



Instituto de Estructura de la Materia - Ciclo de Seminarios 2012-2013

Seminario del Departamento de Espectroscopía Nuclear, Vibracional y de Medios Desordenados

**MULTIPLE MODES OF INTERACTION
BETWEEN
MYOGLOBIN AND GOLD NANOSPHERES:
a model for the formation
of protein/nanoparticle complexes**

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The interactions between a model protein - horse myoglobin - and spherical gold nanoparticles have been studied by a combination of experimental methods. Adding myoglobin to an aqueous dispersion of 30 nm diameter nanospheres induces the formation of different aggregates, depending on protein concentration: at low nanoparticle surface coverage, the aggregates appear to be built by strongly interacting particles, whereas interparticle interactions vanish at high protein concentration. Electron microscopy images of the aggregates are correlated with the localized surface plasmon resonance band (LSPR). Aggregation kinetics has been determined on the time scale of hundreds of seconds by following LSPR changes. Circular dichroism (CD) measurements show that the aggregation-induced changes in the protein secondary structure mainly consist in a reduction of the alpha-helix content. Time-dependent CD changes also occur on the scale of hundreds of seconds. Surface-enhanced Raman scattering (SERS) spectra have been obtained matching the laser excitation wavelength to the LSPR of the protein-nanoparticle aggregates, and can be exploited to characterize the nano-biointerface.

Martes, 30 de Octubre de 2012, 12:00 horas.

Sala de Conferencias. Centro de Física "Miguel A. Catalán".

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