



UNIVERSITÀ
DEGLI STUDI DI TRIESTE

Dipartimento di Scienze Chimiche e Farmaceutiche

AVVISO DI SEMINARIO

Mercoledì 23 Maggio 2012
ore **16.30** aula **A1** dell'edificio **C11**
via L. Giorgieri 1 Università di Trieste

**Ionic liquids and glycerol as
appropriate solvents for molecular
and colloidal catalysts**

Montserrat Gomez

Laboratoire Hétérochimie Fondamentale et
Appliquée
Université Paul Sabatier

Tutti gli interessati sono invitati a partecipare

Il Direttore
Prof. Paolo Tecilla

Summary:

The synthesis of molecules showing an interest for the fine chemistry industry following sustainable protocols is one of the most important challenges since the beginning of XXI century. In this context, metal-catalyzed organic transformations represent an appropriate tool because they permit to work under smooth conditions (low energetic cost) and to minimise the by-products formation (atom economy). In the last decade, alternatives to the organic volatile solvents commonly used, have been studied: water, supercritical fluids, perfluorinated solvents, ionic liquids (ILs). However, their general use is still subject to some limitations (solubility issues, toxicity and non-biodegradability constraints, separation of products).

In this lecture, applications of ILs in metal-catalyzed processes such as selective epoxidations (using chiral Mo complexes), allylic substitutions (chiral Pd complexes) and Pd-catalyzed tandem processes leading to molecules of pharmaceutical interest will be presented.

More recently, we have been interested in biodegradable solvents. Glycerol, a low-cost solvent coming from biomass, currently produced in high amounts as a waste in the biodiesel production and showing interesting properties (high boiling point, negligible vapour pressure, high solubility of organic and inorganic compounds), has specially attracted our attention. Here, we will present in particular the reactivity for Rh-catalyzed Pauson-Khand carbocyclisations in neat glycerol.

Surprisingly, the nature of the organometallic precursor and the Rh/ligand ratio trigger dramatic effects on the catalytic activity in contrast to that observed using coordinating organic solvents. A NMR study will be shown in order to reveal the role of glycerol.