



Società Chimica Italiana



12th Congress of the Interdivisional Group of Organometallic Chemistry

Hotel Bristol Palace
Genoa, June 5–8, 2016

Organized by

Dipartimento di Chimica e Chimica Industriale, Università di Genova

ABSTRACT BOOK

SCIENTIFIC PROGRAMME

Hotel Bristol Palace, Genova

Sunday, 5th June

12.50 – 15.30 Registration

15.30 – 16.00 Opening

Chairman: Roberto Gobetto

16.00 – 16.50 **PL1 Maurizio Peruzzini** – CNR-ICCOM, Sesto Fiorentino

"White, Red and Black: playing with phosphorus allotropes from organometallic chemistry to innovative 2D-materials"

16.50 – 17.10 **OC1 Emanuela Licandro:** Università di Milano

"Metal-mediated reactions for the heteroaryl-heteroaryl bond formation: non photochemical synthesis of thiahelicenes"

17.10 – 17.40 **KN1 Francesca Cadorna** – Università di Firenze

"Carbohydrate derived compounds and their reactions with metals and organometals en route to the synthesis of nitrogen containing heterocycles"

17.40 – 18.00 **OC2 Valentina Fiorini** – Università di Bologna

"Ir(III) and Re(I) tetrazolate-based luminescent complexes. Ion pairs, heterometallic dyads and sensing abilities"

18.00 – 18.20 **OC3 Carlo Nervi** – Università di Torino

"Chemically modified electrode surfaces for CO₂ reduction"

18.20 – 18.30 **Valentina Cinti** – CiaoTech, Milano

"CIAOTECH PNO partner in REE4EU, Indus3Es and MEMERE projects"

19.00 – 20.30 **Welcome Reception**

Monday, 6th June

Chairman: Luca Banfi

9.00 – 9.50 **PL2 Thomas J. J. Müller** – Heinrich Heine Universität, Düsseldorf
"Sequentially Pd- and Pd-Cu-catalyzed one-pot syntheses of functional heterocycles"

9.50 – 10.10 **OC4 Roberto Gobetto** – Università di Torino
"Electrocatalytic CO₂ reduction by Mn(bpy-R)(CO)₃Br complexes"

10.10 – 10.30 **OC5 Monica Dell'Acqua** – Università di Milano
"MediaChrom: exploring a new family of pyrimidoindolone-based polarity-sensitive dyes"

10.30 – 11.00 **Coffee Break**

Chairman: Silvia Bordoni

11.00 – 11.30 **KN2 Riccardo Pettinari** – Università di Camerino
"The development of anticancer drugs based on half-sandwich organometallic complexes containing bidentate donor ligands"

11.30 – 11.50 **OC6 Andrea Penoni** – Università dell'Insubria
"Synthesis of 3,3'-substituted-2,2'-biindoles and 2,2'-substituted-3,3'-biindoles: high valuable compounds for material science"

11.50 – 12.10 **OC7 Valerio Zanotti** – Università di Bologna
"Bond forming reactions involving isocyanides mediated by diiron complexes"

12.10 – 12.30 **OC8 Alessio Dessì** – CNR-ICCOM, Sesto Fiorentino
"Pd-catalysed synthesis of blue organic dyes and their application as sensitizers for near-IR absorbing dye-sensitized solar cells"

12.30 – 12.50 **OC9 Marco Baron** – Università di Padova
"Recent developments on gold(III) complexes with di(N-heterocyclic carbene) ligands"

12.50 – 15.00 **Lunch Break**

15.00 – 16.00 **Poster Session (P1-P14)**

Chairman: Gianna Reginato

16.00 – 16.30 **KN3 Cristiano Zuccaccia** – Università di Perugia

"Investigating the activation and transformation of catalysts for olefin polymerization and water oxidation by NMR"

16.30 – 16.50 **OC10 Chiara Lambruschini** – Università di Genova

"Design and synthesis of multifunctional fluorescent magnetic nanoparticles for promising biomedical applications"

16.50 – 17.20 **Coffee Break**

Chairman: Valeria Conte

17.20 – 18.10 **PL3 Enrico Marcantoni** – Università di Camerino (GICO Senior Award)

"The cerium-carbon bond in useful organometallic reagents for the synthesis of biologically relevant small molecules"

18.10 – 18.30 **OC11 Chiara Capacci** – Università di Bologna

"New nickel-phosphorus homoleptic carbonyl clusters: synthesis, characterization, and catalytic properties"

18.30 – 20.30 **Assemblea GICO**

Tuesday, 7th June

Chairman: Maurizio Peruzzini

9.00 – 9.50 **PL4 Gabriele Manca** – CNR-ICCOM, Sesto Fiorentino (Bonati Award)

"Electron transfers in organometallic chemistry and catalysis: integrated computational/experimental studies"

9.50 – 10.10 **OC12 Claudio Pettinari** – Università di Camerino

"Pyrazole-based ligands: a useful tool for bioinorganic, organometallic and material chemistry"

10.10 – 10.30 **OC13 Alissa C. Götzinger** – Heinrich Heine Universität, Düsseldorf

"Rapid one-pot synthesis of heterocycles by sequentially palladium-catalysed one-pot processes"

10.30 – 11.00 **Coffee Break**

Chairman: Enrico Marcantoni

11.00 – 11.30 **KN4 Ioannis Houpis** – Janssen-API Development, Beerse

"Diverse olefin synthesis via permutations of the Barluenga reaction"
11.30 – 11.50 **OC14 Umberto Piarulli** – Università dell'Insubria
"Supramolecular interactions for highly selective transition-metal catalysis"

11.50 – 12.10 **OC15 Roberto Esposito** – Università di Napoli Federico II
"Highly conjugated blue dimers of platinum(II)"

12.10 – 12.30 **OC16 Valeria Conte** – Università di Roma Tor Vergata
"Ferrocenylporphyrins: from synthesis to photoelectrochemical dioxygen activation"

12.30 – 12.50 **OC17 Alessandro Caselli** – Università di Milano
"Silver(I) catalyzed Henry reaction"

12.50 – 15.00 **Lunch Break**

15.00 – 16.00 **Poster Session (P15-P29)**

Chairman: Vito Capriati

16.00 – 16.30 **KN5 Antonio Papagni** – Università di Milano-Bicocca
"Cross-coupling reaction-based synthesis of organic semiconductors: non always an easy way"

16.30 – 16.50 **OC18 Daniela Intrieri** – Università di Milano
"Totem' C₂-symmetrical iron(III) porphyrin complexes to stereoselectively promote alkene cyclopropanation"

16.50 – 17.20 **Coffee Break**

Chairman: Carlo Nervi

17.20 – 18.10 **PL5 Marc Robert** – Université Paris Diderot
"Molecular catalysis of the reduction of CO₂ with iron porphyrins. From mechanistic studies to optimization of catalysts and to efficient electrolizers for CO₂ splitting into CO and O₂"

18.10 – 18.30 **OC19 Manuel Anselmo** – Università di Genova
"Highly convergent synthesis of intensively blue emissive furo[2,3-c]isoquinolines by a palladium-catalyzed cyclization cascade of unsaturated Ugi products"

20.00 **Social Dinner at the cloister of the Cathedral of Genova**

Wednesday, 8th June

Chairman: Valerio Zanotti

- 9.00 – 9.30 **KN6 Barbara Milani** – Università di Trieste
"Iminopyridines: versatile ligands for palladium catalyzed polymerization reactions"
- 9.30 – 9.50 **OC20 Stefano Brenna** – Università dell'Insubria
" σ -Donor and π -acceptor properties of substituted phenanthroline ligands in $[Mo(CO)_4(phen^)]$ complexes: an ETS-NOCV analysis"*
- 9.50 – 10.10 **OC21 Luca Mengozzi** – Università di Bologna
"Iron complexes as effective photocatalysts for the asymmetric alkylation of aldehydes"
- 10.10– 10.30 **OC22 Gabriel Menendez Rodriguez** – Università di Perugia
"Positional effect of a hydroxyl group on the activity of pyridyl-carboxylate catalysts for water oxidation"

10.30 – 11.00 **Coffee Break**

Chairman: Emanuela Licandro

- 11.00 – 11.20 **OC23 Alessandro Cimino** – Università dell'Insubria
"Catalytic properties of pyrazolato-based metal-organic frameworks with exposed metal sites"
- 11.20 – 11.40 **OC24 Dario Formenti** – Università di Milano
"Reductive cyclization of nitro compounds using CO surrogates: formate esters at work"
- 11.40 – 12.30 **PL6 Vito Capriati** – Università di Bari Aldo Moro
"Reshaping the future of polar organometallic chemistry toward sustainability: new challenges, strategies, and tactics with organolithium compounds"

12.30 – 12.50 **Poster Prize**

12.50 – 13.00 **Closing Ceremony**

ORAL COMMUNICATIONS

MediaChrom: exploring a new family of pyrimidoindolone-based polarity-sensitive dyes

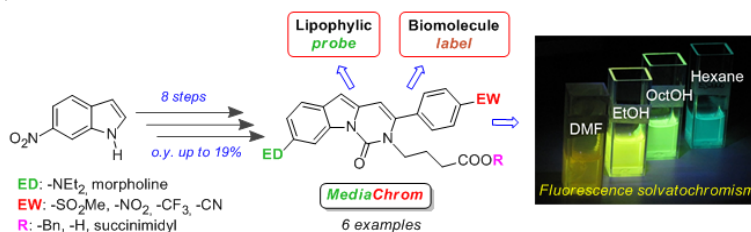
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The modern biological research asks for a continuous development of new fluorescent dyes characterized by improved performances and suitable to be used as markers or probes [1]. A particular class of dyes, called polarity-sensitive dyes have the unique features to display a different emission maximum as a function of the polarity of their molecular environment (media). This peculiarity makes polarity-sensitive dyes the ideal probes to monitor the local properties of particular cell districts as well as different type of biomolecular interactions [2]. Since many years, we have been interested in the development of new strategies for the synthesis and the functionalization of indoles and polycyclic indole-based heterocycles. In this context, we reported a domino approach to pyrimidoindolones [3] that displayed interesting fluorescence properties. Starting from these findings, a small library of original polarity-sensitive fluorescent dyes, nicknamed MediaChrom, has been prepared [4]. They are characterized by a pyrimidoindolone core fitted out with a conjugated push-pull system, and a linker for an easy coupling with biomolecules. The synthetic strategy involves a highly chemo- and regioselective gold catalyzed cycloisomerization as key step. The photophysical properties of MediaChrom dyes have been evaluated, and some potential biological applications have been spottily investigated.



- [1] Lakowicz, J. R. *Principles of Fluorescence Spectroscopy*, 3rd ed.; Springer: New York, 2006.
- [2] Klymchenko, A. S.; Mely, Y. In *Progress in Molecular Biology and Translational Science*, Morris, M.C. Editor(s), Academic Press, 2013, Vol. 113, Cap. 2, 35.
- [3] Facchetti, D.; Abbiati, G.; d'Avolio, L.; Ackermann, L.; Rossi, E. *Synlett* **2009**, 2273.
- [4] Dell'Acqua, M.; Ronda, L.; Piano, R.; Pellegrino, S.; Clerici, F.; Rossi, E.; Mozzarelli, A.; Gelmi, M. L.; Abbiati, G. *J. Org. Chem.* **2015**, 21, 10939.

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