Alessia Tombesi

e-mail: alessia.tombesi@unicam.it

EDUCATION and TRAINING

October 2019- October 2020 **Postdoctoral fellow**
University of Camerino
Scientific sector: CHIM/03 Chimica generale e inorganica-
Research project: "Sviluppo di vetri e specchi antimpronta ed antibatterici"
Supervisor: Professor Fabio Marchetti

May 2019-September 2019 **5 months fellowship**
University of Camerino
Research project**:** "MOFs contenenti leganti ditopici N,N-donatori: sintesi, caratterizzazione e studi biologici"
Supervisor: Professor Riccardo Pettinari

February 2018- August 2019 **Visiting PhD student researcher at UCL**
University College London
Supervisors: Professor Ivan Parkin

2015-2019 **PhD in Chemical Science Series XXXI Cycle**
University of Camerino
PhD thesis title: "Advanced functional coating for self-cleaning and anti-corrosion applications"
Supervisors: Professor Claudio Pettinari

2013- 2015 **Master degree in "Chemistry and advanced chemical methodologies**
University of Camerino
Thesis title: "Synthesis, Characterization And In Vitro Studies Of The Antimalarial Potential Activity Of Water Soluble Cu(I), Ag(I) And Au(I) Phosphane Complexes"
Supervisors: Prof. Maura Pellei, Prof. Annette Habluetzel
Co- Supervisor: Dr. Sofia Tapanelli

2009- 2013 **Bachelor in "Chemistry"**
University of Camerino
Thesis title: " Synthesis and characterization of Biologically Active Cu (I) and Ag (I) Complexes with Water-soluble Phosphines and Bidentate Nitrogenous ligands"

Supervisors: Prof. Maura Pellei, Prof. Carlo Santini

Co- Supervisor: Dr. Marika Marinelli

RELEVANT SKILLS

Technical skills

Experienced in general equipment to identify inorganic compounds**:**

- Thermogravimetric analysis (TGA)
- Scanning electron microscopy (SEM)
- X-ray photoelectron spectroscopy (XPS)
- UV-Vis spectroscopy
- FT-IR spectroscopy (MIR e FIR)
- Elemental Analysis (EA)
- Spectroscopy NMR (^{1}H, ^{13}C, ^{31}P, ^{19}F)
- Chromatographic techniques (TLC, GC, GC-MS, ESI-MS)
- Melting point determination
- Porosimetry analysis

Research and Analysis

- Ability to identify, define and analyse problems, to create solutions and evaluate them, and to choose the best solution for a particular context.
- Imaginative and innovative thinking to find new ways to approach a problem, analytical skills to examine the consequences of a particular solution, and reasoning skills to weigh one solution against another.
- Gathering and assimilating information from published sources to write review documents

Computing skills

Excellent knowledge of:

- Windows, Microsoft Office tools (Word, Excel and PowerPoint), Internet;
- Scientific software such as ChemOffice; Mercury, Vesta; Mestre nova; Origin
- Specific software for bibliographic research (SciFinder, Scopus, Web of Knowledge, Reaxys) to obtain research paper and implementing their findings and methods to reactions and research.

Communications skills

- Ability to summarise information, explain the aims, motives, results and conclusions of the research, and tailor the communication to the needs and knowledge level of a particular audience

- Skilled at communications scientific work in form of presentations poster and written reports obtained thanks to the annual drafting of reports on the PhD activity and related Doctoral dissertation.

Interpersonal Skills

- Collaboration with colleagues to develop and test research ideas
- Ability to work with others in groups and teams, both formal and informal.
- Open to receiving feedback and improving them as a result

Teaching Skills

- Co-supervisor the undergraduate research project of final year student**.**

  Title of student thesis**:** "*Sintesi di nuovi MOFs con leganti azolici e loro caratterizzazione allo stato solido."*

- Co-supervisor the undergraduate research project of final year student**.**

  Title of student thesis**:** "*Synthesis and characterization of new ruthenium complexes with Schiff bases, evaluation of potential applications in the biological and catalytic fields."*

- a.a 2018-2019 Teaching Assistants of CHEMISTRY to the students of the first year of the degree course in Chemistry
- a.a. 2017-2018 Teaching Assistants of CHEMISTRY to the students of the first year of the degree course in Chemistry
- a.a. 2016-2017 Teaching Assistants of CHEMISTRY to the students of the first year of the degree course in Biological sciences
- a.a. 2015-2016 Laboratory Assistant in *"Progetto Lauree Scientifiche"*

RESEARCH INTERESTS

- Sol-Gel chemistry: designed construction of hybrid organic-inorganic materials
- Designed, synthesized and characterized functional sol-gel thin films
- Soft chemistry based routes to nanostructured materials.
- Applications of hybrids (not limited to surface refinement by coatings)
- New routes to obtain advanced functional materials
- MOFs Metallic organic framework polymers: synthesis and characterization
- Inorganic synthesis

PUBLICATIONS

Tapanelli, S.;Habluetzel, A.;Pellei, M.;Marchiò, L.;Tombesi, A.;Capparè, A. & Santini, C. :Novel metalloantimalarials: Transmission blocking effects of water soluble Cu(I), Ag(I) and Au(I) phosphane complexes on the murine malaria parasite Plasmodium berghei. *J. Inorg. Biochem.* **166,** (2017).

Marchetti, F.;Pettinari, C.;Di Nicola, C.;Tombesi, A. & Pettinari, R. :Coordination chemistry of pyrazolone-based ligands and applications of their metal complexes. *Coord. Chem. Rev.* **401,** (2019).

Tombesi, A.;Li, S.;Sathasivam, S.;Page, K.;Heale, F. L.;Pettinari, C.;Carmalt, C. J. & Parkin, I. P. :Aerosol-assisted chemical vapour deposition of transparent superhydrophobic film by using mixed functional alkoxysilanes. *Sci. Rep.* **9,** (2019).

Vismara, R.;Tuci, G.;Tombesi, A.;Domasevitch, K. V.;Di Nicola, C.;Giambastiani, G.;Chierotti, M. R.;Bordignon, S.;Gobetto, R.;Pettinari, C.;Rossin, A. & Galli, S. :Tuning Carbon Dioxide Adsorption Affinity of Zinc(II) MOFs by Mixing Bis(pyrazolate) Ligands with N-Containing Tags. *ACS Appl. Mater. Interfaces* **11,** (2019).

Pettinari, C.;Tombesi, A.;Marchetti, F.;Di Nicola, C. & Pettinari, R. :Fifteen Years of Scientific Investigation into Main Groups and Transition Metal Coordination Chemistry with Allan White. *Aust. J. Chem.* **73,** (2020).

Balducci, F.;Adamopoulos, S.;Pettinari, C.;Canti, E.;Di Nicola, C.;Tombesi, A.;Cecchini, A. & Gabbani, C. :A formaldehyde-free adhesive for particleboards based on soy flour, magnesium oxide, and a plant-derived enzymatic hydrolysate. *BioResources* **15,** (2020).

Di Nicola, C.;Marchetti, F.;Pettinari, R.;Tombesi, A.;Pettinari, C.;Grappasonni, I.;Dyson, P. J. & Scuri, S. :Tethering (Arene)Ru(II) acylpyrazolones decorated with long aliphatic chains to polystyrene surfaces provides potent antibacterial plastics. *Materials (Basel).* **13,** (2020).

Di Nicola, C.;Tombesi, A.;Moroni, M.;Vismara, R.;Marchetti, F.;Pettinari, R.;Nardo, L.;Vesco, G.;Galli, S.;Casassa, S.;Pandolfo, L. & Pettinari, C. :Investigation on the interconversion from DMF-solvated to unsolvated copper(ii) pyrazolate coordination polymers. *CrystEngComm* **22,** (2020).

Pettinari, C. & Tombesi, A. :Metal–organic frameworks for chemical conversion of carbon dioxide. *MRS Energy Sustain.* **7,** (2020).

Pettinari, C. & Tombesi, A. :Metal–organic frameworks for carbon dioxide capture. *MRS Energy Sustain.* **7,** E35 (2020).

CONFERENCES and COURSES ATTENDED

- **1th International School of Chemistry "Chemistry for everyday life",** 1-6 September 2019, Camerino Italy
- **12th International School of Organometallic Chemistry** (**ISOC 2019**), 31 Agust-4 September 2019, Camerino (Italy)
- **VI ISGS Summer School Frontier Hybrid Materials** 16-19 September 2018 , Alghero (Italy)
- **11thInternational School of Organometallic Chemistry** (**ISOC 2017**), 2–6 Septemebr 2017, San Benedetto del Tronto (Italy)

Alessia Tombesi, Nello Mosca, Rebecca Vismara, Andrea Rossin, Claudio Pettinari,Corrado Di Nicola,Simona Galli.*"Synthesis and characterization of novel coordination framework incorporating bis(pyrazolyl)-tagged ligands for a different applications.* (poster). 11thInternational School of Organometallic Chemistry (ISOC 2017), Abs. Atti del Conv., poster 70, pag.53, 2-6 Settembre 2017, San Benedetto del Tronto (Italia). ISBN: 9788867680290.

Nello Mosca, Rebecca Vismara, Alessia Tombesi, Giulia Tuci, Giuliano Giambastiani, Andrea Rossin, Claudio Pettinari, Simona Galli. "NO2-tagged pyrazolate based MOFs: efficient CO2sorbents at ambient conditions". (poster). 11thInternational School of Organometallic Chemistry (ISOC 2017), Abs. Atti del Conv., poster 46,pag.41, 2–6 Settembre 2017, San Benedetto del Tronto(Italia). ISBN: 9788867680290.

- **XXXV Congresso delle Sezioni Toscana-Umbria-Marche-Abruzzo della Società Chimica Italiana** -**TUMA2016**, 25-27 September 2016, Giulianova (TE) XLIII Congresso Nazionale della Divisione Chimica Inorganica della Società Chimica Italiana.
  Alessia Tombesi, Caludio Pettinari, Leonardo Ferroni, Simone Sonaglia."Advanced functional coating: study and research to develop anti-fingerprint coating for industry use" (poster). XXXV Congresso delle Sezioni

Toscana-Umbria-Marche-Abruzzo -TUMA2016. Giulianova(TE), September 25-27, 2016.

Seminar and workshop:

Research Ethics carried out in University of Camerino 2016

English for writing research papers *carried out in* University of Camerino 2016

Scientific Writing, part II carried out in University of Camerino 2016

DNA G-QUADRUPLEXES from nucleic acid aptamers to highly ordered supramolecular structures carried out in University of Camerino 2016

Materials for Sodium-ion batteries carried out in University of Camerino

Horizon 2020 carried out *in* University of Camerino 2016

Data Signature

24/11/2020