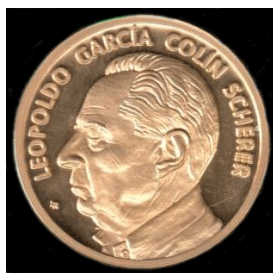


VII Leopoldo García-Colín Mexican Meeting on Mathematical and Experimental Physics



Contribution ID: 76

Type: **not specified**

BEATRIZ DE LA MORA: Strategies for functionalization of gold nanoparticles fabricated by laser ablation in liquids.

Monday, 17 February 2020 18:00 (30 minutes)

In the last 20 years the field of nanotechnology has grown extensively due to its surface, optical and magnetic properties. Among the different types of nanoparticles gold nanoparticles (Au-NPs) stand out due to their optical properties, chemical surface and biocompatibility. Laser ablation in liquids (LAL) is a synthesis method that allows to obtain high purity gold nanoparticles in a variety of solvents for different applications. In general, for the different applications gold nanoparticles require a functionalization. To functionalize gold nanoparticles obtained from LAL need different strategies than the ones used for colloidal solutions produced by chemical synthesis. The presence of the plasma during the formation of Au-NPs, the wide distribution sizes and the flocculation state of the colloidal solution changes the surface chemistry of the Au NPs. Here, a study of the physicochemical properties of Au-NPs obtained by LAL and functionalized with different thiolate compounds (AMP, Dodecanethiol and POSS thiol) is presented. Flocculation, size distribution, stability and optical response were measured by TEM microscopy, zeta potential, DLS and UV-Vis spectroscopy. Some strategies to get a successful functionalization such as a post-treatment of the colloidal solution with laser treatment and centrifugation to diminish the size distribution of the particles, the optimization of concentration of the thiol compounds and the use of buffers to modify the pH of the solutions are discussed.

Session Classification: SHORT TALKS

Track Classification: SYMPOSIUM ON LASER ABLATION