SPECIAL ISSUE

ACTIVE NANOPHOTONICS
Edited by A. Alù, H. V. Demir, and C. Jagadish

628 Active Nanophotonics
By A. Krasnok and A. Alù

INVITED PAPER: This article reviews recent efforts in enabling active nanophotonic devices for lasing and optical sources, loss compensation, and to realize new optical functionalities at the nanoscale.

655 Two-Dimensional CdSe-Based Nanoplatelets: Their Heterostructures, Doping, Photophysical Properties, and Applications
By M. Sharma, S. Delikanlı, and H. V. Demir

INVITED PAPER: This article reviews the use of quasi-2-D CdSe-based colloidal quantum wells (nanoplatelets), covering their heterostructures, doping opportunities, and extraordinary photophysical properties, and extending the review to their applications in light-emitting diodes, lasers, and luminescent solar concentrators.

676 Optical Properties and Light-Emission Device Applications of 2-D Layered Semiconductors
By Y. Li, H. Sun, L. Gan, J. Zhang, J. Feng, D. Zhang, and C.-Z. Ning

INVITED PAPER: This article reviews the use of 2-D layered semiconductors for light emission, optical gain, lasing, and enhanced resonances for nanophotonic applications.

704 Colloidal Plasmonics for Active Nanophotonics
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INVITED PAPER: This article reviews the use of plasmonic materials to confine light at the nanoscale and enable sensors and light-emitting and photovoltaic devices.

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INVITED PAPER: This article reviews the use of stacks of intrinsic Josephson junctions as terahertz sources, with applications for spectroscopy, imaging, and tomography.

735 Physical Limits of NanoLEDs and Nanolasers for Optical Communications
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INVITED PAPER: This article reviews nanoscale light sources for low-energy, high-density optical communication and sensing systems, comparing nano-light-emitting diodes and nanolasers, and examining their limits in performance as their size scales down.

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772 Structured Semiconductor Interfaces: Active Functionality on Light Manipulation

| INVITED PAPER | This article presents tunable and reconfigurable metasurfaces based on semiconductor nanoparticles, discussing their potential impact in interface-based nanophotonics. |

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| INVITED PAPER | This article reports on light-emitting arrays of nanostructures to implement photonic-crystal surface-emitting lasers supporting large-area coherent lasing. |

827 Electrically Pumped Microring Parity-Time-Symmetric Lasers
By W. E. Hayenga, H. Garcia-Gracia, E. Sanchez Cristobal, M. Parto, H. Hodaei, P. LiKamWa, D. N. Christodoulides, and M. Khajavikhan

| INVITED PAPER | This article presents the design and implementation of nanoscale electrically pumped lasers obeying parity-time symmetry, offering ideal properties for active nanophotonic applications. |

837 Topological Nanophotonics: Toward Robust Quantum Circuits
By A. Blanco-Redondo

| INVITED PAPER | This article reviews the field of topological photonics and its relevance for quantum photonic networks and systems. |