

Surfactants as Shape-Directing Agents for Metal Nanocrystal Growth

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Noble metal nanoparticles display unique optical properties, related to localized surface plasmon resonances (collective oscillations of conduction electrons), which give rise to well-defined absorption and scattering peaks in the visible and near-IR spectral range [1]. Such resonances can be tuned through the size and shape of the nanoparticles [2], and are highly sensitive towards dielectric changes around the particles and to their specific organization within assemblies [3]. Therefore, metal nanoparticles have been proposed as ideal candidates for biosensing and bioimaging applications [4].

This presentation will focus on the application of colloid chemistry to the synthesis of metal nanoparticles, where surfactants play a crucial role for the definition of the final, nanoscale morphology [5]. As a result, a variety of optical/plasmonic phenomena can be optimized, with a wide range of potential applications [6].

References

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