Graphene: A Dynamic Platform for Electrical Control of Plasmonic Resonance

Graphene has recently emerged as a viable platform for integrated optoelectronic and hybrid photonic devices because of its unique properties. The optical properties of graphene can be dynamically controlled by electrical voltage and have been used to modulate the plasmons in noble metal nanostructures. Graphene has also been shown to support highly confined intrinsic plasmons, with properties that can be tuned in the wavelength range of 2 μm to 100 μm. Here we review the recent development in graphene-plasmonic devices and identify some of the key challenges for practical applications of such hybrid devices.

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