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Alessandro Caselli

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Università degli Studi di Milano - Chemistry Department, via Golgi 19, 20133, Milano, Italy

● WORK EXPERIENCE

2022 – CURRENT – Italy

FULL PROFESSOR (SC 03/B1; SSD CHIM/03) – UNIVERSITÀ DEGLI STUDI DI MILANO

Department of Chemistry | via Golgi 19, 20133, Milano, Italy

2015 – 2021

ASSOCIATE PROFESSOR – UNIVERSITÀ DEGLI STUDI DI MILANO (IT), DEPARTMENT OF CHEMISTRY

2002 – 2015

ASSISTANT PROFESSOR – UNIVERSITÀ DEGLI STUDI DI MILANO (IT), DEPARTMENT OF CHEMISTRY

2000 – 2002

POST-DOCTORAL FELLOWSHIP – UNIVERSITÀ DEGLI STUDI DI MILANO (IT), DEPARTMENT OF ORGANIC AND INDUSTRIAL CHEMISTRY

1995 – 2000

PHD STUDENT – UNIVERSITÉ DE LAUSANNE (CH), DEPARTMENT OF INORGANIC AND ANALYTICAL CHEMISTRY

Lausanne, Switzerland

1995

VISITING RESEARCHER – UNIVERSITÀ DEGLI STUDI DI MILANO (IT), DEPARTMENT OF ORGANIC AND INDUSTRIAL CHEMISTRY

1992

ERASMUS EXPERIENCE – UNIVERSITY OF VALENCIA (ES), DEPARTMENT OF ORGANIC CHEMISTRY

Valencia, Spain

EDUCATION AND TRAINING

2000 – Lausanne, Switzerland

PHD IN CHEMISTRY – University of Lausanne (CH)

Title of the thesis: "The Chemistry of d²-Metal Carbenoids Over an Oxo Surface Modeled by Calix[4]arene".

Supervisor: Prof. Carlo Floriani

1995 – Milano, Italy

DEGREE IN CHEMISTRY – Università degli Studi di Milano (IT)

Title of the thesis: "Idrolisi di esteri stericamente impediti mediante anticorpi catalitici: sintesi degli apteni e loro impiego nella fase di immunizzazione". Supervisor: Prof. Giancarlo Jommi

1988 – Milano, Italy

CLASSICAL HIGH SCHOOL DIPLOMA – Liceo Statale G. Berchet

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C2	C1	C1	C1
FRENCH	C2	C2	C1	C1	B2
SPANISH	C2	C2	C1	C1	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Communication & presentation skills | Information Processing | Content Creation | Safety - independent user | problems solving | Good command of the Microsoft Office package | Mac environment | Data processing | Word Processing (Microsoft Word) | Chem Draw | Online Databases | Sci-finder | Reaxis

PUBLICATIONS

Selected Recent Publications (2021)

<https://orcid.org/0000-0002-5851-267X>

1. Federica A. Falchi, Giorgia Borlotti, Francesco Ferretti, Gianvito Pellegrino, Matteo Raneri, Marco Schiavoni, **Alessandro Caselli**, Federica Briani.

"Sanguinarine inhibits the 2-ketogluconate pathway of glucose utilization in *Pseudomonas aeruginosa*"
J. CO₂ Util., **2021**, 51, 101635-2771. DOI: 10.1016/j.jcou.2021.101635.

2. Nicola Panza, Armando di Biase, Emma Gallo, **Alessandro Caselli**.

"Unexpected "ferrate" species as single-component catalyst for the cycloaddition of CO₂ to epoxides"
J. CO₂ Util., **2021**, 51, 101635-2771. DOI: 10.1016/j.jcou.2021.101635.

Elsevier Science BV, Amsterdam, Netherlands. September 2021.

3. Elisa Brambilla, Matteo Giannangeli, Valentina Pirovano, Elisabetta Rossi, **Alessandro Caselli**, Giorgio Abbiati

"Synthesis and photophysical evaluation of polarity sensitive push-pull isoquinolines and their alkynyl precursors"

Org : Biomol. Chem., **2021**, 19, 4958-4968. DOI: 10.1039/D1OB00572C.

4. Caterina Damiano, Paolo Sonzini, **Alessandro Caselli**, Emma Gallo.

"Imido complexes of groups 8-10 active in nitrene transfer reactions"

Adv. Organomet. Chem., **2021**, 76, 145-184. DOI: 10.1016/bs.adomc.2021.04.002.

5. Matteo Cavalleri, Nicola Panza, Armando di Biase, Giorgio Tseberlidis, Silvia Rizzato, Giorgio Abbiati, **Alessandro Caselli**.

"[Zinc(II)(Pyridine-Containing Ligand)] Complexes as Single-Component Efficient Catalyst for Chemical Fixation of CO₂ with Epoxides"

Eur J. Org: Chem., **2021**, 2021, 2764-2771. DOI: 10.1002/ejoc.202100409.

Research Interests

Homogeneous Catalysis, Coordination Chemistry, Organometallic Chemistry, Mechanistic Studies, Asymmetric Synthesis.

(Orcid ID: orcid.org/0000-0002-5851-267X)

<http://www.researcherid.com/rid/A-6215-2009>

<http://www.scopus.com/authid/detail.url?authorId=8902462600>

Currently, my research interest is focused on the employment in homogeneous catalysis of transition metal complexes with macrocyclic N-ligands, with special attention to the synthesis of new asymmetric ligands starting from easily available chiral pool (*i.e.* amino-acids or sugars) in order to produce cost-effective, energy-efficient and eco-friendly catalysts for use in production of chemicals. The target organic products are high added value fine chemicals and/or structural units of biologically relevant compounds. Particular emphasis is given to innovative technologies and to the mechanistic aspects of the catalytic reactions under study, in order to improve the catalyst design and performances. The use of reagents that meet the atom-efficiency requirements (CO₂, O₂, H₂O₂, carbenes, azides, etc.) together with the employment of eco-sustainable catalyst based on first-row transition metals is privileged. In recent projects, I moved my interests to the development of new methods which combine the ease of catalyst recovery of heterogeneous systems with the higher performances in terms of activity and selectivity obtained with homogeneous catalysts and to the use of continuous flow conditions.

More recently, a new topic of research has involved the development of nanostructured solids with controlled release of bioactive species against pests of agricultural crops.

The research activity resulted in 82 papers on international refereed journals ($h_i = 31$).

● CONFERENCES AND SEMINARS

Conference invited speaker

Conference speaker (2017-2019):

2019 Invited plenary lecture at the 2nd Chemistry International Days (JIC-2019, Nouakchott, Mauritania, 14-16 November).

2019 Invited plenary lecture at the 3rd Tunisian Chemical Society Conference on Coordination Chemistry (JCC 2019, Hammamet, Tunisia, 26-29 September).

2018 Lecturer at the 28th International Conference on Organometallic Chemistry, ICOMC 2018 (Florence, Italy, 15-20 July).

2017 Invited plenary lecture at the 1st Chemistry International Days (JIIC-2017, Nouakchott, Mauritania, 6-8 December).

2017 Key note lecture at the 26th National Congress of the Italian Chemical Society (PaestumSalerno, Italy, 10-14 September).

2017 Invited plenary lecture at the 2nd Tunisian Chemical Society Conference on Coordination Chemistry (JCC 2017, Hammamet, Tunisia, 11-14 May).

Seminars

2021: Doctoral Lecturer "Catalysis for the development of sustainable technologies: green conversion of waste materials", PhD School in Industrial Chemistry, University of Milan (I) (6 h).

2020-22: Lecturer 'Master Process Chemistry Applied to Active Pharmaceutical Ingredients' (2nd level vocational master), University of Milan (I), (4 h/year). (<https://www.masterprochemapi.unimi.it/docenti.html>).

2019: Université de Nouakchott (Mauritania), "Organometallic chemistry".

2013: University of St Andrews (Scotland), "Asymmetric Cyclopropanations Catalyzed by Copper (I) Complexes of Chiral Pyridine-Containing Macrocyclic Ligands (Pc-L *)".

2008: Doctoral Lecturer "Metal Mediated Carbene Transfer Processes", Doctoral School in Chemical Sciences and Technologies, University of Milan (I) (2 h).

2007: Pierre et Marie Curie University (Paris VI, France), "Cyclopropanation reactions catalyzed by chiral transition metal complexes: mechanistic studies".

2007: Doctoral Lecturer "Nitrene Transfer Reactions Catalyzed by Transition Metal Complexes" Doctoral School in Chemical Sciences and Technologies, University of Milan (I) (3 h).

2006: University of Padua (Italy), "Recent Advances on Porphyrin Complexes of Transition Metals as Catalysts in Amination Reactions".

2001-02: seminar within the cycle of lectures for PhD students in Chemical Sciences of the University of Insubria entitled: "Fixation and reduction of molecular nitrogen and carbon monoxide by electron-rich niobium metal complexes".

2000-03: three seminars within the course of Chemistry of organometallic compounds, for the Degree Course in Chemical Sciences, held by Prof. Fulvia Orsini with the following qualifications: "Synthesis and study of the reactivity of left-wing metal complexes of the transition series linked to a macrocyclic binder "; "Stabilization of highly reactive metal species in a low oxidation state. Metathesis reactions of a metal-metal double bond with carbonyl functionality "and" Fixation and reduction of the carbon monoxide molecule and the nitrogen molecule ".

2001-02: didactic seminars within the teaching of Organic Chemistry Laboratory (II course) for the Degree Course in Chemical Sciences; University of Insubria - Como (25 hours).

● ORGANISATIONAL SKILLS

Institutional experience

2021-present coordinator of the Scientific Committee of the COSPECT Unitech (COmprehensive Substances characterization via advanced sPECTroscopy; <https://www.unimi.it/en/research/places-organizations-and-infrastructures/unitech/cospect-unitech>); Università degli Studi di Milano

2018-2021 Member of the Academic Senate; Università degli Studi di Milano

2017-2021 Scientific coordinator for the Mass Spectrometry Service; Department of Chemistry, Università degli Studi di Milano

2015-2018 Coordinator of Chemistry Department Board of Instruments and Technical Gases; Università degli Studi di Milano

2009-2012 Member of the Academic Senate; Università degli Studi di Milano

Organisation of conferences

2018 Member of the Scientific committee and President of the Organizing committee of the 2° Seminario di Spettrometria di Massa (2° SSM) organized by the Department of Chemistry and the Unitech COSPECT, Milano, 21-22 June **2018**.

2017 Member of the Scientific committee and President of the Organizing committee of the 1° Seminario di Spettrometria di Massa (1° SSM) organized by the Department of Chemistry and the Unitech COSPECT, Milano, 23 June **2017**.

2014 XI Congresso del Gruppo Interdivisionale di Chimica Organometallica (coGICO 2014) Milano, 24-27 June **2014**.

2007 XXXV Congresso Nazionale della Divisione di Chimica Inorganica della Società Chimica Italiana – Milano 3-7 September **2007**.

Managerial skills

From **2017** to **2020**, scientific manager of the Mass Spectrometry Service of the Department of Chemistry, University of Milan.

From **2019** to present, member of the Board of the Analysis Laboratory, Department of Chemistry, University of Milan

● COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

Scientific dissemination activities:

2020 September 29th "Talking with the Scientist". Dissemination event organized by Mipol2020. "Turning CO₂ from problem to solution: use as chemical feedstock", direct streaming interview (<https://www.facebook.com/MIPOL2020/videos/371980430592093>).

2019 April 12th Streaming interview "Scienza Frontiere: Sustainable Chemistry" for Planet Nine (<https://www.youtube.com/watch?v=nkiy6H9pAP4>).

2018: Rai play, "In viaggio con la chimica", <http://www.raiscuola.rai.it/articoli/alessandro-caselli-in-viaggio-con-la-chimica/42093/default.aspx>

2017-2018: Head of the Stand organized by the Department of Chemistry, University of Milan, on the occasion of the MeetMeTonight event - The researchers' night.

2017: Ray play, "Il grande viaggio della chimica nello spazio e nel tempo", <http://www.raiscuola.rai.it/articoli/il-grande-viaggio-della-chimica-nello-spazio-e-nel-tempo/38639/default.aspx>

He usually carries out scientific dissemination activities and educational workshops at elementary schools.

From **2014** to **2019**, Member of Board: Commissione di Orientamento (Commission for Orientation), Department of Chemistry, Università di Milano.

● OTHER SKILLS

Grants

- **2017:** "DIOL" – Defence from Noxious Organisms in Conventional and Intensive Oliviculture", grant protocol no. 23774. Research Unit CNR-ISTM (resp. dr. M. Guidotti), funded by the Ministry of Agricultural, Food and Forestry Policies – public national body - € 603'238.69€; 01/10/2017 – 30/09/2020. (DCM.AD004.016.001) (Participant).
- **2015:** noMAGIC project, "Noninvasive Manipulation of Gating in Ion Channels" Project ID: 695078 Funded under: H2020-EU.1.1. – EXCELLENT SCIENCE – European Research Council (ERC) (Participant).
- **2015:** Piano Sostegno alla Ricerca 2015-17-LINEA 2 Azione B (PI).
- **2014:** Transition Grant 2014/2016 Piano di Sviluppo UNIMI-Linea B1 (PI).
- **2007:** PRIN 2007 - 2007HMTJWP_004 (participant).
- **2005:** PRIN 2005 - 2005035123_002 (participant).
- **2003:** PRIN 2003 - 2003033857_002 (participant).
- **2003:** FIRB 2003 - RBNE03JCR5_003(participant).
- **2002:** PRIN 2002 - 2002058141_007 (participant).

Contracts

- **2019:** Technical manager for the execution of a Research contract commissioned by the company Ecosfera s.r.l. "Study of the chemical characteristics of polymeric material from production waste".
- **2017:** Scientific responsible for the execution of a service contract with the company EVERKEM s.r.l.
- **2009:** Responsible for the planning and carrying out of the laboratory tests of the Financed Research "New catalytic methodologies for the synthesis of intermediates of pharmaceutical interest" commissioned by the company A.M.S.A. ANONYMOUS RELATED SYNTHETIC MATERIALS s.p.a.
- **2008:** Director for the execution of the Funded Research Project "Experimental tests for the adsorption of acid gases in solvents" commissioned by the company TECHINT - Compagnia Tecnica Internazionale SpA Spa E&C Division of Milan.

● **TEACHING ACTIVITIES**

Teaching activities

2000-present Supervisor of PhD and undergraduate students, University of Milano (Italy).

2003-present Lecturer, "Metallorganic Chemisrty", (1st year of "Laurea Magistrale in Scienze Chimiche"), University of Milano (Italy).

2012-present Lecturer, "Laboratory of Inorganic Chemistry A", (1st year of "Laurea Magistrale in Scienze Chimiche), University of Milano (Italy).

2014-present Lecturer, "Laboratory of Coordination Chemistry", (3rd year of "Laurea in Scienze Chimica), University of Milano (Italy).

2008-2010 Lecturer, "Laboratory of General and Inorganic Chemistry", (1st year of "Laurea in Chimica"), University of Milano (Italy).

2003-2010 Teaching Assistant, "Laboratory of Inorganic Chemistry and Materials", (2nd year of "Laurea in Chimica"), University of Milano (Italy).

2003-2013 Teaching Assistant, "Laboratory of Inorganic Chemistry A", (1st year of "Laurea Magistrale in Scienze Chimiche), University of Milano (Italy).

1996-2000 Assistant to laboratories of chemistry classes to 1st year undergraduate students, University of Lausanne (Switzerland).

Activity as Tutor

2003-present: he has been supervisor of 25 master's degree thesis in Chemical Sciences and co-tutot of 29 master's degree thesis in Chemical Sciences, Industrial Chemistry and CTF; supervisor of 40 experimental internship thesis for the Degree courses in Chemistry and Industrial Chemistry.

2011-present: he has been tutor of 6 PhD theses and co-tutor of 4 PhD theses in Chemical Sciences and in Industrial Chemistry.

Since **2018** he is tutor for 1 thesis for the XXXIII and 1 thesis for the XXXIV cycle of the Doctorate in Industrial Chemistry.

From **2013** to **2020** he is a member of the Teaching Board of the Doctorate in Industrial Chemistry

● **EDITORIAL ACTIVITY**

Editorial activity

2020 - present: Associate Editor on the Editorial Board of Organometallic Catalysis (specialty section of Frontiers in Catalysis).

2020: Author of the book "Stechiometria" A. Caselli, S. Rizzato, F. Tessore, VI Edition, EDISES.

2015: Author of the book "Stechiometria" A. Caselli, S. Rizzato, F. Tessore, V Edition, EDISES.

Reviewer activity

More than 100 verified review (<https://publons.com/researcher/934489/alessandro-caselli/peer-review/>) for international referred journals such as: Green Chemistry, Dalton Transactions, Molecules, Inorganica Chimica Acta, Journal of Organometallic Chemistry, Tetrahedron Letters, Catalysis Science & Technology, Catalysts, European Journal of Organic Chemistry, European Journal of Inorganic Chemistry, RSC Advances, The Journal of Organic Chemistry, Zeitschrift fur Anorganische und Allgemeine Chemie, Chemical Society Reviews, Chemistry – A European Journal, Inorganic Chemistry, Organometallics, ACS Catalysis, Inorganic Chemistry Communications, Applied Clay Sciences, Arabian Journal of Chemistry, Arkivoc, Journal of Carbon research, Chinese Journal of Chemistry, Crystals, Industrial & Engineering Chemistry reviews, Journal of Molecular Catalysis A: Chemical, MolBank, New Journal of Chemistry, Organic and Biomolecular Chemistry, Synthesis and Reactivity in Inorganic Metal-Organic and Nano-Metal Chemistry, Synlett, Tetrahedron, The Journal of Physical Chemistry.