The Synthesis of Plasmonic Nanoparticles for Biological Applications

조원준, 정아름, 김진곤*
포항공과대학교
(jkkim@postech.ac.kr*)

Three dimensional plasmonic nanostructures with leaf-like and dandelion-like structures attracted considerable interest in bio-photonic imaging and sensing. However, the practical applications have been still limited since the synthesis of such structures compatible with in vivo application and large-scale production is extremely difficult. Here, we introduced an innovative method to synthesize colloidal plasmonic nanoparticles with broken symmetry. For this purpose, we first overgrew (or exchanged) Ag on various copper particles by using microwave irradiation. We found that Surface-enhanced Raman scattering signal for the symmetry-broken nanoparticles becomes very high. These nanoparticles could be used for a wide range of bio-photonic applications for optical plasmonics such as targeting, sensing/imaging, gene delivery, and optical gene regulations.