic surface plasmons in high mobility Dirac liquid of graphene (Keynote Presentation)

Paper 10721-19

Time: 1:15 PM - 1:55 PM


Author(s): Dmitri Basov, Columbia Univ. (United States)

[Add To My Schedule](#) **Lateral heterostructures in two-dimensional transition metal dichalcogenides for optoelectronic applications (Conference Presentation) (Invited Paper)**

Paper 10721-20

Time: 1:55 PM - 2:20 PM


Author(s): Hossein Taghinejad, Ali A. Eftekhar, Ali Adibi, Georgia Institute of Technology (United States)

[Add To My Schedule](#) **Analytical modeling of graphene plasmons (Conference Presentation)**

Paper 10721-21

Time: 2:20 PM - 2:35 PM


Author(s): Renwen Yu, Joel Cox, José Ramón Martínez Saavedra, Javier García de Abajo, ICFO - Institut de Ciències Fotòniques (Spain)

[Add To My Schedule](#) **Current-controlled light scattering and asymmetric plasmon propagation in graphene**

Paper 10721-22

Time: 2:35 PM - 2:50 PM


Author(s): Tobias Wenger, Giovanni Viola, Jari Kinaret, Mikael Fogelström, Philippe Tassin, Chalmers Univ. of Technology (Sweden)

[Add To My Schedule](#) **Controlling plasmon propagation in 2D materials (Invited Paper)**

Paper 10721-23

Time: 2:50 PM - 3:15 PM

Author(s): Tony Low, Andrei M. Nemilentsau, Univ. of Minnesota, Twin Cities (United States)

[Add To My Schedule](#) **Coffee Break 3:15 PM - 3:45 PM****Session 6:
Photonics with Atomically Thin Materials II**

Monday 20 August 2018

3:45 PM - 5:40 PM

Location: Conv. Ctr. Room 33B


Session Chair: [Dmitry N. Chigrin](#), RWTH Aachen Univ. (Germany)

MXenes for nanophotonic and metamaterial devices (Conference Presentation) (Keynote Presentation)

Paper 10721-24

Time: 3:45 PM - 4:25 PM

Author(s): Krishnakali Chaudhuri, Zhuoxian Wang, Purdue Univ. (United States); Mohamed Alhabeab, Drexel Univ. (United States); Xiangeng Meng, Shaimaa I. Azzam, Alexander V. Kildishev, Young L. Kim, Vladimir M. Shalaev, Purdue Univ. (United States); Yury Gogotsi, Drexel Univ. (United States); Alexandra Boltasseva, Purdue Univ. (United States)


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Electrical control of single quantum emitters in atomically thin materials (Invited Paper)

Paper 10721-25

Time: 4:25 PM - 4:50 PM

Author(s): Ajit Srivastava, Xin Lu, Xiaotong Chen, Sudipta Dubey, Emory Univ. (United States)


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Fano resonances in ultrathin photonic crystals and dynamic tuning via monolayer trions (Invited Paper)

Paper 10721-26

Time: 4:50 PM - 5:15 PM

Author(s): Ertugrul Cubukcu, Xingwang Zhang, Univ. of California, San Diego (United States)


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Plasmonics meet 2D materials: enhanced light-matter interactions in the flatland (Conference Presentation) (Invited Paper)

Paper 10721-27

Time: 5:15 PM - 5:40 PM

Author(s): Koray Aydin, Northwestern Univ. (United States)

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TUESDAY 21 AUGUST

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Session 7: Topological and Non-Reciprocal Photonics I

Tuesday 21 August 2018

8:25 AM - 10:20 AM

Location: Conv. Ctr. Room 33B


Session Chair: Stephen Hughes, Queen's Univ. (Canada)

Non-reciprocal photonics (Conference Presentation) (Invited Paper)

Paper 10721-29

Time: 8:25 AM - 8:50 AM

Author(s): Andrea Alù, The City Univ. of New York (United States); Dimitrios Sounas, Sander A. Mann, The Univ. of Texas at Austin (United States)


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Non-reciprocity and broken symmetry in photonics: implications for materials (Conference Presentation) (Keynote Presentation)

Paper 10721-30

Time: 8:50 AM - 9:30 AM

Author(s): Avadh Saxena, Los Alamos National Lab. (United States)


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Broadband nonreciprocal hyperbolic regimes for electromagnetic waves in magnonic and plasmonic metamaterials (Conference Presentation) (Invited Paper)

Paper 10721-31

Time: 9:30 AM - 9:55 AM

Author(s): Aristi Christofi, Ben Hopkins, The City College of New York (United States); Andrea Alù, The City Univ. of New York (United States); Alexander B. Khanikaev, The City College of New York (United States)


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Chiral domain-boundary magnetoplasmons: magnetically cast topological edge excitations in edgeless electron gas (Conference Presentation) (Invited Paper)

Paper 10721-32

Time: 9:55 AM - 10:20 AM

Author(s): Dafei Jin, Argonne National Lab. (United States); Yang Xia, Univ. of California, Berkeley (United States); Thomas Christensen, Massachusetts Institute of Technology (United States); Siqi Wang, Kingyan Fong, Univ. of California, Berkeley (United States); Matthew Freeman, National High Magnetic Field Lab. (United States); Geoffrey C. Gardner, Saeed Fallahi, Purdue Univ. (United States); Qing Hu, Massachusetts Institute of Technology (United States); Yuan Wang, Univ. of California, Berkeley (United States); Lloyd Engel, National High Magnetic Field Lab. (United States); Michael J. Manfra, Purdue Univ. (United States); Nicholas X. Fang, Massachusetts Institute of Technology (United States); Xiang Zhang, Univ. of California, Berkeley (United States)

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Coffee Break 10:20 AM - 10:50 AM


Session 8: Twisted Light: Orbital Angular Momentum and Vortex States

Tuesday 21 August 2018
10:50 AM - 12:35 PM
Location: Conv. Ctr. Room 33B

Session Chair: [Marin Soljacic](#), Massachusetts Institute of Technology (United States)


Symmetry principles for engaging the orbital angular momentum of structured light

Paper 10721-33
Time: 10:50 AM - 11:30 AM
Author(s): David L. Andrews, Univ. of East Anglia (United Kingdom)

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Devices for the creation and detection of vector states based on optical angular momentum (Conference Presentation) (Invited Paper)

Paper 10721-34
Time: 11:30 AM - 11:55 AM
Author(s): Andrew Forbes, Adam Valles, Univ. of the Witwatersrand, Johannesburg (South Africa)

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Experimental observation of a polarization vortex at a bound state in the continuum (Conference Presentation)

Paper 10721-35
Time: 11:55 AM - 12:10 PM
Author(s): Hugo Doeleman, AMOLF (Netherlands), Univ. van Amsterdam (Netherlands); Francesco Monticone, Cornell Univ. (United States); Wouter den Hollander, AMOLF (Netherlands); Andrea Alù, The Univ. of Texas at Austin (United States); Femius Koenderink, AMOLF (Netherlands)

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Plasmonic nanoantennas for twisted light (Conference Presentation) (Invited Paper)

Paper 10721-36
Time: 12:10 PM - 12:35 PM
Author(s): Ortwin Hess, Imperial College London (United Kingdom)

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Exhibition/Lunch Break 12:35 PM - 2:05 PM


Session 9: Topological Photonics in Non-Hermitian and Non-Linear Systems I

Tuesday 21 August 2018
2:05 PM - 3:25 PM
Location: Conv. Ctr. Room 33B

Session Chair: Avadh B. Saxena, Los Alamos National Lab. (United States)


Topological and non-Hermitian effects in photonic structures (Conference Presentation) (Keynote Presentation)

Paper 10721-37
Time: 2:05 PM - 2:45 PM
Author(s): Shanhui Fan, Stanford Univ. (United States)

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Topological phenomena in non-Hermitian photonics (Invited Paper)

Paper 10721-38
Time: 2:45 PM - 3:10 PM
Author(s): Mercedeh Khajavikhan, Demetrios N. Christodoulides, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States); Mordechai Segev, Technion-Israel Institute of Technology (Israel); Midya Parto, CREOL, The College of Optics and Photonics, Univ. of Central Florida (United States)

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PT-symmetric interface states based on synthetic 4D topological space (Conference Presentation)

Paper 10721-39
Time: 3:10 PM - 3:25 PM
Author(s): Qiang Wang, Nanjing Univ. (China); Kun Ding, Hong Kong Univ. of Science and Technology (Hong Kong, China); Hui Liu, Shining Zhu, Nanjing Univ. (China); Che Ting Chan, Hong Kong Univ. of Science and Technology (Hong Kong, China)

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Coffee Break 3:25 PM - 3:55 PM

Session 10: Topological and Non-Reciprocal Photonics II


Tuesday 21 August 2018
3:55 PM - 5:40 PM
Location: Conv. Ctr. Room 33B

Session Chair: [Sander A. Mann](#), The Univ. of Texas at Austin (United States)

Some recent nano-photonics results (*Keynote Presentation*)

Paper 10721-40
Time: 3:55 PM - 4:35 PM
Author(s): Marin Soljacic, Massachusetts Institute of Technology (United States)
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Photonic topological structures at optical frequencies (*Invited Paper*)

Paper 10721-41
Time: 4:35 PM - 5:00 PM
Author(s): Ganapathi S. Subramania, Sandia National Labs. (United States)
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Non-Abelian gauge field optics
(**Canceled**)

Paper 10721-42
Time: 5:00 PM - 5:15 PM
Author(s):

Valley-dependent vortex generation and Landau-Zener-Bloch oscillations in photonic graphene (*Invited Paper*)

Paper 10721-43
Time: 5:15 PM - 5:40 PM
Author(s): Zhigang Chen, Nankai Univ. (China), San Francisco State Univ. (United States)
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WEDNESDAY 22 AUGUST


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Session 11: Topological Photonics in Non-Hermitian and Non-Linear Systems II


Wednesday 22 August 2018
8:00 AM - 9:05 AM
Location: Conv. Ctr. Room 33B

Session Chair: [Alexander B. Khanikaev](#), The City College of New York (United States)

Progress on topological light sources (*Invited Paper*)

Paper 10721-44
Time: 8:00 AM - 8:25 AM
Author(s): Boubacar Kanté, Univ. of California, San Diego (United States)
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Non-reciprocal lasing action in topological cavities of arbitrary geometries (**Conference Presentation**)

Paper 10721-45
Time: 8:25 AM - 8:40 AM
Author(s): Babak Bahari, Abdoulaye Ndao, Felipe Vallini, Abdelkrim El Amili, Yashaiah Fainman, Boubacar Kanté, Univ. of California, San Diego (United States)
[Add To My Schedule](#) 

Nonreciprocal third harmonic generation from topological photon states (*Invited Paper*)


(**Canceled**)
Paper 10721-46
Time: 8:40 AM - 9:05 AM
Author(s):

Session 12: Advanced Tunable and Dynamic Platforms with Structured Materials

Wednesday 22 August 2018
9:05 AM - 10:30 AM
Location: Conv. Ctr. Room 33B

Session Chair: [Philippe Tassin](#), Chalmers Univ. of Technology (Sweden)

Active and nonlinear plasmonics facilitated by field effect and carrier transport (**Conference Presentation**) (*Invited Paper*)


Paper 10721-47
Time: 9:05 AM - 9:30 AM
Author(s): Wenshan Cai, Georgia Institute of Technology (United States)
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Reservoir coupling electro-optic modulator on silicon (Conference Presentation)

Paper 10721-48

Time: 9:30 AM - 9:45 AM

Author(s): Mohammad H. Tahersima, Volker J. Sorger, The George Washington Univ. (United States)

[Add To My Schedule](#) **Reconfigurable beam steering metasurface at telecommunication wavelengths (Conference Presentation)**

Paper 10721-49

Time: 9:45 AM - 10:00 AM


Author(s): Ghazaleh Kafaie Shirmanesh, Ruzan Sokhoyan, Pin Chieh Wu, Harry A. Atwater, Caltech (United States)

[Add To My Schedule](#) **Voltage tuning of reflectance from a strongly coupled metasurface-semiconductor hybrid structure (Conference Presentation)**

Paper 10721-50

Time: 10:00 AM - 10:15 AM


Author(s): Raktim Sarma, Salvatore Campione, Michael Goldflam, Joshua Shank, Sean Smith, Sandia National Labs. (United States); Jinhyun Noh, Peide Ye, Purdue Univ. (United States); Michael Sinclair, Ganapathi S. Subramania, Isaac Ruiz, Stephen Howell, Joel Wendt, Igal Brener, Sandia National Labs. (United States)

[Add To My Schedule](#) **Ultrafast all-optical switching in a continuous layer gap plasmon metasurface (Conference Presentation)**

Paper 10721-51

Time: 10:15 AM - 10:30 AM

Author(s): Soham Saha, Aweek Dutta, Clayton DeVault, Vladimir M. Shalaev, Alexandra Boltasseva, Purdue Univ. (United States)

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Coffee Break 10:30 AM - 10:55 AM

**Session 13:
Harnessing Light-Matter Interaction I**

Wednesday 22 August 2018

10:55 AM - 12:30 PM

Location: Conv. Ctr. Room 33B


Session Chair: [Alexander Quandt](#), Univ. of the Witwatersrand, Johannesburg (South Africa)

Efficient modeling techniques in nanophotonics

Paper 10721-52

Time: 10:55 AM - 11:35 AM


Author(s): Mohsen Dezfouli, Juan Vasco, Stephen Hughes, Queen's Univ. (Canada)

[Add To My Schedule](#) **High-Q plasmonic resonances in hybrid nanophotonic structures (Conference Presentation) (Invited Paper)**

Paper 10721-53

Time: 11:35 AM - 12:00 PM


Author(s): Femius Koenderink, AMOLF (Netherlands)

[Add To My Schedule](#) **Sum rules and power bandwidth limits to near-field optical response (Conference Presentation)**

Paper 10721-54

Time: 12:00 PM - 12:15 PM


Author(s): Hyunki Shim, Yale Univ. (United States); Lingling Fan, Yale Univ. (United States), Nanjing Univ. (China); Steven G. Johnson, Massachusetts Institute of Technology (United States); Owen D. Miller, Yale Univ. (United States)

[Add To My Schedule](#) **Experimental demonstration of Purcell effect in silicon Mie-resonators with embedded Ge(Si) quantum dots (Conference Presentation)**

Paper 10721-55

Time: 12:15 PM - 12:30 PM

Author(s): Viktoriya Rutckaia, Joerg Schilling, Vadim Talalaev, SiLi-Nano (Germany); Frank Heyroth, Martin-Luther-Univ. Halle-Wittenberg (Germany); Alexey Novikov, Institute of Applied Physics of the Russian Academy of Sciences (Russian Federation); Mikhail Shaleev, Institute for Physics of Microstructures (Russian Federation); Mihail Petrov, ITMO Univ. (Russian Federation); Isabelle Staude, Friedrich-Schiller-Univ. Jena (Germany)

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Exhibition/Lunch Break 12:30 PM - 1:55 PM

**Session 14:
Photonic Memories and Neuromorphic Computing**

Wednesday 22 August 2018

1:55 PM - 3:35 PM

Location: Conv. Ctr. Room 33B


Session Chair: [Ganapathi S. Subramania](#), Sandia National Labs. (United States)

Integrated neuromorphic photonics (Invited Paper)

Paper 10721-58

Time: 1:55 PM - 2:20 PM

Author(s): Bhavin J. Shastri, Queen's Univ. (Canada); Mitchell A. Nahmias, Alexander N. Tait, Thomas Ferreira de Lima, Hsuan-Tung Peng, Paul R. Prucnal, Princeton Univ. (United States)


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Attojoule modulators for photonic neuromorphic algorithms (Conference Presentation) (Invited Paper)

Paper 10721-57

Time: 2:20 PM - 2:45 PM

Author(s): Jonathan George, Tarek El-Ghazawi, The George Washington Univ. (United States); Paul R. Prucnal, Princeton Univ. (United States); Volker J. Sorger, The George Washington Univ. (United States)


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Hybrid optothermal memory (Conference Presentation) (Invited Paper)

Paper 10721-56

Time: 2:45 PM - 3:10 PM

Author(s): Michelle L. Povinelli, Ahmed Morsy, The Univ. of Southern California (United States)


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Arithmetic operations on photonics chips (Invited Paper)

Paper 10721-59

Time: 3:10 PM - 3:35 PM

Author(s): Harish Bhaskaran, Univ. of Oxford (United Kingdom)

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Coffee Break 3:35 PM - 4:00 PM

**Session 15:
Non-Hermitian Photonics and PT-Symmetric Systems**

Wednesday 22 August 2018

4:00 PM - 5:30 PM

Location: Conv. Ctr. Room 33B


Session Chair: Avadh B. Saxena, Los Alamos National Lab. (United States)

Nonlinear optics at exceptional point (Conference Presentation) (Invited Paper)

Paper 10721-60

Time: 4:00 PM - 4:25 PM

Author(s): Alejandro Rodriguez, Princeton Univ. (United States)


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Manipulation and measurement of optical coherence in PT photonic structures (Conference Presentation)

Paper 10721-61

Time: 4:25 PM - 4:40 PM

Author(s): Kai Wang, Sergey V. Suchkov, James G. Titchener, The Australian National Univ. (Australia); Steffen Weimann, Univ. Rostock (Germany); Demetrios N. Christodoulides, Univ. of Central Florida (United States); Alexander Szameit, Univ. Rostock (Germany); Andrey A. Sukhorukov, The Australian National Univ. (Australia)


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Exceptional points of degeneracy in coupled mode structures: theory and applications (Conference Presentation) (Invited Paper)

Paper 10721-62

Time: 4:40 PM - 5:05 PM

Author(s): Mohamed Y. Nada, Ahmed F. Abdelshafy, Tarek Mealy, Filippo Capolino, Univ. of California, Irvine (United States)

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Optical response of finite and infinite ensembles of nanostructures with balanced gain and loss (Invited Paper)

Paper 10721-63

Time: 5:05 PM - 5:30 PM

Author(s): Alejandro Manjavacas, The Univ. of New Mexico (United States)

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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 attend the poster session on Wednesday evening. Come 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/x30293.xml>.

Role of interface defect in hot carriers extraction at graphene-metal contact

Paper 10721-84

Time: 5:30 PM - 7:30 PM

Author(s): Sergey G. Menabde, Sung Yoon Min, Ju Yeong Kim, Min Seok Jang, KAIST (Korea, Republic of)


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Optimal control of quantum systems with ultrashort laser pulses and non-adiabatic interactions.

Paper 10721-85

Time: 5:30 PM - 7:30 PM

Author(s): Mariana Ramírez Quiceno, José L. Sanz-Vicario, Univ. de Antioquía (Colombia)


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Analysis of the effect of graphene integration on the coupling condition in microresonator

Paper 10721-86

Time: 5:30 PM - 7:30 PM

Author(s): Swati Joshi, Brajesh Kumar Kaushik, Indian Institute of Technology Roorkee (India)


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Experimental noise-free information recovery via reference beam encryption

Paper 10721-87

Time: 5:30 PM - 7:30 PM

Author(s): John Alexis Jaramillo Osorio, Univ. de Antioquia (Colombia); John Fredy Barrera Ramírez, Univ. de Antioquia (Colombia); Santiago Montoya, Univ. de Antioquia (Colombia); Alejandro Mira Agudelo, Univ. de Antioquia (Colombia); Alejandro Velez, Ctr. de Investigaciones Ópticas (Argentina); Roberto Torroba, Ctr. de Investigaciones Ópticas (Argentina), Univ. Nacional de La Plata (Argentina)

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THURSDAY 23 AUGUST

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Session 16: Addressing Modeling Challenges in Emerging and Active Photonic Systems

Thursday 23 August 2018

8:00 AM - 10:00 AM

Location: Conv. Ctr. Room 33B


Session Chair: [Stavroula Foteinopoulou](#), The Univ. of New Mexico (United States)

Active and tunable metadevices in time domain: multiphysics modeling framework (Conference Presentation) (Invited Paper)

Paper 10721-64

Time: 8:00 AM - 8:25 AM

Author(s): Ludmila J. Prokopenko, Shaimaa I. Azzam, Zhaxylyk Kudyshev, Michael Povolotskyi, Alexander V. Kildishev, Purdue Univ. (United States)


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Multiphysics of reverse saturable absorption: time-domain modeling with carrier kinetics

Paper 10721-65

Time: 8:25 AM - 8:40 AM

Author(s): Shaimaa I. Azzam, Alexander V. Kildishev, Purdue Univ. (United States)

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Method for simultaneous optimization of the material composition and dimensions of multilayer photonic nanostructures (Canceled)

Paper 10721-66

Time: 8:40 AM - 8:55 AM


Author(s):

Computational plasmonics with applications to bulk and nanosized systems (Invited Paper)

Paper 10721-67

Time: 8:55 AM - 9:20 AM

Author(s): Alexander Quandt, Univ. of the Witwatersrand, Johannesburg (South Africa); Robert Warmbier, Univ. of Johannesburg (South Africa)


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Design of reconfigurable meta-surfaces: modeling done right (Conference Presentation)

Paper 10721-68

Time: 9:20 AM - 9:35 AM

Author(s): Sebastian Meyer, Dmitry N. Chigrin, RWTH Aachen Univ. (Germany)


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Macroscopic consequences of topologically insulating states *(Invited Paper)*

Paper 10721-69

Time: 9:35 AM - 10:00 AM

Author(s): Akhlesh Lakhtakia, The Pennsylvania State Univ. (United States)

[Add To My Schedule](#) **Awards Announcement**

Thursday 23 August 2018

10:00 AM - 10:10 AM

Location: Conv. Ctr. Room 33B

Session Chair: [Stavroula Foteinopoulou](#), The Univ. of New Mexico (United States)**Coffee Break 10:10 AM - 10:40 AM****Session 17:
Enhancing and Measuring Optical Forces**

Thursday 23 August 2018

10:40 AM - 11:55 AM


Location: Conv. Ctr. Room 33B

Session Chair: [Femius Koenderink](#), AMOLF (Netherlands)**Interaction of artificially patterned surfaces (Conference Presentation)** *(Invited Paper)*

Paper 10721-70

Time: 10:40 AM - 11:05 AM


Author(s): Che Ting Chan, Kun Ding, Hong Kong Univ. of Science and Technology (Hong Kong, China)

[Add To My Schedule](#) **Transformation optics at surfaces, optical force enhancement, and gauge metamaterials** *(Invited Paper)*

Paper 10721-71

Time: 11:05 AM - 11:30 AM


Author(s): Philippe Tassin, Chalmers Univ. of Technology (Sweden)

[Add To My Schedule](#) **Measurements of the Casimir force between two spheres** *(Invited Paper)*

Paper 10721-72

Time: 11:30 AM - 11:55 AM

Author(s): Jeremy N. Munday, Univ. of Maryland, College Park (United States)

[Add To My Schedule](#) **Exhibition/Lunch Break 11:55 AM - 1:25 PM****Session 18:
New Materials for Photonics: From "Nature's Lab" to Advanced Fabrication**

Thursday 23 August 2018

1:50 PM - 3:25 PM


Location: Conv. Ctr. Room 33B

Session Chair: [Romuald Houdré](#), Ecole Polytechnique Fédérale de Lausanne (Switzerland)**Naturally evolved photonic structures for photosynthesis (Conference Presentation)** *(Invited Paper)*

Paper 10721-73

Time: 1:50 PM - 2:15 PM


Author(s): Ruth Oulton, Univ. of Bristol (United Kingdom); Martin Lopez-Garcia, INL - International Iberian Nanotechnology Lab. (Portugal); Nathan Masters, Univ. of Bristol (United Kingdom); Heath O'Brien, Cardiff Univ. (United Kingdom); Joseph Lennon, George Atkinson, Martin Cryan, Heather Whitney, Univ. of Bristol (United Kingdom); Tracey Lawson, Univ. of Essex (United Kingdom); O-Phart Phrathep, Univ. of Bristol (United Kingdom)

[Add To My Schedule](#) **Design principles for nanoparticle based photonic crystals**

Paper 10721-75

Time: 2:15 PM - 2:30 PM


Author(s): Lin Sun, Haixin Lin, George C. Shatz, Chad A. Mirkin, Northwestern Univ. (United States)

[Add To My Schedule](#) **Reflectance modulation from a metasurface coupled to intersubband transitions in semiconductor quantum wells using quantum tunneling** *(Conference Presentation)*

Paper 10721-76

Time: 2:30 PM - 2:45 PM

Author(s): Raktim Sarma, Salvatore Campione, Michael Goldflam, Sandia National Labs. (United States); Loan Le, M. Lange, Northrop Grumman Corp. (United States); Joshua Shank, Michael Wanke, Sandia National Labs. (United States); Jinhyun Noh, Peide Ye, Purdue Univ. (United States); Isaac Ruiz, Stephen Howell, Michael Sinclair, Joel Wendt, Igal Brener, Sandia National Labs. (United States)


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Physics and controllability of phase transitions in two-dimensional materials (Conference Presentation) (Invited Paper)

Paper 10721-77

Time: 2:45 PM - 3:10 PM

Author(s): Ying Wang, Xiang Zhang, Univ. of California, Berkeley (United States)

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Coffee Break 3:25 PM - 3:55 PM

Session 19: Harnessing Light-Matter Interaction II

Thursday 23 August 2018

3:55 PM - 5:15 PM

Location: Conv. Ctr. Room 33B


Session Chair: [Raktim Sarma](#), Sandia National Labs. (United States)

Single quantum dots strongly coupled to plasmons: from Fano interference to Rabi splitting (Conference Presentation) (Invited Paper)

Paper 10721-79

Time: 3:55 PM - 4:20 PM

Author(s): Matthew A. Pelton, Univ. of Maryland, Baltimore County (United States)


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Non-linear effects in high-Q gallium nitride photonic crystal cavities: continuous-wave second and third harmonic generation (Invited Paper)

Paper 10721-80

Time: 4:20 PM - 4:45 PM

Author(s): Romuald Houdré, Mohamed Sabry A. Mohamed, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Angelica Simbula, Univ. degli Studi di Pavia (Italy); Jean-François Carlin, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Momchil Minkov, Ecole Polytechnique Fédérale de Lausanne (Switzerland), Stanford Univ. (United States); Dario Gerace, Univ. degli Studi di Pavia (Italy); Vincenzo Savona, Nicolas Grandjean, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Matteo Galli, Univ. degli Studi di Pavia (Italy)


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Strong light-matter coupling in a quantum metasurface

Paper 10721-81

Time: 4:45 PM - 5:00 PM

Author(s): Didier Felbacq, Emmanuel Rousseau, Univ. Montpellier (France)


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Probing Mie resonances with internal sources (Conference Presentation)

Paper 10721-82

Time: 5:00 PM - 5:15 PM

Author(s): Wanwoo Noh, Matthieu Dupre, Babak Bahari, Ashok Kodigala, Boubacar Kanté, Univ. of California, San Diego (United States)

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Closing Remarks

Thursday 23 August 2018

5:15 PM - 5:25 PM

Location: Conv. Ctr. Room 33B

Session Chair: **Stavroula Foteinopoulou**, Univ. of New Mexico (USA)