

Fabrication of Various Plasmonic Metal Nanoparticles Encapsulated by Various Oxide Shells

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Plasmonic metal nanoparticles continue to attract strong interest on account of their fascinating properties and potential applications in optical sensing, optoelectronics, biomedicine, imaging and catalysis applications. Especially, Ag, Au, Pt and Pd nanoparticles have been widely used as light absorbers with specific wavelength regions due to their remarkable surface plasmon characteristics. The incorporation of various oxide shells has been widely investigated due to the tunability of SPR properties as well as passivation of labile metal surface. Herein, we report a facile fabrication method of metal nanoparticles encapsulated by various oxide shells. Our strategy using amphiphilic polymer can enables to obtain the core-shell structured nanoparticles showing the tunable plasmonic properties, which can pave the way for the applications such as opto-electronic devices and molecular sensing devices.