

DEPARTMENT OF MOLECULAR SCIENCE AND NANOSYSTEMS

Seminars of the PhD Programme in Chemistry



Università
Ca' Foscari
Venezia

The Reactivity of Halides of High-Valent Group 5 and 6 Elements with Organic Compounds: Coordination Chemistry and Unusual Activation Reactions

Prof. Fabio Marchetti

*Dipartimento di Chimica e Chimica Industriale
Università di Pisa*

Abstract

Niobium and tantalum pentahalides, molybdenum pentachloride and tungsten hexachloride are easily-available solid compounds. We have been involved in the exploration of the reactivity of these halides with stoichiometric amounts of oxygen- and/or nitrogen-containing organic species [1]. The coordination to the metal centre may represent the preliminary step for the transformation of the organic substrate. In a number of cases, the process results in the formation of stable metal-anion salts containing otherwise reactive organic cations [2]. The metal-halide bond energy value and the availability to the metal centre of a one-electron reduced oxidation state are the two key factors which drive the activation reactions, and provide uniqueness with respect to the parallel chemistry exhibited by high-valent main group element halides [3]. Examples will be given with reference to arenes, α -aminoacids, ureas and nitrogen compounds.

[1] F. Marchetti and G. Pampaloni, *Chem. Commun.*, 2012, 48, 635, and references therein. [2] F. Marchetti, G. Pampaloni and C. Pinzino, *Chem. Eur. J.*, 2013, 19, 13962. [3] M. Bortoluzzi, T. Funaioli, F. Marchetti, G. Pampaloni, C. Pinzino and S. Zacchini, *Chem. Commun.*, 2017, 53, 364, and references therein.

May 15th, 2017

at 12:00

Conference Room, Scientific Campus

L'organizzatore
dr. Marco Bortoluzzi

Il Vice-Coordinatore del Dottorato in Chimica
prof. Maurizio Selva

dottorato.chimica