

Synthesis of Branched Gold Nanoparticles

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The unique optical properties exhibited by branch metal nanoparticles may be exploited for intensity enhancement in surface enhanced Raman spectroscopy (SERS), as a platform for chemical sensing, and in nanodevices. However, understanding the nature of branched nanoparticle growth, a valuable factor for structure manipulation, is a relatively unknown process. Here, branched gold (Au) nanoparticles are produced by reducing Au (I) in the presence of oleylamine and Pt (II). By altering surfactant concentration, reduction technique, and temperature, changes in nanoparticle morphology were observed by transmission electron microscopy and provide insight into the mechanism for branched nanoparticle formation.