



SPECIAL ISSUE

PLASMONICS

Edited by P. Berini, S. Bozhevolnyi, and D.-S. Kim

2270 Development of Optical Metasurfaces: Emerging Concepts and New Materials

By A. M. Shaltout, N. Kinsey, J. Kim, R. Chandrasekar, J. C. Ndukaife, A. Boltasseva, and V. M. Shalaev

|INVITED PAPER| This paper reviews the operating principles of metasurfaces, materials typically used in their realization, and then surveys applications.

2288 Extraordinary Optical Transmission: Fundamentals and Applications

By S. G. Rodrigo, F. de León-Pérez, and L. Martín-Moreno

|INVITED PAPER| This paper reviews the different mechanisms that lead to extraordinary optical transmission with an emphasis on recent areas of research and applications.

2307 Quantum Plasmonics

By J. M. Fitzgerald, P. Narang, R. V. Craster, S. A. Maier, and V. Giannini

|INVITED PAPER| This paper discusses the major theoretical frameworks and applications such as sensing, lasing, and quantum computing, of the emerging area of quantum plasmonics.

2323 Amplification and Lasing of Plasmonic Modes

By J. S. T. Smalley, F. Vallini, Q. Gu, and Y. Fainman

|INVITED PAPER| This paper reviews the involvement of surface plasmons in optical amplification and lasing processes and offers a perspective on the challenges ahead.

2338 Benchmarking System-Level Performance of Passive and Active Plasmonic Components: Integrated Circuit Approach

By A. V. Krasavin and A. V. Zayats

|INVITED PAPER| This paper discusses figures of merit for comparing surface plasmon waveguides and introduces several benchmarks for different types of plasmonic modulators.

2349 Plasmonic Photodetectors, Photovoltaics, and Hot-Electron Devices

By M. L. Brongersma

|INVITED PAPER| This review reports on the progress made in the field of plasmonic photodetectors and energy harvesting devices.

2362 Plasmonic Organic Hybrid Modulators—Scaling Highest Speed Photonics to the Microscale

By C. Haffner, W. Heni, Y. Fedoryshyn, A. Josten, B. Baeuerle, C. Hoessbacher, Y. Salamin, U. Koch, N. Đorđević, P. Mousel, R. Bonjour, A. Emboras, D. Hillerkuss, P. Leuchtmann, D. L. Elder, L. R. Dalton, C. Hafner, and J. Leuthold

|INVITED PAPER| This paper explores plasmonics as a viable technology for single-channel intensity modulators and more sophisticated IQ modulators.

2380 Optical Biosensors Based on Plasmonic Nanostructures: A Review

By B. Špačková, P. Wrobel, M. Bocková, and J. Homola

|INVITED PAPER| This paper reviews the fundamentals of optical biosensors and presents recent technological advances and applications.

DEPARTMENTS

2262 POINT OF VIEW

Rewards of Tutorials
By H. J. Trussell
and S. Basu

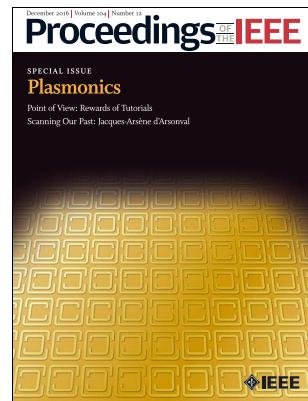
2267 SCANNING THE ISSUE

Plasmonics
By P. Berini,
S. Bozhevolnyi,
and D.-S. Kim

2409 SCANNING OUR PAST

Jacques-Arsène d'Arsonval: His Life and Contributions to Electrical Instrumentation in Physics and Medicine. Part I: Early Life and Activities in Physiology
By S. Reif-Acherman

2416 FUTURE SPECIAL ISSUES/SPECIAL SECTIONS



On the Cover: This month's cover shows an artist's rendition of metasurfaces, which are 2-D metamaterials, constructed by defining subwavelength features on a plane.