



Martedì 12 Novembre 2019
alle ore 11.00

presso AULA 1 dell'Edificio F
Area della Ricerca CNR
Via Madonna del Piano, 10 Sesto Fiorentino (Firenze)

il **Dr. Claudio Evangelisti**

Istituto di Chimica dei Composti Organometallici
Sede Secondaria di Pisa

terrà il seguente seminario:

"Design of Mono- and Heterometallic Nanoparticles
for Catalytic Applications"

Tutti gli interessati sono invitati a partecipare.

Dr. Francesco Vizza
Direttore ICCOM

Short Abstract:

In the last decade, the synthesis of mono- and hetero-metallic nanoparticles (NPs) received a plethora of attention due to the possible applications of these materials in different fields such as material science, biomedicine and catalysis. In particular, the development of innovative methods for the synthesis of heterogeneous catalysts by impregnation of a support with pre-formed metal NPs together with the development of advanced characterization techniques, allow to univocally correlating the morphological and structural features of a material with its properties catalytic.

Here, I will present the recent results obtained using different approaches for the synthesis of NPs in colloidal phase, i.e. by the reduction of metals (in aqueous or solvent phase), or starting from metal vapors, i.e. by metal vapor synthesis technique. In particular, this latter approach has the additional intrinsic advantage of providing homo or hetero-metallic NPs of highly controlled size and structure avoiding the use of strong organic ligands or surfactants. These NPs can be used as precursors of particles stabilized at room temperature by adding additional ligands or they can be directly dispersed on different kind of organic or inorganic supports (e.g. powders, membranes, monoliths) without further activation/calcination steps. Recent applications of supported mono- and heterometallic NPs in chemo- and regioselective organic reactions mainly directed to the synthesis of fine chemicals will be described. Special emphasis will be devoted to highlight the synergic effects along with the structure-properties of bimetallic catalysts.

Biographic sketch:

Claudio Evangelisti obtained the degree in Chemistry at the University of Pisa in 2001. In 2004 he obtained the PhD in Chemistry from the University of Pisa under the Supervision of Dr. Giovanni Vitulli (CNR). From 2005 to 2010, he obtained Post-Doctoral Fellowship at the Department of Chemistry and Industrial Chemistry, University of Pisa, working on the development of nanostructured metal systems and their use as catalysts for chemo- and regioselective organic transformations. In 2011 he moved to the Institute of Molecular Science and Technologies (ISTM-CNR), Milano, as Research Scientist (permanent position) where he was scientific responsible of the transmission electron microscopy laboratory. From October 2019, he is Research Scientist at the Institute of Chemistry of OrganoMetallic compounds (ICCOM-CNR), secondary site of Pisa.



His research activity is focused on: (a) Synthesis of supported mono- and heterometallic nanoparticles, featuring strictly controlled dimension and composition; (b) Applications of supported metal particles for eco-sustainable heterogeneous catalytic processes (c) Characterization of nanostructured metal systems by transmission electron microscopy including electron diffraction, EDX and EELS analysis. He is co-author of more than eighty publications on international peer-reviewed journals, four book chapters, three patents and a number of communications to national and international meetings, in many cases as oral presentation.

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