

In this issue

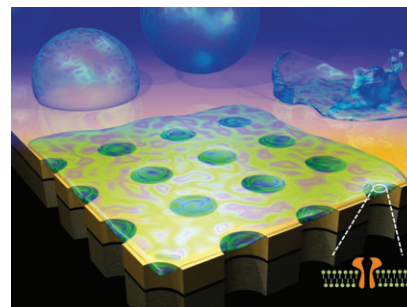
Andreas B. Dahlin, Nathan J. Wittenberg, Fredrik Höök and Sang-Hyun Oh

Promises and challenges of nanoplasmonic devices for refractometric biosensing

DOI 10.1515/nanoph-2012-0026
Nanophotonics 2013; 2(2): 83–101

Review: By harnessing tailored plasmonic effects in engineered metallic nanostructures, researchers have demonstrated nanoplasmonic sensors capable of unique functions that are difficult to do with conventional devices. This review summarizes recent developments in nanoplasmonic biosensing and the challenges that lie ahead.

Keywords: Optical biosensors; refractometric sensors; surface plasmon resonance; plasmonics; figure of merit; single molecule detection; enzyme-linked biosensing; site-specific chemistry; supported lipid bilayer; pore-spanning lipid membrane; nanoparticle; nanohole; optofluidics.



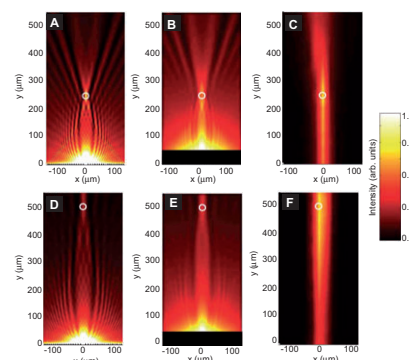
Stephanie Law, Viktor Podolskiy and Daniel Wasserman

Towards nano-scale photonics with micro-scale photons: the opportunities and challenges of mid-infrared plasmonics

DOI 10.1515/nanoph-2012-0027
Nanophotonics 2013; 2(2): 103–130

Review: This review article discusses the unique challenges associated with plasmonics at long (mid-infrared) wavelengths, as well as recent progress in this field using both traditional and non-traditional plasmonic materials.

Keywords: localized surface plasmons; mid-infrared; nanophotonics; optical sensing; plasmonics; subwavelength optics; surface plasmon polaritons.



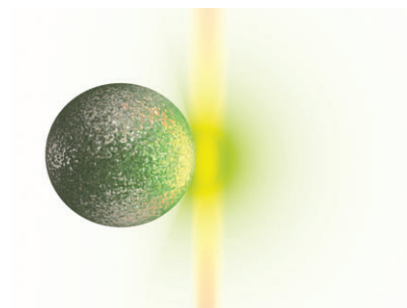
Søren Raza, Nicolas Stenger, Shima Kadkhodazadeh, Søren V. Fischer, Natalie Kostesha, Antti-Pekka Jauho, Andrew Burrows, Martijn Wubs and N. Asger Mortensen

Blueshift of the surface plasmon resonance in silver nanoparticles studied with EELS

DOI 10.1515/nanoph-2012-0032
Nanophotonics 2013; 2(2): 131–138

Regular article: EELS is used to study plasmons in silver nanoparticles where quantum properties and nonlocal response are anticipated to be important. Larger particles (>25 nm) exhibit classical dynamics, while the smallest particles (~3.5 nm) show significant resonant blueshifts of 0.5 eV.

Keywords: Electron energy loss spectroscopy; nonlocal response; plasmonics.



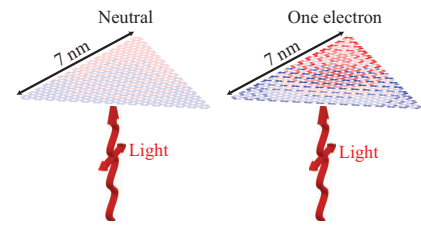
Alejandro Manjavacas, Sukosin Thongrattanasiri and F. Javier García de Abajo

Plasmons driven by single electrons in graphene nanoislands

DOI 10.1515/nanoph-2012-0035
Nanophotonics 2013; 2(2): 139–151

Regular article: Plasmons in graphene nanostructures consisting of ~1000 carbon atoms can be switched on and off by adding or removing a single electron.

Keywords: graphene; plasmons; nanophotonics; graphene plasmonics; quantum plasmonics.



Monan Liu, Rui Chen, Giorgio Adamo, Kevin F. MacDonald, Edbert J. Sie, Tze Chien Sum, Nikolay I. Zheludev, Handong Sun and Hong Jin Fan
Tuning the influence of metal nanoparticles on ZnO photoluminescence by atomic-layer-deposited dielectric spacer

DOI 10.1515/nanoph-2012-0040
Nanophotonics 2013; 2(2): 153–160

Regular article: ZnO UV luminescence can be enhanced by metal nanoparticles, but it is found that the enhancement is very sensitive to an ALD dielectric gap thickness.

Keywords: ZnO nanowires; surface plasmons; metal nanoparticles; photoluminescence; cathodoluminescence; atomic layer deposition.

