



Società Chimica Italiana

***Programma del
XXVI Congresso Nazionale
della Società Chimica Italiana***

Centro Congressi Hotel Ariston
Paestum (SA), 10-14 settembre 2017

➤ **Divisione di Chimica Inorganica**

Società Chimica Italiana
Roma, Italia
www.soc.chim.it

11:30 – 11:45	INO-OR09 : I. Venditti, M. Porchia, F. Tisato, C. Santini, M. Pellei, G. Iucci, C. Battocchio, C. Pietrosanti, G. Testa, I. Fratoddi <i>Drug delivery systems: hydrophilic gold nanoparticles for controlled drug loading and release.</i>
11:45 – 12:00	INO-OR10 : L. Conti, A. Bencini, M. G. Fabbrini, C. Gellini, C. Giorgi, G. Pietraprazia, B. Valtancoli <i>Novel strained ruthenium complexes in photodynamic therapy</i>
12:00 – 12:15	INO-OR11 : S. Concilio, L. Sessa, A. Massa, S. Piotta, P. Iannelli, R. Diana, B. Panunzi, U. Caruso <i>Fluorescent solvatochromic molecules as probes for lipid bilayers</i>
12:15 – 12:30	INO-OR12 : S. Samaritani, D. Belli Dell' Amico, M. Colalillo, L. Labella, F. Marchetti, M. Hyeraci, A. N.García-Argáez, L. Dalla Via <i>Platinum(II) complexes of ligands containing OH functional groups: synthesis, reactivity and antiproliferative properties</i>
12:30 – 12:45	INO-OR13 : L. Izzo, M. De Rosa, G. Vigliotta, A. Soriente, V. Capaccio, G. Gorrasi, R. Adami, E. Reverchon, M. Mella <i>Killing bacteria via ion-complexing polymeric materials</i>
12:45 – 13:00	INO-OR14 : D. Cirri, T. Marzo, A. Pratesi, L. Messori <i>Novel gold(I) and silver(I) metal complexes as promising antibacterial candidates</i>
Sala Argiva	
Sessione Congiunta Chimica Organica - Chimica Inorganica (GICO)	
<i>Chairperson Antonella Dalla Cort</i>	
11:30 – 12:00	ORG/INO KN01 : Alessandro Caselli <i>Catalytic Applications of Pyridine-Containing Macrocyclic Complexes</i>
12:00 – 12:30	ORG/INO-PZ01 : EurJOC Junior Organometallic Chemist Lecture by Valentina Pirovano <i>Gold(I)-catalyzed [4+2] cycloaddition reactions of vinylindoles and allenes</i>
12:30 – 12:45	ORG/INO-OR01 : Elia Matteucci, Andrea Baschieri, Cristiana Cesari, Rita Mazzoni, Claudia Bizzarri, Letizia Sambri <i>Functionalized triazolylidenes as versatile mesoionic carbenes: metal complexes for catalysis and luminescent materials</i>
12:45 – 13:00	ORG/INO-OR02 : Andrea Squarcina, Martina Zonzin, Mauro Carraro , Marcella Bonchio <i>Copper complexes with biomimetic antioxidant activity</i>
13:00 – 14:00	Intervallo Pranzo -- Lunch Break
Sala Paestum B	
14:00-15:00	<i>Sessione Poster I (INO PO01 – INO PO10)</i>
Sala Nettuno	
Sessione I	
<i>Chairperson Michele Saviano</i>	
15:00 – 15:45	INO-PL02 : P. Carloni <i>Multiscale simulation-based structural predictions of metalloproteins of pharmacological relevance</i>
15:45 – 16:15	INO-KN05 : L. Zaccaro, A. Del Gatto, L. Russo, B. Farina, A. Liguoro, S. Di Gaetano, D. Capasso, D. Comegna, R. Fattorusso, M. Saviano <i>RGDechi chimeric peptide as new scaffold for gaining insight into structural features of integrins selectivity for theranostics</i>
16:15 – 16:30	INO-OR15 : D. La Mendola, G. Pandini, C. Satriano, A. Pietropaolo, I. Naletova, F. Gianì, A. Travalia, V. G. Nicoletti, G. Arena, E. Rizzarelli <i>The inorganic side of neurotrophins: metal coordination and new therapeutic perspectives</i>
Sala Mercurio	
Sessione II	

Catalytic Applications of Pyridine-Containing Macrocyclic Complexes

Alessandro Caselli

Department of Chemistry, Università degli Studi di Milano and ISTM-CNR-Milano, Via Golgi 19, 20133 Milan, Italy. E-mail: alessandro.caselli@unimi.it

Polyazamacrocycles are a common class of macrocyclic compounds, utilized across a number of fields, including, but not limited to, catalysis, selective metal recovery and recycling, therapy and diagnosis, and materials and sensors.¹ Worth of note is their ability to form stable complexes with a plethora of both transition, especially late, and lanthanide metal cations.² Deviation of the macrocycle donor atoms from planarity often leads to rather uncommon oxidation states.³ Both the thermodynamic properties and the complexation kinetics are strongly affected by the introduction of a pyridine moiety into the skeleton of polyazamacrocycles by increasing the conformational rigidity and tuning the basicity.⁴ Pyridine-containing ligands engender great interest due to various potential field of applications. They have been successfully employed in biology, Magnetic Resonance Imaging, molecular recognition, supramolecular chemistry and self-assembly, molecular machines and mechanically interlocked architectures.⁵ In this lecture, I will provide a perspective on the catalytic applications of metal complexes of pyridine-containing macrocyclic ligands (Pc-L's) which have been studied in our group (Figure), with a focus interest on the structural features relevant to catalysis.⁶ The increased conformational rigidity imposed by the pyridine ring allowed for the isolation and characterization of metal complexes which showed a rich coordination chemistry.⁷ The very different conformations accessible upon coordination and the easy tuneable synthesis of the macrocyclic ligands have been exploited in stereoselective syntheses.⁸

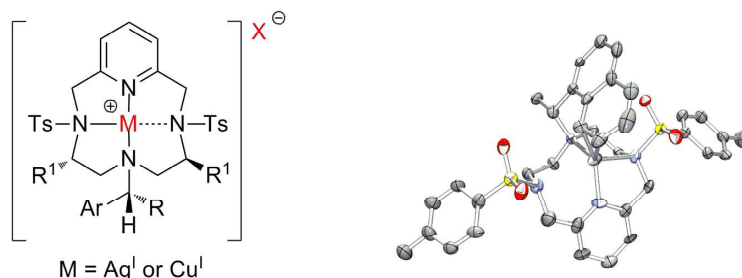


Figure. Metal complexes of Pc-L's and X-ray structure of a Cu(I) complex with a rare η^2 -naphthyl moiety coordinated to the metal center.

Key words: macrocyclic ligands, homogeneous catalysis, copper, silver, C-C and C-O bond forming reactions.

References:

- ¹ L. F. Lindoy, G. V. Meehan, I. M. Vasilescu, H. J. Kim, J.-E. Lee, S. S. Lee, *Coord. Chem. Rev.* **2010**, 254, 1713.
- ² T. Ren, *Chem. Commun.* **2016**, 52, 3271.
- ³ A. Casitas, X. Ribas, *Chem. Sci.* **2013**, 4, 2301.
- ⁴ K. M. Lincoln, M. E. Offutt, T. D. Hayden, R. E. Saunders, K. N. Green, *Inorg. Chem.* **2014**, 53, 1406.
- ⁵ M. Rezaeivala, H. Keypour, *Coord. Chem. Rev.* **2014**, 280, 203.
- ⁶ B. Castano, S. Guidone, E. Gallo, F. Ragaini, N. Casati, P. Macchi, M. Sisti, A. Caselli, *Dalton Trans.* **2013**, 42, 2451.
- ⁷ a) G. Tseberlidis, M. Dell'Acqua, D. Valcarengi, E. Gallo, E. Rossi, G. Abbiati, A. Caselli, *RSC Adv.* **2016**, 6, 97404; b) T. Pedrazzini, P. Pirovano, M. Dell'Acqua, F. Ragaini, P. Illiano, P. Macchi, G. Abbiati, A. Caselli, *Eur. J. Inorg. Chem.* **2015**, 2015, 5089.
- ⁸ a) M. Dell'Acqua, B. Castano, C. Cecchini, T. Pedrazzini, V. Pirovano, E. Rossi, A. Caselli, G. Abbiati, *J. Org. Chem.* **2014**, 79, 3494; b) M. Trose, M. Dell'Acqua, T. Pedrazzini, V. Pirovano, E. Gallo, E. Rossi, A. Caselli, G. Abbiati, *J. Org. Chem.* **2014**, 79, 7311; c) B. Castano, E. Gallo, D. J. Cole-Hamilton, V. Dal Santo, R. Psaro, A. Caselli, *Green Chem.* **2014**, 16, 3202.