New Approach for the Synthesis of Uniform Gold Nanoparticles

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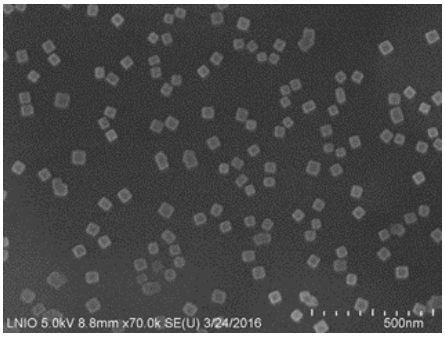

Conductive surface-induced gold nanoparticles assembly into nanocube shape

There has been considerable interest of Gold nanoparticles due to their plasmonic properties in potential applications in chemical and biochemical sensing for low traces molecule detection [1,2], in tumor ablation [3,4], and Lab-On Chip technologies [5].

In this context, we actually develop new gold nanoparticles (GNPs) synthesis method which is based on polymer self-assembly to obtain monodisperse GNPs. In the present project, we aim to investigate the mechanism of formation of uniform NPs. Thus, a physico-chemical study based on the variation of the synthesis experimental parameters is required to tune the optical and physical properties of GNPs.
Such properties are generally obtained after several synthesis steps using chemical ways as compared to our process. The idea is to control NPs shape and size upon a direct growth on surface by spin-coating gold precursor-loaded homo-polymer dispersion on conductive substrate. In addition to structural and extinction characterization, GNPs are especially characterized by ellipsometry in order to get their experimental and theoretical optical characteristics.

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