Optoelectronics Plasmon Enhanced Plastic Devices

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Optoelectronics Plasmon Enhanced Plastic Devices
Recently, plasmonic metallic nanostructures have obtained massive interest owing to their potential applications in biological or chemical sensing, biomedicine, surface enhanced spectroscopy,...

Optoelectronics: Plasmon-enhanced plastic devices ...
This brief article reviews recent research advances on the plasmonic enhanced optoelectronic devices and highlights a variety of strategies of incorporating plasmonic nanostructures into different...

(PDF) Plasmonic Enhanced Optoelectronic Devices
This brief article reviews recent research advances on the plasmonic enhanced optoelectronic devices and highlights a variety of strategies of incorporating plasmonic nanostructures into different optoelectronics such as solar cells, light-emitting diode, and multicolor photodetector, etc.

Plasmonic Enhanced Optoelectronic Devices | SpringerLink
The abundance of unique effects found at the nanoscale offers advantages for electronics. Now, complex heterostructures of metal clusters grown on a carbon-dot support exhibit interactive ...

Plasmon-enhanced plastic devices | Nature Photonics
This brief article reviews recent research ad- of surface plasmons can generate intense local electromagnet- vances on the plasmonic enhanced optoelectronic devices and ic fields which show various promising applications in chem- highlights a variety of strategies of incorporating plasmonic ical and biological sensing and imaging techniques [10–16], nanostructures into different optoelectronics such as solar waveguides [17, 18], superlenses [19, 20], light harvesting cells, light-emitting ...

Plasmonic Enhanced Optoelectronic Devices, Plasmonics ...
A blend of plasma polymerized aniline (PPA)-Rubrene, prepared by a novel plasma based method acts as the semiconductor matrix for charge transport in the device geometry. Significantly improved photovoltaic property of the device with an open circuit voltage (VOC) of 1.08 V is obtained with the addition of Au NPs in the device.

Plasma Based Synthesis of Nanomaterials for Development of ...
The coupling of surface plasmons and excitons in organic materials can improve the performance of organic optoelectronic devices. Here, we prepare carbon-dot-supported silver nanoparticles (CD ...

Versatile surface plasmon resonance of carbon-dot ...
Optoelectronic devices, plasmonics, and photonics with topological insulators. PDF ... whose period is determined by the wavelength and the angle between the two incident beams. Spin-plasmon can be excited whenever the spin grating period matches the plasmon momentum. 77,78 77. J. D. ... so as to achieve an enhanced optical response.

Optoelectronic devices, plasmonics, and photonics with ...
This strongly enhanced surface plasmon resonance of nanoparticles (especially within the optical frequency range) allows them to be excellent scatterers and absorbers of visible light.

Precise Nanoparticles for Optoelectronics Applications ...
He also discusses topics such as short- and long-range coupled SPP at optically thin metal films, an SPP-focusing lens, and the SPP effect in organic light-emitting diodes and surface plasmon-enhanced fluorescence spectroscopy. To learn more about simulating optoelectronic devices and SPPs, contact COMSOL for a software evaluation.

Simulating Optoelectronic Devices and Plasmon Effects in ...
Extensive efforts are made to exploit the coupling effect between conventional semiconductors and plasmonic structures, and understand the coupling mechanisms that can enable researchers to develop high-efficiency plasmonic-enhanced optoelectronic devices , , , .

Photonics and optoelectronics using nano-structured hybrid ...
M.H. Crawford, in Semiconductors and Semimetals, 2017. 3.1 Introduction. Substrates for optoelectronic devices must meet stringent requirements related to crystal structure and orientation, lattice constant, thermal expansion coefficient, dielectric constants, and electrical conductivity. In many of these attributes, substrate technologies employed for AlGaN-based UV optoelectronics are still ...

Optoelectronic Devices - an overview | ScienceDirect Topics
Abstract Localized surface plasmon resonance (LSPR) is shown to be effective in trapping light for enhanced light absorption and hence performance in photonic and optoelectronic devices. Implementation of LSPR in all-inorganic perovskite nanocrystals (PNCs) is particularly important considering their unique advantages in optoelectronics.

Localized Surface Plasmon Resonance Enhanced Light ...
This is due to the facts that sub-wavelength confinement enables the active region to be shrunk to nano-scale dimensions yet good optoelectronic performance can be maintained due to the SPP field enhancement. In this paper we discuss recent progress on surface plasmon enhanced photodetectors.

Surface plasmon enhanced optoelectronics - SPIE
In addition, the plasmon-enhancement of optoelectronic devices is summarized. Several possible mechanisms that have been previously reported in the literature are discussed in this work, with particular emphasis on different features of these mechanisms involving devices that are not highlighted and therefore need more attention.

Surface Plasmonic-Assisted Photocatalysis and ...
Nanoimprint lithography and physical vapor deposition were combined to fabricate large-area homogeneously patterned SERS-active substrates with tunable surface plasmon resonances. The plasmon shift observed was connected to the surface nanotopography since (a) the SERS-active nanoparticles on all the substrates investigated were shown to be chemically and structurally similar and (b) the SERS ...

Nanoimprinted SERS-Active Substrates with Tunable Surface ...
Abstract. Plasmonic metal nanoparticles have recently attracted increasing interest due to their nanosized dimensions, tunable optical properties in the visible and near-infrared regions of the spectrum and easy manufacturing. Although the optical properties of these sub-wavelength objects arising from plasmonic resonances have been extensively investigated in both isolated and assembled structures, their rational integration in 1D semiconductor-based devices for generation of engineered ...

Metal nanoparticle–semiconductor nanowire hybrid ...
The enhancement occurs because the electric field of surface plasmons is localized and enhanced where the graphene is located: at the surface of the metal. We believe that our results point the way to small, thin, and more efficient terahertz photonic devices.

Plasmon Enhanced Terahertz Emission from Single Layer ...
Herein we introduced the research results of plasmon enhanced optoelectronic devices (photo detector, organic light emitting diode, sensors, etc.) by incorporation with different plasmonic nanostructures (zero-dimension, one-dimension or two-dimensional multiplexed plasmopnic nanostructures) and revealed the involved effective photon-management enhancement mechanism.

Plasmon-enhanced optoelectronic devices based on metal ...
Abstract. The coupling of surface plasmons and excitons in organic materials can improve the performance of organic optoelectronic devices. Here, we prepare carbon-dot-supported silver nanoparticles (CD-Ag nanoparticles) using the carbon dots both as a reducing agent and a template to fabricate solution-processable polymer light-emitting diodes and polymer solar cells.