



SCUOLA
NORMALE
SUPERIORE
PISA

Colloqui Classe di Scienze

Mercoledì 15 febbraio 2012

ore 15.00

Scuola Normale Superiore

Pisa

(Sala Stemmi)

George C. Schatz

Northwestern University, Evanston, IL, USA

Terrà un seminario dal titolo:

“Opportunities in Nanoscience with Gold Particles”

Abstract:

Gold (and silver) nanoparticles and nanostructures have unique physical and chemical properties that have created new opportunities for biomedical applications in diagnostics and therapeutics, and in optical and electronic materials. This talk will describe experimental and theoretical research that has led to the synthesis and fabrication of unusual gold and silver nanostructures, to their chemical functionalization, and to the development of optical and other techniques for their use in practical applications. One class of nanomaterial involves the use of DNA to functionalize and link together gold nanoparticles to produce gel-like materials that have found applications in both biological sensing and in the use of nucleic acids as drugs. Here I emphasize a new class of superlattice crystalline material constructed from DNA-linked gold particles that provides unique capabilities for building complex structures that enable applications that combine plasmonics and photonics. Another class of nanostructure involves aggregated gold and silver particles with very small (<1nm) gaps. Small gaps provide opportunities for producing extremely high ($>10^8$) enhancement factors for surface enhanced Raman spectroscopy (SERS) studies. Here I describe recent applications to single molecule and single particle SERS, as well as related work on tip-enhanced Raman spectroscopy. The use of theory to guide and interpret the experimental work is emphasized throughout this talk.

Tutti gli interessati sono invitati a partecipare

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