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Dipartimento di Scienze e Tecnologie Chimiche

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AVVISO DI SEMINARIO

*il giorno 04 Luglio alle ore 11:30
nell'Aula Seminari del Dipartimento di
Scienze e Tecnologie Chimiche, il*

Prof. Moreno Meneghetti

*Nanostructures and Optics Laboratory,
Department of Chemical Sciences,
University of Padova*

Terrà un seminario dal titolo:

*Efficient targeting of cell ‘signals’ and cell selection in
biological fluids with plasmonic/superparamagnetic
nanostructures produced with a green approach.*

Proponente: Prof. Antonio Palleschi

Abstract:

Efficient targeting of cell 'signals' and cell selection in biological fluids with plasmonic/superparamagnetic nanostructures produced with a green approach

Moreno Meneghetti

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Department of Chemical Sciences,
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Nanostructured materials made of gold (Au) and magnetite (Fe_3O_4) find many applications in nanomedicine because of their plasmonic and superparamagnetic properties and because of their biocompatibility.

Green approaches, for the synthesis of these materials are highly desirable, and Laser ablation synthesis in solution (LASiS) is one of the most friendly mean to obtain stable colloidal solutions in water. It will be shown how the nanoparticles are obtained with a very simple setup.

Plasmonic property of the Au nanoparticles are interesting because they are 'concentrator' of the electromagnetic field, to which follows a huge enhancement of Raman signals. This effect, Surface enhanced Raman Scattering, can be used for a multiplexing identification of antigens on cell surfaces. An easy multiplex identification of antigen on prostate cancer cells will be shown.

Selection of cells in a biofluid is always important because of the small number of some types of cells, like the CTC (circulating tumor cells), which are very difficult to identify.

It will be shown how nanoarchitectures, in which both magnetic and plasmonic nanoparticles are present, can be used for selection and identifications of CTC targeted with antibodies.

Finally, an application like the photothermal treatment of targeted cells is shown as a very interesting approach for a simple but efficacious cell therapy.