



Prof. MATTEO BONOMO'S CURRICULUM VITAE: RESEARCH AND TEACHING ACTIVITIES

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SAPIENZA
UNIVERSITÀ DI ROMA



1. GENERAL INFORMATION

1.1. PERSONAL DATA

<i>Name</i>	Matteo Bonomo (MB)
<i>Citizenship</i>	Italian
<i>Birth</i>	28/04/1991, Roma (RM), Italia
<i>Fiscal Code</i>	BNMMTT91D28H501Q
<i>Main affiliation</i>	Department of Basic and Applied Sciences for the Engineering La Sapienza, University of Rome Via A. Scarpa 10, I-00178, Rome, Italy
<i>Researcher</i>	ORCID ID: 0000-0002-1944-2664
<i>Unique Identifiers</i>	ResearcherID: D-4194-2019 Scopus Author ID: 57189304159 Google scholar: https://scholar.google.it/citations?user=mLbkiUwAAAAJ&hl=it
<i>Contacts</i>	Phone.: +39 06 4976-6743, Mobile.: +39 334 2369087, fax: +39 06 44240183 e-mail: matteo.bonomo@uniroma1.it

1.2. EDUCATION

20/12/2018	Ph.D. in Chemical Science graduated <i>cum Laude</i> at the University of Rome, La Sapienza Supervisor: Prof. D. Dini Title: "Photo-Electrochemistry of Sensitized Semiconducting Oxides as Photocathodes in p-Type DSCs"
17/07/2015	Master Degree in Chemistry (LM-54) graduated at the University of Rome, La Sapienza Supervisor: Prof. D. Dini Final Grade: <u>110/110 cum laude</u> Title: "Celle solari a colorante di tipo p: effetto delle condizioni di sintesi del catodo fotoattivo e confronto di diversi coloranti organici di nuova concezione"
17/07/2013	Bachelor Degree in Chemistry (L-27) graduated at the University of Rome, La Sapienza Supervisor: Prof. F. Decker Final Grade: <u>110/110</u> Title: "Studio e Caratterizzazione di Celle DSSC; Messa a Punto di Nuovi Apparatì Strumentali (Tecniche a Luce Modulata)"
2010	Diploma di Maturità Classica graduated at Liceo Ginnasio Classico Statale "Augusto" di Roma Final Grade: <u>100/100</u>



1.3. ACADEMIC CARRER AND PROFESSIONAL ACTIVITIES

- November 2024 – current* **Associate Professor (ssd CHEM/06)** at Dipartimento di Scienze di Base Applicate all'Ingegneria dell'Università di Roma, La Sapienza
- October 2022 – October 2024* **Assistant Professor (RTD-B – ssd CHIM/04)** presso il Dipartimento di Chimica dell'Università di Torino
- December 2020 - September 2022* **Assistant Professor (RTD-A – ssd CHIM/04)** at Dipartimento di Chimica dell'Università di Torino
- April 2020 - November 2020* **Senior Researcher** at Dipartimento di Chimica dell'Università di Torino
Project: "Synthesis of materials and related solar cells for UV-PSC and NIR-DSSC"
Scientific Supervisor: Prof.ssa C. Barolo
- March 2019 - March 2020* **Senior Researcher** at Dipartimento di Chimica dell'Università di Torino
Project: "Design, synthesis and application of innovative organic and hybrid materials for emerging PV devices"
Scientific Supervisor: Prof.ssa C. Barolo
- December 2019 - February 2020* **Visiting Researcher** at BCMaterials (Bilbao, Spain)
- Project: INDESMOF-
- November 2018 - February 2019* **Research Scholarship** at Dipartimento di Chimica dell'Università di Torino
Project: "Design, synthesis and application of innovative organic and hybrid materials for emerging PV devices"
Scientific Supervisor: Prof.ssa C. Barolo
- October 2017 - March 2018* **Visiting Ph.D.** at UCD School of Mechanical and Material Engineering (University College Dublin, Ireland)

1.4. SCIENTIFIC NATIONAL HABILITATION

M.B. has been unanimously habilitated to the role of Professor of II level for **the SECTOR 03/B2 – CHEMICAL FUNDAMENTALS OF TECHNOLOGIES** starting from 02/06/2023 (Valid until **02/06/2033**)

M.B. has been unanimously habilitated to the role of Professor of II level for **the SECTOR 03/B1 – CHEMICAL FUNDAMENTALS OF CHEMICAL SCIENCES AND INORGANIC SYSTEMS** starting from 01/02/2022 (Valid until **01/02/2032**)

M.B. has been unanimously habilitated to the role of Professor of II level for **the SECTOR 03/A2 – MODELS AND METHODS FOR CHEMICAL SCIENCES** starting from 26/05/2021 (Valid until **26/05/2031**)



M.B. has been unanimously habilitated to the role of Professor of II level for **the SECTOR 03/C2 – INDUSTRIAL CHEMISTRY** starting from 26/05/2021 (Valid until **26/05/2031**)

1.5. SUMMARY OF THE RESEARCH OUTPUT, INSTITUTIONAL OBLIGATIONS AND MEMBERSHIP OF SCIENTIFIC SOCIETIES

<i>Journal Articles</i>	86 (72 articles on journals indexed on Scopus with IF e 13 review on journal indexed on Scopus con IF): 17 of them as first author, 20 of them as <i>corresponding author</i> and 16 of them as both first and corresponding author
<i>Other contribution</i>	1 Book Chapter, 1 Editorial
<i>Research Metrics</i>	Sum of the Times Cited 2246 (2706)
<i>Scopus (Google Scholar)</i>	Averaged Citation per Item 26.4 (31.5)
<i>01/10/2024</i>	h-index 26 (28) i10-index (Google Scholar) 55 IF total 459 (Journal IF respect to publication year or IF ₂₀₂₃ if it is not available) IF medium 5.5 (Journal IF respect to publication year or IF ₂₀₂₃ if it is not available)
<i>Institutional Obligation</i>	Currently MB è Member of the Struttura Operativa Permanente Scientifica della SCI Currently MB è Member of the Direttivo della SCI Giovani (Delegato delle Divisione di Elettrochimica) Currently MB è Member of the Direttivo della SCI - Divisione di Elettrochimica Currently MB è Member of the Direttivo della SCI – Gruppo Interdivisionale ENERCHEM Currently MB è Member of the Consiglio Di Dipartimento (Dipartimento di Chimica, Università di Torino) Currently MB è Member of the Commissione Internazionalizzazione (Dipartimento di Chimica, Università di Torino) Currently MB è Erasmus Contact of the Master Course in Chimica Industriale (Dipartimento di Chimica, Università di Torino) Currently MB è Contact for the Energy Cluster (Dipartimento di Chimica, Università di Torino) for Public Engagement Activities
<i>Membership of Scientific Societies</i>	Currently MB is member of the SCI (Società Chimica Italiana), Divisions of Elettrochimistry, Chemical Physics and Industrial Chemistry , and GIF (Gruppo Interdivisionale di Fotochimica). Currently MB is member of ISE (International Society of Electrochemistry), EPA (European Photochemistry Association) and EYCN (European Young Chemistry Network)
<i>Membership of</i>	Currently MB is member of INSTM (Consorzio Interuniversitario



Scientific Societies Nazionale per la Scienza e Tecnologia dei Materiali) and **GISEL** (Gruppo Italiano per lo Storage Elettrochimico)

1.6. MASTER SCHOOLS

May 2019 1st International Spring School of Electrochemistry
@Castellammare del Golfo, Italia

June 2016 7th School of Photochemistry
@Bologna, Italia

1.7. LANGUAGES

ITALIAN: Native Language

ENGLISH: Excellent in reading, writing, speaking and listening.



2. RESEARCH ACTIVITIES AND SCIENTIFIC PUBLICATIONS

2.1. RESEARCH ACTIVITIES

RESEARCH INTERESTS AND LEADERSHIP SKILL

Prof. **Matteo Bonomo (MB)**'s research activity is mainly devoted to the **SYNTHESIS** and **CHARACTERIZATION** of the **chemical** and **physical properties** of **nanostructured materials** to be applied in industrial and energy production and storage application with specific attention to the **electronic, structural** and **superficial properties**.

MB's main expertise deals with:

- a) the synthesis of inorganic and hybrid (e.g. Metal Organic Frameworks) nanostructured materials, organic functional molecules and innovative molecular solvents (Ionic Liquids and Deep Eutectic Solvent) with peculiar attention to the exploitation of sustainable processes with low cost and reduced environmental impact, to be applied also on an industrial scale.
- b) the experimental investigation of the structure and properties of innovative nanostructured materials to be exploited in **photocatalysis** and **solar energy conversion**. Since the beginning, **MB's research activity** is devoted to the **chemical-physical CHARACTERIZATION** and to the industrial **APPLICATION** of nanostructured materials by the exploitation of different techniques.
 - 1) Electrochemical and photoelectrochemical characterization: Cyclic Voltammetry (**CV**), Electrochemical Impedance Spectroscopy (**EIS, IMPS, IMVS**).
 - 2) Fundamental characterization of materials: X-ray Diffraction (**XRD**), Scanning Electron Microscopy (**SEM**), Thermogravimetric Analysis (**TGA**)
 - 3) Advanced Characterization of Materials: Infrared Spectroscopy (**IR**), **UV-Vis-NIR** spectroscopy (both absorption and emission), Nuclear Magnetic Resonance Spectroscopy (**¹H, ¹³C, ¹⁹F NMR, DOSY, PGSE, HOESY**)

More recently (since 2018), MB's research interests deals also with the

- a) **SYNTHESIS** and **STRUCTURAL CHARACTERIZATION** of innovative molecular solvent (e.g. Deep Eutectic Solvents) to be applied as **Green Solvent, Electrolytes** for batteries and photovoltaic devices, molecular sieves and for wastewater treatment;
- b) **SYNTHESIS** and **APPLICATION** of encapsulant polymers for the protection (on an industrial scale) of photovoltaic devices.

2.1.1. PARTECIPATION AND/OR COORDINATION OF NATIONAL AND INTERNAZIONALE RESEARCH GROUPS

Hereafter, the main scientific collaborations held by MB have been reported; they are divided into international, national and local along with the **number of scientific publications** born from them and the period of collaboration. **The star** detects the collaborations that **are still ongoing**. Data shown evidence the ability of MB in the **establishment of collaboration** characterized by an **excellent level of scientific production and prolonged in time**.

Among international collaborations the more significant ones are with (i) the group of **Prof. S. Passerini e Dr. A. Mariani (Karlsruhe Institute of Technology - Germany)**, since **2017, 6 publications**, (ii) with Prof. C.F.O. Graeff (**Universidade Estadual Paulista - Brasil**), since **2016, 4 publications**, (iii) with **Prof. D.P. Dowling (University College Dublin - Ireland)**, since **2016, 5**



publications, (iv) with Dr. F. Sauvage (CNRS Amiens - France), since 2020, 2 publications, (v) with Prof. E. Pires (University of Zaragoza - Spain), since 2023, 1 publications,

Among National collaborations the more significant ones are with (i) **Prof. A. Di Carlo (Università di Roma, Tor Vergata, since 2016, >15 publications)**, with (ii) **Prof. A. Carella (Università di Napoli Federico II, since 2017, 7 publications)**, with (iii) **Dr. L. Gontrani and Prof. M. Carbone (Università di Roma Tor Vergata, since 2017, >10 publications)**, with (iv) **Prof. C. Gerbaldi and Prof. F. Bella (Politecnico di Torino, since 2019, 9 publications)** Beyond, it is worth mentioning the collaboration (started during the Ph.D.) with **Prof. A.G. Marrani (Università di Roma, La Sapienza, since 2016, 6 publications).**

Collaborations with International Universities and Research Centers					
Entity	Nation	People	Publications	Topic	Projects‡
University of Zaragoza*	Spagna	E. Pires	1 (2023-2024)	Deep Eutectic Solvents	GREENNESS
Karlsruhe Institute of Technology*	Germania	Dr. A. Mariani	6 (2017-2024)	Liquidi Ionici E Deep Eutectic Solvents	-----
University College Dublin	Irlanda	Prof. D.P. Dowling	6 (2016-2021)	Materiali Nanostrutturati	-----
Universidade Estadual Paulista	Brasile	Prof. C.F.O. Graeff Dr. M. Conigu	4 (2016-2021)	Materiali e metodi di deposizione Innovativi	PAR2016
Centre national de la recherche scientifique (CNRS)*	Francia	Dr. F. Sauvage	2 (2020-2024)	Materiali innovativi per applicazione fotovoltaica	IMPRESSIVE

*Ongoing Collaboration.

†Number of publications is related to the Entity (Source Scopus 01/10/2024).

‡For further details please look at section 2.1.1.2

Collaborations with National Universities and Research Centers					
Entity	City	People	Publications	Topic	Projects‡
Università Tor Vergata*	Roma	Prof. A. Di Carlo Dr. F. Matteocci Dr. P. Mariani	> 15 (2016-2024)	Photovoltaic Devices	IMPRESSIVE PEROVSKY CANVAS SPOT-IT
Università Federico II*	Napoli	Prof. A. Carella Prof. R. Centore	7 (2017-2024)	Photovoltaic Devices	-----
Università Tor Vergata*	Roma	Prof. M. Carbone Dr. L. Gontrani	>10 (2017-2024)	Deep Eutectic Solvent And Ionic Liquids	-----
Politecnico di Torino	Torino	Prof. C. Gerbaldi Prof. F. Bella	9 (2019-2024)	Energy Production and Storage Systems	SUNRISE GENESIS
Università La Sapienza*	Roma	Prof. A.G. Marrani	6 (2016-2022)	Nanomaterials	-----

*Ongoing Collaboration.

†Number of publications is related to the Entity (Source Scopus 01/10/2024).



‡For further details please look at section 2.1.1.2

2.1.2. COORDINATION AND PARTECIPATION TO RESEARCH PROJECTS

MB has been involved (as *Principal Investigator (P.I.)* or as **Partecipant**) in both fundamental and applied research activity, founded by local, national and European Institutions, as reported in the following tables.

MB has been actively involved in different project since 2017, working on the synthesis and characterization of innovative materials for photovoltaic applications (**IMPRESSIVE, PEROVSKY, PAR-2016; AR11715C7F641B8C**), the synthesis and characterization of hybrid nanocomposites MOF@ILs (**INDESMOF**), the investigation of Deep Eutectic Solvents for electrochemical applications (**RG11816430F719B5**) and the synthesis and characterization of materials for the selective catalysis (**CUBE**).

Projects				
Period	Call and funder	Role	Budget	Title
2023-2026	CET-Partnership 2022	Local PI	Unito 130 k€	Stable printed perovskite/organic tandem solar cells and modules for indoor & IoT (SPOT-IT)
2025-2023	PRIN 2022	Local PI (Vice PI)	Unito 70 k€	Green Electrolyte and Biomass-derived Electrodes for Sustainable Electrochemical Storage Devices (GENESIS)
2025-2023	Bando A: Ricerca di Sistema	Proponent and WP leader	Unito 500k€ (WP 200k€)	nuovi Concetti, mAteriali e tecnologie per l'iNtegrazione del fotoVoltAico negli edifici in uno scenario di generazione diffuSa (CANVAS)
2023	Grant for Internationalization – GFI dell'Università di Torino	PI	12.5k€	Glycerol-inspiRed dEep Eutectic solveNt: Characterization and Application as green solvEntS and electrolyteS (GREENNESS)
2022-2023	CRT	Proponent	50 k€	LEC: il futuro dell'illuminazione a basso consumo
2024-2022	H2020-LCCI-2020-EASME-twostage - H2020-LOW-CARBON-CIRCULAR-INDUSTRIES-2020	Partecipant (Sub-contrante)	Unito 50K€	MultiSensor sorting tools in a circular economy approach for the efficient recycling of PVB interlayer material in high-quality prodUcts from laminated glass coNstRuction and demolition waStEs (SUNRISE)
2020-2026	ERC Synergy Grant 2019	Partecipant (Assistant Professor)	Unito 2.08 M€	Unravelling the secrets of Cu-based catalysts for C-H activation
2022-2018	H2020-MSCA-RISE-2017, MSCA-RISE-2017 - Marie Skłodowska-Curie Research and Innovation Staff Exchange, MSCA-RISE	Partecipant (Senior Researcher)	Unito 162 k€	International Network on Ionic Liquid Deep Eutectic Solvent Based Metal Organic Frameworks Mixed Matrix Membranes (INDESMOF)



2022-2020	PON Ricerca e Innovazione 2014-2020	Partecipant (Senior Researcher)	Unito 50 k€	Tecnologia per Celle Solari Bifacciali ad Alta Efficienza a 4 Terminali per "Utility Scale" (BEST-4U)
2021-2019	H2020-LC-SC3-2018-Joint-Actions-3 LC-SC3-RES-2-2018 Disruptive innovation in clean energy technologies	Partecipant (Senior Researcher)	Unito 465 k€	Ground-Breaking Tandem of Transparent Dye Sensitised and Perovskite Solar Cells (IMPRESSIVE)
2019-2018	Progetti di ricerca industriale e/o sviluppo sperimentale pubblicato Agenzia Spaziale Italiana "Nuove Idee Per La Componentistica Spaziale Del Futuro"	Partecipant (Senior Researcher)	Unito 70 k€	Perovskite and Other Printable Materials for Energy Application in Space" (PEROSKY)
2019-2018	Progetto B.1.2 - Ricerca su tecnologie fotovoltaiche Ministero Sviluppo Economico – ENEA (PAR 2017)	Partecipant (Ph. D.)	Uniroma1 63.6 k€	Crescita e caratterizzazione di buffer layer in ZnxCd1-xS per celle a base di CZTS
2018	Progetti di Ricerca Grandi (RG11816430F719B5) La Sapienza Università di Roma	Partecipant (Co-Proponent)	Uniroma1 25 k€	Structural and chemical-physical characterization of new DESs for advanced applications in electrochemistry
2017	Progetti per Avvio alla Ricerca - Tipo 1. (AR11715C7F641B8C) La Sapienza Università di Roma	PI (Proponent)	Uniroma1 1.8 k€	Applicazione del principio di funzionamento della DSC (Dye-Sensitized Solar Cell) per la fotoproduzione di idrogeno

2.1.3. AWARDS AND ACKNOWLEDGMENTS

Septmeber 2024	"World Ranking of Top 2% Scientists" in 2023 database by Stanford University, USA.
October 2023	"World Ranking of Top 2% Scientists" in 2022 database by Stanford University, USA.
March 2023	Appointed as member of Struttura Operativa Permanente (SOP) Scientifica SCI per il triennio 2023-2025
March 2023	Recognized as "Outstanding Reviewer for Sustainable Energy & Fuels in 2022"
February 2023	"Wiley Top Downloaded Article" for the paper <i>"Solid-state post Li metal ion batteries: a sustainable forthcoming reality?"</i> <i>Advanced Energy Materials</i> 11 (43), 2100785"
February 2023	"Wiley Top Cited Article" and "Wiley Top Downloaded Article" for the paper <i>"Poly(3,4-ethylenedioxythiophene) in dye-sensitized solar cells: toward solid-state and platinum-free photovoltaics"</i> <i>Advanced Sustainable Systems</i> 5 (11), 2100025



- October 2022* **“World Ranking of Top 2% Scientists”** in 2021 database by Stanford University, USA.
- October 2022* **Premio “GIF Young Investigator Award 2022”** (Riconoscimento al merito assegnato ad un giovane ricercatore - under 35- per la sua ricerca di rilevante importanza scientifica nel campo della fotochimica e della fotofisica) assegnato dal Gruppo Italiano di Fotochimica
- December 2021* **Premio Minerva 2021 (Menzione di Onore)** Riconoscimento al merito assegnato come Dottorato Eccellente nella Macroarea A) awarded by La Sapienza, Università di Roma
- May 2021* **“Best Oral Contribution – TCI Chemicals”** Award @HOPV21 for contribution entitled “Polyurethanes as low cost and efficient encapsulant for Perovskite Solar Cells”.
- July 2020* **“Green Chemistry (RSC) Hot Article”** for the publication “Recent advances in eco-friendly and cost-effective materials towards sustainable dye-sensitized solar cells” - GreenChemistry, 2020, 22, 7168-7218.
- February 2020* **Premio Ricercatore Junior “ENERCHEM 2020”** awarded by Società Chimica Italiana (Gruppo Interdivisionale EnerChem)
- September 2019* **Premio di Dottorato “Engitec Technologies”** awarded by Società Chimica Italiana (Divisione di Elettrochimica)
- September 2019* **“Top Peer Reviewer”** Award by Publons©
- June 2019* **Scholarship al “UK-IT Joint Meeting on Photochemistry 2019”** awarded by Società Chimica Italiana (Gruppo Interdivisionale di Fotochimica)
- September 2017* **“Physical Chemistry Chemical Physics (RSC) Hot Article”** for the publication “Intriguing transport dynamics of ethylammonium nitrate–acetonitrile binary mixtures arising from nano-inhomogeneity” - Phys. Chem. Chem. Phys., 2017,19, 27212-27220
- September 2016* **Premio di Laurea “PhotoAnalytical”** awarded by Società Chimica Italiana (Divisione di Elettrochimica)

2.1.4. CONTRIBUTIONS TO SCIENTIFIC MEETINGS

MB actively participates to Scientific Meetings on a National and International Scale in the field of Physical Chemistry, Electrochemistry, Industrial Chemistry, Materials Science, among others. MB is **main author of 28 contributions** divided in **invited (9) oral (14) e poster (10) presentations**. Moreover, MB is co-author of **13 contributi**.

The list of MB’s contributions (as main author) (**P=Poster, C=Oral Communication**) to Scientific Meeting (**N=National e I=International**) is reported below.



Invited Communication (“Award Lectures”) to Scientific Meetings - 9

1. [I, C, Invited] **M. Bonomo** “Vibrational spectroscopies insights on the molecular interactions in Deep Eutectic Solvents: a step forward in the rational design of electrolytes for energy devices” BatSynch: the Battery Challenge at Synchrotrons, Trieste (Italy), November 2023
2. [N, C, Award] **M. Bonomo** “Innovative and Sustainable Materials for Emerging Photovoltaics: From Panchromatic to Colourless” IPM22, Ferrara (Italy), December 2022
3. [I, C, Keynote] **M. Bonomo** “Nanomaterials for PhotoVoltaic: a spotlight on sustainability” NanoInnovation2022, Roma (Italy), September 2022
4. [I, C, Invited] **M. Bonomo** “Polyurethanes as Low Cost and Sustainable Moisture and Oxygen Barriers for Flexible Perovskite Solar Cells” Polymers2022, Torino (Italy), May 2022.
5. [N, C, Keynote] **M. Bonomo** “NiO/ZrO₂ nanocomposites as photocathodes of tandem DSCs with higher photoconversion efficiency with respect to parent single-photoelectrode p-DSCs” Presented at *SCI2021*, Congresso On-line, September 2021.
6. [I, C, Invited] **M. Bonomo** “Innovative approaches toward fully sustainable dye-sensitized solar cells” presented at *SPTech Conference*, Oporto (Portugal), July 2021.
7. [I, C] **M. Bonomo** “Design, synthesis and application of innovative organic and hybrid materials for emerging PV devices” Presented at *ENERCHEM 2*, Padova (Italia), February 2020.
8. [N, C] **M. Bonomo** “*Photo-electrochemistry of sensitized semiconducting oxides as photocathodes in p-type DSCs*” Presented at *Giornate dell’elettrochimica Italiane 2019*, Padova (Italia), September 2019.
9. [N, C] **M. Bonomo** “*p-type dye sensitized solar cells: effect of synthetic parameters of photoactive cathode and comparison of new conception dyes*” Presented at *Giornate dell’elettrochimica Italiane 2016*, Gargnano (Italia), September 2016.

Main authors (oral communication) to Scientific Meetings – 14

1. [N, C] **M. Bonomo**, S. Nejrotti, A. Damin, A. Antenucci, G. Ghigo, S. Dughera, D. Motta, G. Lingua, G.A. Elia, E. Pires, J.M. Fraile, C. Gerbaldi, C. Barolo “Polyol-based Deep Eutectic Solvents as ubiquitous and sustainable mixtures: from organic chemistry to electrochemical energy storage” X Workshop Gruppo Interdivisionale Green Chemistry – Chimica Sostenibile, Firenze (Italy), October 2023
2. [I, C] **M. Bonomo**, D. Motta, G.A. Elia, A. Damin, G. Lingua, G. Montalbano, S. Nejrotti, S. Galliano, C. Barolo, C. Gerbaldi “Polyol-based Deep Eutectic Solvents as sustainable electrolytes in electrochemical energy storage devices” EuChemS2023, Salerno (Italy), September 2023
3. [N,C] **M. Bonomo**, S. Galliano, L. Fagiolari, A.Y. Segura Zarate, N. Barbero, C. Gerbaldi, F. Bella, C. Barolo “Innovative and Sustainable Materials for Aqueous Dye-Sensitized Solar Cells: a Focus on Photoanode/Electrolyte Interface” presentato a GEI2022, Orvieto (Italy), September 2022
4. [N, C] **M. Bonomo**, B. Taheri, D. Gallo, N. Mariotti, L. Bonandini, F. Matteocci, F. De Rossi, M. Zanetti, T.M. Brown, S. Castro-Hermosa, A.Y. Segura Zarate, L.A. Castriotta, A. Menozzi, A. Di Carlo, F. Brunetti, C. Barolo “Thermosetting polyurethanes resins: application as cheap, sustainable and scalable encapsulants for (flexible) Perovskite Solar Cells” presented at *SCI2021*, Congresso on-line, September 2021
5. [I, C] **M. Bonomo**, B. Taheri, N. Mariotti, L. Bonandini, F. Matteocci, F. De Rossi, M. Zanetti, T.M. Brown, S. Castro-Hermosa, A.Y. Segura Zarate, A. Menozzi, A. Di Carlo, F. Brunetti, C. Barolo “Polyurethanes as low cost and efficient moisture and oxygen barriers for Perovskite Solar Cells” presented at *HOPV21*, Congresso on-line, May 2021
6. [I, C] **M. Bonomo**, L. Gontrania, N. V. Plechkova, D. Dini “In-Depth Physico-Chemical and Structural Investigation of Dicarboxylic Acid/Choline Chloride Natural Deep Eutectic Solvent (NADES): a Spotlight on the Importance of a Rigorous Preparation Procedure” Presented at *XLVII Congresso Nazionale di Chimica Fisica*, Roma (Italia), July 2019.
7. [I, C] **M. Bonomo**, E. Ekoi, C. Barolo, D.P. Dowling, D. Dini “Synthesis and photoelectrochemical characterization of nanostructured mixed oxides as photocathodes of p and tandem Dye-Sensitized Solar Cells” Presented at *UK-IT Joint Meeting on Photochemistry*, Lipari (Italia), June 2019.



8. [I, C] **M. Bonomo**, E. Ekoi, C. Barolo, D.P. Dowling, D. Dini, A. Di Carlo "Effect of the Sintering Procedure on the Photoelectrochemical Performances of Nanostructured Mixed Oxides as Photocathodes of p and Tandem Dye-Sensitized Solar Cells with Superior Conversion Properties" Presented at HOPV 2019, Roma (Italia), Maggio 2019.
9. [I, C] **M. Bonomo**, L. Gontrani, N.V. Plechkova, D. Dini, R. Caminiti "X-Ray structure and ionic conductivity study of choline-chloride/carboxylic acid DESs" Presented at MEYCS 2018, Rimini (Italia), November 2018.
10. [I, C] **M. Bonomo**, V. Novelli, A.G. Marrani, M. Awais, D.P. Dowling, H. Vos, D. Dini "Study of the electrochemical activity of nanostructured NiO prepared via RDS" Presented at 21st International Conference on Solid State Ionics, Padua (Italia), July 2017.
11. [I, C] **M. Bonomo**, A. Di Carlo, D. Dini "Effect of sensitization on the electrochemical properties of nanostructured NiO" Presented at XII ECHEMS Meeting, Milano Marittima (Italia), Giugno 2017.
12. [I, C] **M. Bonomo**, A. Carella, R. Centore, A. Di Carlo, D. Dini "New pyran-based dyes for efficient p-DSSCs" Presented at HOPV 2017, Losanna (Svizzera), Maggio 2017.
13. [I, C] **M. Bonomo**, C. Barolo, A. Di Carlo, D. Dini "Is there any future for p-type dye sensitized solar cells? How to improve the performance by lowering costs" Presented at MEYCS 2016, Rimini (Italia), November 2016.
14. [I, C] **M. Bonomo**, D. Saccone, N. Barbero, C. Barolo, A. Di Carlo, D. Dini "Effect of non conjugated pending groups on the sensitizing action of alkylated squaraines in NiO based p-DSSCs" Presented at 21st ElectroChem Conference, Leicester (Regno Unito), August 2016.

Main Author (poster) To Scientific Meetings - 10

1. [N, P] **M. Bonomo**, D. Motta, G.A. Elia, A. Damin, G. Lingua, S. Nejrotti, S. Galliano, C. Barolo, C. Gerbaldi, "Multitechnique investigation of polyol-based Deep Eutectic Solvents as innovative and sustainable electrolytes in electrochemical energy storage devices" Giornate dell'elettrochimica Italiane 2023, Cefalù (Italy) September 2023
2. [N, P] **M. Bonomo**, B. Taheri, D. Gallo, A.Y. Segura Zarate, F. Matteocci, F. De Rossi, G. Viada, N. Mariotti, S. Galliano, N. Barbero, F. Tammara, L. Bonandini, T.M. Brown, A. Menozzi, F. Sauvage, A. Di Carlo, F. Brunetti, C. Barolo "Thermosetting Polyurethane resins as sustainable encapsulants and interlayers for emerging photovoltaics" Rete Nazionale PV, Milano (Italy) June 2023.
3. [N, P] **M. Bonomo**, L. Fagiolari, F. Bella, G. Viscardi, C. Gerbaldi, C. Barolo, "Electrochemical Impedance Spectroscopy: a powerful tool to unveil the charge transport/recombination processes in aqueous dye-sensitized solar cells" Presented at Giornate dell'elettrochimica Italiane 2019, Padova (Italia) September 2019
4. [I, P] **M. Bonomo**, M. Giordano, N. Mariotti, B. Taheri, S.A. Castro-Hermosa, G. Lucarelli, T.M. Brown, F. Brunetti, C. Barolo, "Polyurethanes as Low Cost and Efficient Encapsulant Materials for Flexible Perovskite Solar Cells" a HOPV 2019, Roma (Italia), Maggio 2019.
5. [I, P] **M. Bonomo**, D. Dini, A. Di Carlo "Nanostructured Mixed Oxides as Photocathodes of p-Type Dye-Sensitized Solar Cells with Superior Conversion Properties" a 69th Annual Meeting ISE, Bologna (Italia), Settembre 2018.
6. [I, P] **M. Bonomo**, F. Scorretti, A. Di Carlo, D. Dini, "Study of the Influence of the Electrolyte on the Photoconversion Properties of p-type Dye-Sensitized Solar Cells" a 69th Annual Meeting ISE, Bologna (Italia), Settembre 2018.
7. [I, P] A.G. Marrani, **M. Bonomo**, D. Dini "Investigating the surface features of iodinated adsorbates onto nanoporous NiO thin films for p-type dye-sensitized solar cells" Presented at XII ECHEMS Meeting, Milano Marittima (Italia), Giugno 2017.
8. [I, P] **M. Bonomo**, G. Naponiello, I. Venditti, A. Di Carlo, D. Dini "Comparison of the electrochemical and photoelectrochemical properties of screen-printed nickel oxide thin films obtained from pastes with different composition" Presented at ECIS 2016, Roma (Italia), Settembre 2016
9. [I, P] **M. Bonomo**, M. Awais, D.P. Dowling, D. Dini, A.G. Marrani, "Ex-situ analysis of the electrochemical interface NiO_x/organic electrolyte with XPS under different conditions of electrode polarization" Presented at ECIS 2016, Roma (Italia), Settembre 2016



- [N,P] C. Barolo, N. Barbero, **M. Bonomo**, A. Di Carlo, D. Dini, F. Matteocci “Effetto del gruppo elettron-attrattore di coloranti squarainici sulla sensibilizzazione di fotocatodi di NiO per celle DSSC” Presented at Convegno Giovani Chimici, Roma (Italia), Giugno 2016.

The list of MB’s contributions (as co-author) (**P=Poster**, **C=Oral Communication**) to Scientific Meeting (N=**National** e I=**International**) is reported below. The name of the main author is evidenced as bold.

Co-Autors To Scientific Meetings – Selection of contributions

- [I, C] A. Carlotto, O. Sayginer, A. Chiasera, M. Ferrari, M. Bonomo, S. Galliano, C. Barolo, A. Farina, **S.M. Pietralunga** “Multi-cavity dielectric mirrors for spectral-splitting photovoltaic applications” da presentare a PhotonicsNorth, Montreal (Canada), June 2023.
- [I, P] **E. Miravalle**, G. Viada, M. Bonomo, C. Barolo, P. Bracco, A. Menozzi, M. Zanetti “Reprocessing of novel biobased thermoset polyurethanes” presentato a EUPOC2023, Bertinoro (Italy), May 2023
- [N, C] **Maruccia E.**, Piovano A., Bonomo M., Chierotti M, Barolo C, Meligrana G., Fina A, Elia G. A, Gerbaldi C. “Efficient recycling of polyvinyl butyral from laminated glass construction wastes in energy storage applications in a circular economy approach” IWES2023, Bressanone (Italy), January 2023
- [N, P] **C. Barolo**, M. Bonomo, G. Lingua, S. Galliano, A. Damin, S. Nejrrotti, G.A. Elia, C. Gerbaldi “Preliminary investigation of deep eutectic solvents toward green and sustainable electrolytes in energy storage devices” presentato a IWES2023, Bressanone (Italiaia), Gennaio 2023
- [N, C] G. Viada, N. Mariotti, **S. Galliano**, A. Menozzi, F. Tamaro, W. Gianelli, M. Bonomo, C. Barolo “Improved sustainability of thermosetting polyurethanes with Design of Experiment”, XXII congresso Nazionale delle Divisione di Chimica Industriale, Catania (Italia), Novembre 2022
- [I, C] **F. De Rossi**, M. Bonomo, B. Taheri, G. Renno, N. Yaghoobi Nia, V. Ilieva, A. Fin, A. Di Carlo, C. Barolo, F. Brunetti “Modified P3HT materials as hole transport layers for flexible perovskite solar cells” presented at ICAE2021, Jeju (Korea) 9-12 November 2021
- [N, C] **A. Antenucci**, M. Bonomo, G. Ghigo, L. Gontrani, C. Barolo, S. Dughera “How do arenediazonium salts behave in Deep Eutectic Solvents? A combined experimental and computational approach” presented at SCI2021, online 14-23 September 2021
- [N, C] **L. Fagiolari**, M. Bonomo, S. Galliano, G. Viscardi, C. Barolo, F. Bella “Hybrid solar cells operating in aqueous environment” presented at SCI2021, online 14-23 September 2021
- [N, C] **A. Damin**, B. Centrella, G. Deplano, M. Bonomo, M. Signorile, C. Barolo, S. Bordiga “Cu⁺ bipyridine based homoleptic complexes as catalysts for partial oxidation reactions: a Raman study” presented at SCI2021, online 14-23 September 2021
- [I, C] **F. Bella**, L. Fagiolari, M. Bonomo, S. Galliano, G. Viscardi, C. Barolo “Water-based solar cells: electrochemical behavior of state-of-art electrodes and electrolytes” presented at ISE2021, Jeju (Korea), 29 August- 3 Settembre 2021
- [I, C] L. Fagiolari, M. Bonomo, S. Galliano, G. Viscardi, C. Barolo, **F. Bella** “Electrodes, electrolytes and coatings for aqueous photovoltaics to be integrated in sustainable ammonia production plants” presented at IUPAC World Chemistry Congress 2021 Virtual, Montreal (Canada) 13-20 August 2021
- [I; O] **B. Centrella**, G. Deplano, M. Bonomo, M. Signorile, A. Damin, C. Barolo, E. Aunan, U. Olsbye, K. P. Lillerud, and S. Bordiga, “From Cu-complexes to Cu-functionalized ligands to design redox catalysis in MOFs” – presented at MOFschool2021, Como (Italia), 21-25 June 2021.
- [I, P] **M. Gastaldi**, A. Fin, I. Roppolo, M. Bonomo, M. Signorile, S. Bordiga, M. Zanetti, G. Viscardi, C. Barolo “Tunable gas permeability of 3D printed azobased membranes” presented at 2021 RSCPoster Twitter Conference, March 2021
- [I, C] **L. Fagiolari**, M. Bonomo, C. Gerbaldi, C. Barolo, F. Bella “Aqueous solar cells: strategies for electrodes and electrolytes design” Presented at ENERCHEM 2, Padova (Italia), February 2020.
- [I,C] **F. Bella**, L. Fagiolari, M. Bonomo, S. Galliano, G. Viscardi, C. Gerbaldi, C. Barolo “Strategies to design electrodes and electrolytes for aqueous solar cells: performances, sustainability and scenarios” Presented at 2nd Dyenamo DSSC Conference, Uppsala (Svezia), October 2019.



16. [I, C] **F. Brunetti**, **M. Bonomo**, B. Taheri, M. Zanetti, A. Bettozzi², T.M. Brown, S. Castro-Hermosa, G. Lucarelli, F. De Rossi, C. Barolo “*Polyurethanes as low cost and efficient moisture and oxygen barriers for Perovskite Solar Cells*” Presented at ISOS12, Karlsruhe (Germany), October 2019.
17. [I, C] **M. Bonomo**, N. Barbero, V. Novelli, M. Giordano, F. Grifoni, G. Giobbio, W. Naim, R. Borrelli, G. Viscardi, F. Sauvage, **C. Barolo** “*Synthesis and characterization of low cost Near-Infrared polymethine dyes for Dye Sensitized Solar Cells*” Presented at EUPVSEC 2019, Marsiglia (France), September 2019.
18. [N, C] **D. Dini**, **M. Bonomo**, M.L. De Marco, J.G. Vos, A. Di Carlo, M. Awais, D.P. Dowling “*P-type dye-sensitized solar cells with RDS NiO cathodes: improvement of the photoconversion performance following substrate treatment*” Presented at *Giornate dell’elettrochimica Italiana 2019*, Padova (Italy), September 2019.
19. [N, C] **L. Fagiolari**, **M. Bonomo**, A. Cognetti, C. Gerbaldi, C. Barolo, F. Bella “*Photoanodes for aqueous dye-sensitized solar cells: effect of different TiO₂ pastes*” Presented at *Giornate dell’elettrochimica Italiana 2019*, Padova (Italy), September 2019.
20. [N, C] **F. Bella**, L. Fagiolari, A. Scalia, **M. Bonomo**, S. Galliano, A. Lamberti, C. Barolo, C. Gerbaldi “*Aqueous Photovoltaics and Integrated Portable Devices: Novel Trends in the Solar Cells Scenario*” Presented at CIS2019, Salerno (Italy), August 2019
21. [N, C] **A. Carella**, R. Centore, **M. Bonomo**, D. Dini, A. Di Carlo “*Pyran based dyes as photosensitizers for p-type dye-sensitized solar cells*” Presented at Congresso Nazionale SCI, Paestum (Italy), September 2017
22. [N, C] **D. Dini**, **M. Bonomo**, F. Scorretti, A. Di Carlo “*Study of the influence of the electrolyte on the photoconversion properties of p-type dye-sensitized solar cells*” Presented at Congresso Nazionale SCI, Paestum (Italy), September 2017
23. [N, C] **D. Dini**, **M. Bonomo**, F. Decker, A. Di Carlo “*Characterization of screen-printed NiO cathodes for p-type dye-sensitized solar cells*” Presented at *Giornate dell’elettrochimica Italiana 2016*, Gargnano (Italy), September 2016.
24. [I, C] **D. Dini**, **M. Bonomo**, C. Barolo, F. Decker “*Optimized organic dyes for the sensitization of NiO cathodes for p-type DSCs*” Presented at Journées Electrochimie 2015, Roma (Italy), July 2015

2.1.5. RESEARCH ACTIVITIES AT INTERNATIONAL LARGE SCALE FACILITIES.

MB was **(co)proponent** and/or **joined** eight **(8)** proposals for the acquisition of beam-time at international facilities working with the synchrotron light, *i.e.* the European Synchrotron Radiation Facility (**ESRF**, Grenoble, France and **Elettra** Sincrotrone Trieste, Basovizza, Trieste, Italy). Below, the list of the experiments that MB (co)proposed and joined **(4)** and that MB co-proposed without joining the experimental session **(4)**.

Overall, MB joined experiments with synchrotron light for a total of **17 days**.

Experimented hold with Synchrotron light, where MB has joined the experimental section being also co-proponent. (4). 17 days.

Bonomo, M. *et al.* “Structural Investigation of glycerol-based Deep Eutectic Solvents as sustainable electrolytes for electrochemical energy storage” @ELETTRA - Trieste (Line SAXS) 11-13 October 2024

Bonomo, M. *et al.* “Infrared Based investigation of Hydrogen Bond Network evolution in Deep Eutectic Solvents (DESS)” @ELETTRA - Trieste (Line SSSI) 24-28 October 2023

Damin A., Bonomo, M. *et al.* “Cu complexes for direct alkanes to alcohols conversion investigated by in situ/operando UV-Raman spectroscopy: a new class of ligands.” @ELETTRA - Trieste (Line IUVS) 20-25 June 2022



Damin A., Bonomo, M. *et al.* "Redox chemistry of model Cu complexes for direct alkanes to alcohols conversion investigated by in situ/operando UV-Raman spectroscopy." @ELETTRA - Trieste (Line IUVS) 22-27 February 2021

Experimented hold with Synchrotron light, where MB was co-proponent. (4).

Olsbye, U.; Bonomo, M. *et al.* "In situ XAS on bioinspired Cu-MOFs as methane partial oxidation catalysts" @ESFR – Grenoble (BM 31) January 2023

Signorile M.; Bonomo, M.; *et al.* "Combined in situ XAS-XES of bioinspired Cu-MOFs as methane partial oxidation catalysts" @ESFR – Grenoble (BM 23) November 2022

Signorile M.; Bonomo, M.; *et al.* "Investigation of redox chemistry of model Cu-complexes for direct alkanes to alcohols conversion by combined XAS-UVvis-IR spectroscopies" @ESFR – Grenoble (BM 31) April 2021

Olsbye, U.; Bonomo, M. *et al.* "Investigation of redox chemistry of model Cu-complexes for direct alkanes to alcohols conversion by combined XAS-UVvis-IR spectroscopies" @ESFR – Grenoble (BM 31) April 2021



3. TEACHING ACTIVITIES

3.1. TEACHING ACTIVITY OF I AND II LEVEL

In the academic year **2023/2024 Matteo Bonomo (MB)** carried out teaching activities in the first module of the **General and Bio-Inorganic Chemistry** course aimed at students of the **Bachelor's Degree (LT) in Pharmacy** (University of Rome, Tor Vergata). The course aims to provide a solid knowledge of the principles of general and inorganic chemistry.

The MB course consists of a total of **16 hours of lessons (2 CFU)**

Students enrolled in the course: 75

In the academic years **2021/2022** and **2022/2023 Matteo Bonomo (MB)** carried out teaching activities in the first module of the **General and Bio-Inorganic Chemistry** course aimed at students of the **Bachelor's Degree (LT) in Pharmacy** (University of Rome, Tor Vergata). The course aims to provide a solid knowledge of the principles of general and inorganic chemistry.

The MB course includes a total of **16 hours of exercises (2 CFU)**

Students enrolled in the course: 50

Since the academic year **2021/2022 Matteo Bonomo (MB)** is co-holder with prof. P. Quagliotto, N. Barbero, C. Barolo and F. Cesano, for assignment, of the course **Synthetic Chemistry for Smart Application** (10 CFU) aimed at students of the **Master's Degree (LM) in Material Science**. The course aims to provide a solid knowledge of innovative materials for applications in the energy field.

The MB course includes a total of **6 hours of exercises (0.5 CFU)** and **32 hours of laboratory (1 CFU)**, for a total of **22 hours (1.5 CFU)**.

Students enrolled in the course: 40

Since the academic year **2020/2021 Matteo Bonomo (MB)** is co-holder with prof. P. Bracco, M. Luda, C. Barolo and F. Cesano, for assignment, of the course **Industrial Chemistry** (10 CFU) aimed at students of the **Bachelor's Degree (LT) in Chemistry and Chemical Technologies**. The course aims to provide a solid mastery of the knowledge of the most developed industrial processes.

The MB course includes a total of **8 hours of frontal lessons (1 CFU)**.

Students enrolled in the course: 35

Since the academic year **2020/2021, Matteo Bonomo (MB)** is co-holder with professors F. Trotta, S. Tabasso and C. Barolo, by assignment, of the **Industrial Chemistry** course (9 CFU) aimed at students of the **Master's Degree (LM) in Industrial Chemistry (LM-71)**. The course aims to provide a solid mastery of the chemical, physical and biological principles underlying the processes developed in the industrial field.

The MB course includes a total of **4 hours of frontal lessons (0.5 CFU)**, **6 hours of exercises (0.5 CFU)** and **16 hours of laboratory (0.5 CFU)**, for a total of **26 hours (1.5 CFU)**.

3.2. ATTIVITA' DIDATTICA DI III LIVELLO

Since the academic year **2021/2022, Matteo Bonomo (MB)** is co-holder with Prof. J.H. Yum (EPFL Lausanne), by assignment, of the course **Materials in optoelectronic applications for energy generation** (3 CFU) aimed at students of the **Doctoral Course in Chemical and Materials Sciences**. The course aims to provide a solid knowledge of innovative materials for applications in the energy field.

A total of **12 hours of lessons (3 CFU)** are assigned within the MB course

Students enrolled in the course: 10



3.3. LEASE TEACHING AND “CULTORE DELLA MATERIA”

MB served as laboratory assistant at the Università degli Studi di Torino.

In **2019/2020** MB served as payed laboratory assistant (**art.76, ex Statuto di Ateneo**) within the course entitled **Organic Materials with Laboratory LM Scienze dei Materiali**, 32 hours).

MB served as laboratory assistant at the Università di Roma, La Sapienza.

In **2012/2013** and **2013/2014 2019/2020** MB served as payed laboratory assistant (**D.R. 001076 del 31/10/2008**) within the course entitled **Chimica Analitica I con Laboratorio LT Chimica**, 150 hours each academic year).

Lease Teaching			
a.y.	Course (University)	Year - Degree	Hours
2019/2020	Organic Materials with Laboratory	I year LM Scienze Dei Materiali	32
2013/2014	Laboratorio di Chimica Analitica I	I year LT Chimica	150
2012/2013	Laboratorio di Chimica Analitica I	I year LT Chimica	150

In **2019/2020** MB has been designed as **cultore della materia** for the ssd **CHIM/04** with a resolution of the Chemistry Department Council - 25/05/2020.

Cultore della materia			
a.y.	Course	Degree	SSD
2019/2020	Chimica delle risorse e delle materie prime	Corso di laurea in Chimica e tecnologie chimiche	CHIM/04
2019/2020	Chimica industriale	Corso di laurea in Chimica e tecnologie chimiche	CHIM/04
2019/2020	Chimica industriale	Corso di laurea magistrale in Chimica industriale	CHIM/04
2019/2020	Chimica e tecnologie dei materiali polimerici	Corso di laurea magistrale in Chimica industriale:	CHIM/04

3.4. DOCENZA A SCUOLE SPECIALIZZATE

MB has served as Teacher at one (1) Master School devoted to Ph.D. Students and senior researchers.

Teacher at Master School			
Date	School (Organizer)	Enrolment	Hours
09-13/09/2024	SummEd PV (Università Milano Bicocca)	60	2
15-18/12/2020	NiPS Winter School “Powering the Internet of Things 2020” (Università degli studi di Perugia)	100	2

3.5. ATTIVITA’ DI SUPERVISIONE SCIENTIFICA

MB has been **Scientific Supervisor of the research activities** of **3 Post-Doctoral reserachers**. The detailed list is provided below.



Periodo	Ricercatore	Ruolo	Titolo Ricerca
2024 (6 months)	J. Arata Badano	Post-Doc Scholarship	Development of Innovative Materials for tandem solar cells PSC/OPV
2024-2025 (12 months)	S. Nejrotti	Post-Doc Researcher	Design, synthesis and characterization of innovative and sustainable electrolytes for energy storage
2022 – 2023 (16 months)	S. Nejrotti	Post-Doc Researcher	Synthesis and spectroscopic characterization of ligands for copper complexes and their implementation into Metal Organic Frameworks for catalytic application
2024 (6 months)	B. Centrella	Post-Doc Scholarship	Design of transparent cell components and their integration with NIR dyes

3.6. SCIENTIFIC SUPERVISION OF DOCTORAL STUDENTS

MB has been **(Co-)Supervisor** of the research activity of **7 Doctoral Theses** and **1 Visiting Ph.D.**. The detailed list follows.

Period	Student (Role of MB)	Doctoral Course	Thesis Title
2023 - Ongoing	D.Motta (CoSupervisor)	Chemical and Materials Sciences XXXIX Cycle	Design and characterization of innovative electrolytes for electrochemical and thermal energy storage
2023-2024	S. Mondahchouo (Supervisor)	Visiting Ph.D. from Camerun	Application of Deep Eutectic Solvents as Iodine sponges
2022 - Ongoing	D. Gallo (Supervisor)	Innovation for the Circular Economy XXXVIII Cycle	The Circular Economy in the scraps from special paper production
2022 - Ongoing	G. Viada (Supervisor)	Innovation for the Circular Economy XXXVII Cycle	Formulation of innovative and sustainable thermosetting polyurethane aliphatic resins .
2020 - 2024	A.Y. Segura Zarate (CoSupervisor)	Chemical and Materials Sciences - XXXVI cycle	Innovative materials for emerging photovoltaics
2020 - 2024	B. Centrella (CoSupervisor)	Chemical and Materials Sciences - XXXVI cycle	Design and synthesis of copper complexes and possible application for redox chemistry in MOFs
2020 - 2024	G. Giordanengo (CoSupervisor)	Innovation for the Circular Economy XXXVI Cycle	Development of innovative materials and processes for cellulose-based food packaging in a circular economy perspective
2018-2022	N. Mariotti (CoSupervisor)	Innovation for the Circular Economy XXXIV Cycle	Applying circular economy to innovative materials for energy



3.7. BACHELOR AND MASTER STUDENTS SUPERVISION

MB has been **Co-supervisor of the research activity** of **11 Master Thesis** and **13 Bachelor Thesis** in the field of Industrial Chemistry, Chemical Physics, Electrochemistry and Physics. Below, one can find a detailed list. The use of Italian for the Degree and/or the title of the thesis underlines the thesis written and defended in Italian.

Supervisor (Su) Co-Supervisor (CoSu) of Bachelor (Ba or LT) and Master (Ma or LM) thesis

Year	Student (MB's role)	Degree (University if different from UniTo)	Thesis Title
2023-2024	G. Tedde (Su)	LM in Chimica Industriale	Trattamento di catodi a fine vita con miscele a base di glicerolo.
2023-2024	L. Morandini (Su)	Ma in Materials Science	Synthesis and Characterization of Novel Cyanine Dyes based on VG20-C16 for Transparent Dye-Sensitized Solar Cells
2023-2024	G. Di Dio (Su)	Ma in Materials Science	Formulation of thermosetting polyurethane resin films and their application in solar concentrators
2023-2024	M.R. Chashmejahanbin (Su)	Ma in Materials Science	Advanced Thin Film Preparation and Nanofabrication of Semiconductor Nanocrystals: Optimizing Electron Beam Lithography for High-Resolution Multicolor Patterns
2022-2023	D.Motta (Su)	LM in Chimica Industriale	Multi-technique investigation of polyol-based Deep Eutectic Solvents as innovative and sustainable electrolytes in electrochemical energy storage devices
2021-2022	I. Puntuniero (Su)	LT Scienza dei Materiali	Realizzazione e caratterizzazione di celle DSSC trasparenti con assorbimento selettivo nel NIR per lo sviluppo di dispositivi fotovoltaici incolori
2021-2022	G. Pollini (Su)	LT Chimica e Tecnologie Chimiche	Processi di conversione metano-metanolo
2021-2022	C. Persico (Su)	LT Chimica e Tecnologie Chimiche	Dispositivi elettronici su substrato cartaceo: recenti sviluppi in campo fotovoltaico



2021-2022	R. Baio (Su)	LT Chimica e Tecnologie Chimiche	Studio dei Deep Eutectic Solvents e applicazione come solventi nell'elettrodeposizione dei metalli
2021-2022	L. Armando (Su)	LT Chimica e Tecnologie Chimiche	Solventi eutettici profondi (DES) come solventi emergenti nei processi di estrazione
2021-2022	V. Francavilla (Su)	LM in Chimica Industriale	Caratterizzazione preliminare di solventi eutettici profondi come elettroliti in sistemi di accumulo di energia
2020-2021	D. Gallo (Su)	LM in Chimica Industriale	Perovskite solar cells toward commercialization: thermosetting polyurethane resin encapsulants for long term stability
2020-2021	D. G. Dante (CoSu)	LT in Scienze dei Materiali	Applicazione di Coatings per la riduzione del surriscaldamento solare delle celle fotovoltaiche
2020-2021	L. Leonardi (Su)	LM Biotecnologie Industriali	Polymers-protein bioconjugation as a stable and effective platform for the partial oxygenation of methane
2020-2021	C. Bertucci (Su)	LT Chimica e Tecnologie Chimiche	Mediatori redox biologici e biopolimeri nelle dye-sensitized solar cells
2020-2021	D. Motta (Su)	LT Chimica e Tecnologie Chimiche	Applicazione di molecole biologiche in dye sensitized solar cells (dsscs)
2020-2021	S. Grosso (CoSu)	LT Chimica e Tecnologie Chimiche	Dal sole alla produzione di biodiesel: un percorso sostenibile
2019-2020	G. Rampanti (Su)	LT Chimica e Tecnologie Chimiche	Materiali per celle fotovoltaiche organiche e ibride integrate in serre
2019-2020	S. Porporato (CoSu)	LM Chimica	Synthesis and characterization of protein-bioconjugates towards the catalytic conversion of methane into methanol
2019-2020	G. Peruzzi (CoSu)	LT Chimica e Tecnologie Chimiche	Applicazione del fotovoltaico nel settore tessile



2019-2020	S. Primo (CoSu)	LM Ingegneria dei Materiali (Polito)	Indagine preliminare su strati compatti di TiO ₂ come blocking layer in celle solari acquose
2019-2020	S. Cortassa (CoSu)	LT Chimica e Tecnologie Chimiche	Bio-based and waste-derived polyurethanes: synthesis and production methods
2018-2019	P. Tallone (CoSu)	LT Chimica e Tecnologie Chimiche2	Fotovoltaico indoor: celle solari di terza generazione per l'assorbimento di luce artificiale
2018-2019	V. Alberti (CoSu)	LM Ingegneria Chimica (Politecnico di Torino)	Fotoreticolazione di elettroliti polimerici acquosi per <i>dye-sensitized solar cells</i>
2018-2019	A.Y. Bettozzi (CoSu)	LM Chimica Industriale	Formulazione e caratterizzazione di materiali incapsulanti a base poliuretanica per applicazioni fotovoltaiche



4. ADDITIONAL TITLES

4.1. REFEREE, EVALUATOR AND EDITOR ACTIVITIES

Referee for peer reviewed journal in the field of Chemical Physics, Industrial Chemistry, Electrochemistry and Material Science as per IF (selection IF > 5):

2016-oggi Adv. Ener. Mat. (IF: 29.7), Adv. Funct. Mat. (19.9), Renewable and Sustainable Energy Reviews (16.8), Angewandte Chemie (16.6), Small (15.2), ACS Catalysis (13.7), Green Energy & Environment (12.7), ACS Applied Materials & Interfaces (10.1), Power Sources (9.8), RRL Solar (9.1), Nanoscale (8.3), J. Mat. Chem. C (8.0), Mat. Today Chm (7.6), Electrochim. Acta (7.3), Appl. Surf. Sci. (7.3), Sol. Energy Mat. & Sol. Cells (7.3), Sol. Energy (7.1), ACS Appl. Energy Mater. (6.9), Sust. En. & Fuels (6.8), J. Alloys & Comp. (6.4), Chem. Comm (6.0), Nanomaterials (5.7), Coll. Surf. A (5.5), Dyes & Pigm. (5.1), Global Challenges (5.1), J. PhotoChem. & PhotoBio. (5.1), Chem Eur J (5.0).

Total Number of Reviewed Papers > 300 (Source Publons, 30/09/2024)

2021 **Evaluator** of projects **Call ERC-2021-COG** (European Commission).

2021-2023 **Evaluator** of projects **IMPUTZ** (Slovakian Academy of Science) calls of 2021, 2022 e 2023

2020-2022 **Evaluator** products for **Bando Vinci** (Borse triennali di dottorato in cotutela / Contrats doctoraux pour thèses en cotutelle) years 2020, 2021 and 2022.

2021-oggi **Topic Editor** for **Polymers (MDPI)**

2020-2021 **Guest Editor** for **Frontiers in Chemistry (Frontiers)**
Special Issue: "Polymer Materials for Energy Storage and Harvesting"

2020-2021 **Guest Editor** for **Polymers (MDPI)**
Special Issue: "Application of Polymers in (Photo)electrochemical Devices: From Solar Cells to Batteries"

2020-oggi **Guest Editor** for **Crystal (MDPI)**
Special Issue: "Disclosing Deep Eutectic Solvents"

2020-oggi **Guest Editor** for **Energies (MDPI)**
Special Issue: "Advances in Energy Storage and Conversion Devices Utilizing Ionic Liquid Electrolytes"



4.2. CONGRESS ORGANIZATION

The list of the national (N) or international (I) congresses in which M.B. has served as member of the organizing (O) committee and/or of the scientific (S) committee.

1. (N,S&O) **Y-Rich Workshop 2024**, Roma (Italia), May 2024 – Attendance: 50
2. (I,S&O) **MYCS2023**, Rimini (Italia), November 2023 – Attendance: 250
3. (N,S) **Giornate dell'Elettrochimica Italiana 2023**, Cefalù (Italia), September 2023 – Attendance: 180
4. (N,S&O) **Y-Rich Workshop 2023**, Bari (Italia), May 2023 – Attendance: 30
5. (I,S&O) **MYCS2022**, Rimini (Italia), November 2023 – Attendance: 250
6. (N,S) **Giornate dell'Elettrochimica Italiana 2022**, Orvieto (Italia), September 2022 – Attendance: 220
7. (N,S&O) **Y-Rich Workshop 2022**, Roma (Italia), May 2022 – Attendance: 25
8. (N,O) **GIF2021**, Torino (Italia), December 2021 – Attendance: 120

4.3. SPECIALIZED SCHOOL ORGANIZATION

The list of the national (N) or international (I) schools in which M.B. has served as member of the organizing (O) committee and/or of the scientific (S) committee.

1. (I,O) **SummEd PV**, Milano (Italia), September 2024 – Attendance: 60
2. (I,S&O) **SPEC School**, Jesolo (Italia), September 2024 – Attendance: 65
3. (N,S) **Enerchem School**, Firenze (Italia), February 2023 – Attendance: 50

Rome, 20th January 2025

Signature