



*Curriculum Vitae Brevis (08.12.2021)*



**Prof. Leonardo Mattiello**

*Associate Professor of Chemistry*

ORCID 0000-0002-9517-0226

LEOS-MS Laboratory of Electrochemistry,

Organic Synthesis & Mass Spectrometry

Dept. of Basic and Applied Sciences for Engineering

Sapienza University of Rome

Via del Castro Laurenziano 7, I-00161 Rome, Italy

<https://sites.google.com/uniroma1.it/leonardomattiello>

*Education*

Graduated in Chemistry (Magna cum Laude) at University of Rome "La Sapienza" (1998).

*Current Position*

Associate Professor of Chemistry (CHIM/07) at the Dept. of Basic and Applied Sciences for Engineering (SBAI), University of Rome "La Sapienza".

*Research Activities*

Chemical and electrochemical syntheses, characterization and electrochemical studies of new organic compounds and nanocomposite materials with applications in several fields: OLED, photovoltaics, plastic scintillators, fiber optics, sensors, drug delivery, protection of cultural heritage.

The scientific activity is documented by about 80 publications (articles in international peer-reviewed and conference proceedings), 4 national patents and 30 international patents. Most international patents (25 out of 30) have been sold outright, and are now property of Merck Patent GmbH.

*Teaching*

From 1991-92 to date, charged with teaching of General Chemistry Courses for the Degree Courses in Electronic Engineering, Telecommunications, Information Technology, Management, and for the Master Degree in Nanotechnology Engineering, chairing the examination committees at the University of Rome "La Sapienza".

*Memberships and affiliations*

Electrochemical Society (1990), Italian Chemical Society (2001), Institute for the Study of Nanostructured Materials (ISMN-CNR) (2004); Italian Interuniversity Consortium on Materials Science and Technology (INSTM) (2007), Research Centre for Nanotechnology Applied to Engineering (CNIS) (2007).

*Referee*

Tetrahedron; Journal of Electroanalytical Chemistry; Chemistry, A European Journal; Electrochimica Acta; Dyes and Pigments; Journal of Materials Chemistry; Mendeleev Communications.

*Participation in Research Programs*

Participant in University, Faculty and PRIN National Research Programs since 1993.

*Activities of organization, management and coordination of research groups*

Degree thesis - "Chemistry, Pharmaceutical Chemistry and Pharmacy"

Master Degree thesis - "Nanotechnology Engineering"

PhD thesis - "Materials Engineering, Raw Materials, Metallurgy and Environmental Protection".

## Recent Publications

In Situ Anodically Oxidized BMIm-BF<sub>4</sub>: A Safe and Recyclable BF<sub>3</sub> Source. M. Bortolami, L. Mattiello, V. Scarano, F. Vetica, and M. Feroci *The Journal of Organic Chemistry* 2021, 86 (22), 16151-16157. <https://doi.org/10.1021/acs.joc.1c00932>.

Fluorescence Spectroscopy of Enantiomeric Amide Compounds Enforced by Chiral Light. Belardini, A.; Petronijevic, E.; Ghahri, R.; Rocco, D.; Pandolfi, F.; Sibilia, C.; Mattiello, L. *Appl. Sci.* 2021, 11, 11375. <https://doi.org/10.3390/app112311375>.

High resolution study of the n=7-9 p,p'-n-alkylazobenzenes phase transitions by photopyroelectric and adiabatic scanning calorimetries. S. Paoloni, U. Zammit, N. Orazi, F. Mercuri, L. Mattiello, D. Rocco, C. Glorieux, J. Thoen *Thermochimica Acta* (2021). <https://doi.org/10.1016/j.tca.2021.179077>.

Electrochemistry, a Useful Tool in the Synthesis of Oligothiophenes. Pandolfi, F.; Bortolami, M.; Feroci, M.; Mattiello, L.; Scarano, L.; Rocco, D. *Current Organic Chemistry*, 25, 2028-2036 (2021). <https://doi.org/10.2174/1385272825666210715104931>.

Solvatochromic Behaviour of New Donor-Acceptor Oligothiophenes. D'Anna, F.; Pandolfi, F.; Rocco, D.; Marullo, S.; Feroci, M.; Mattiello, L. *New J. Chem.*, 45, 11636-11643 (2021). <https://doi.org/10.1039/D1NJ01715B>.

Organic Electrochemistry: Synthesis and Functionalization of  $\beta$ -Lactams in the Twenty-First Century. Bortolami, M.; Chiarotto, I.; Mattiello, L.; Petrucci, R.; Rocco, D.; Vetica, F.; Feroci, M. *Heterocyclic Communications*, 27, 32-44 (2021). <https://doi.org/10.1515/hc-2020-0121>.

Xanthine scaffold: available synthesis routes to deliver diversity by derivatization. Petrucci, R.; Feroci, M.; Mattiello, L.; Chiarotto, I. *Mini-Reviews in Organic Chemistry* ISSN:1570-193X **17:1** (2020). <https://doi.org/10.2174/1570193x17999200507103141>.

Naphthalimide Imidazolium-Based Supramolecular Hydrogels as Bioimaging and Theranostic Soft Materials. Rizzo, C.; Cancemi, P.; Mattiello, L.; Marullo, S.; D'Anna, F. Naphthalimide Imidazolium-Based Supramolecular Hydrogels as Bioimaging and Theranostic Soft Materials. *ACS Appl. Mater. Interfaces* **12**, 48442–48457 (2020). <https://doi.org/10.1021/acsami.0c17149>.

Novel Fast Identification and Determination of Free Polyphenols in Untreated Craft Beers by HPLC-PDA-ESI-MS/MS in SIR Mode, R. Petrucci, P. Di Matteo, G. De Francesco, L. Mattiello, G. Perretti, P. Russo, *J. Agric. Food Chem.* **68**, 7984–7994 (2020). <https://doi.org/10.1021/acs.jafc.0c02802>.

TOPS project: Development of new fast timing plastic scintillators. R. Mirabelli, A. Belardini, L. Mattiello, M. Marafini, D. Rocco, A. Sarti, A. Sciubba, C. Sibilia, G. Traini, V. Patera. *Il Nuovo Cimento C* **43**, 1–6 (2020).

A comparative study of organic photodetectors based on P3HT and PTB7 polymers for visible light communication. L. Salamandra, L. La Notte, C. Fazolo, M. Di Natali, S. Penna, L. Mattiello, L. Cinà, R. Del Duca, A. Reale, *Organic Electronics* **81**, 105666 (2020).

An Insight into the Reactivity of the Electrogenerated Radical Cation of Caffeine. M. Feroci, M. Bortolami, I. Chiarotto, P. Di Matteo, L. Mattiello, F. Pandolfi, D. Rocco, R. Petrucci, *Electrochem* **1**, 44–55 (2020).

Graphene Oxide: A Smart (Starting) Material for Natural Methylxanthines Adsorption and Detection. R. Petrucci, I. Chiarotto, L. Mattiello, D. Passeri, M. Rossi, G. Zollo and M. Feroci, *Molecules* **24**, 4247 (2019)

The Electrogenerated Cyanomethyl Anion: An Old Base Still Smart. I. Chiarotto, L. Mattiello and M. Feroci, *Accounts of Chemical Research* **52**, 3297–3308 (2019).

Two Different Selective Ways in the Deprotonation of  $\beta$ -Bromopropionanilides:  $\beta$ -Lactams or Acrylanilides Formation. F. Pandolfi, I. Chiarotto, L. Mattiello, R. Petrucci and M. Feroci, *ChemistrySelect* **4**, 12871–12874 (2019)

Electrochemical Oxidation of Theophylline in Organic Solvents: HPLC-PDA-ESI-MS/MS Analysis of the Oxidation Products. Chiarotto, L. Mattiello, F. Pandolfi, D. Rocco, M. Feroci and R. Petrucci, *ChemElectroChem* **6**, 4511–4521 (2019)

Cathodic Reduction of Caffeine: Synthesis of an Amino-Functionalized Imidazole from a Biobased Reagent. F. Pandolfi, I. Chiarotto, L. Mattiello, D. Rocco and M. Feroci, *Synlett* **30**, 1215–1218 (2019)

Electrochemical studies of new donor-acceptor oligothiophenes. M. Feroci, T. Civitarese, F. Pandolfi, R. Petrucci, D. Rocco, D. Zane, G. Zollo and L. Mattiello, *ChemElectroChem* **6**, 4016–4021 (2019)

Electrochemical synthesis and amidation of benzoin: benzamides from benzaldehydes. D. Rocco, I. Chiarotto, L. Mattiello, F. Pandolfi, D. Zane and M. Feroci, *Pure Appl. Chem.* **91**, 1709–1715, (2019)

Perovskite Photo-Detectors (PVSK-PDs) for Visible Light Communication. L. Salamandra, N. Yaghoobi Nia, M. Di Natali, C. Fazolo, S. Maiello, L. La Notte, G. Susanna, A. Pizzoleo, F. Matteocci, L. Cinà, L. Mattiello, F. Brunetti, A. Di Carlo and A. Reale, *Organic Electronics* **69**, 220–226 (2019)

Synthesis and characterization of new D- $\pi$ -A and A- $\pi$ -D- $\pi$ -A type oligothiophene derivatives. F. Pandolfi, D. Rocco and L. Mattiello, *Org. Biomol. Chem.* **17**, 3018–3025 (2019)

Cathodic behaviour of dicationic imidazolium bromides: the role of the spacer. M. Feroci, D. Rocco, I. Chiarotto, F. D'Anna, L. Mattiello, F. Pandolfi and C. Rizzo, *ChemElectroChem* **6**, 4275 (2019)

### Patents

Derivati dello Spirobifluorene, loro preparazione e loro uso. Mattiello L.; Fioravanti G.; Rampazzo L. RM2002A000411 2002. Property of Merck Patent GmbH.

Spirobifluorene derivatives, their preparation and uses thereof. Mattiello L.; Fioravanti G.; Rampazzo L. WO2004013080 2004; CN1678561A 2005; JP2005538999 2005; AU2003260342A1 2006; KR20060093800 2006; US2006006365A1 2006; CN100338022 2007; US2009302274 2009; US7557249 2009; KR100969179 2010; EP1534661 2011. Property of Merck Patent GmbH.

Derivati oligomerici dello Spirobifluorene, loro preparazione e loro uso. Mattiello L.; Fioravanti G.; Rampazzo L. RM2004A000352 2004. Property of Merck Patent GmbH.

Organic electroluminescent device. Mattiello L.; Fioravanti G.; Rampazzo L.; Stoessel P.; Breuning E. WO2006005626 2006; KR20070038110 2007; US2008093980 2008; CN101300214 2008; US7683229 2010. Property of Merck Patent GmbH.

Oligomeric derivatives of spirobifluorene, their preparation and use. Mattiello L.; Fioravanti G.; Rampazzo L. WO2006005627 2006; JP2008506658 2008; US2009234164 2009. Property of Merck Patent GmbH.

Spirobifluorene oligomerization derivative, its preparation and application. Mattiello L.; Fioravanti G.; Rampazzo L.; Stoessel P.; Breuning E. CN101076508A 2007. Property of Merck Patent GmbH.

Oligomeric derivatives of spirobifluorene, their preparation and use. Mattiello L.; Fioravanti G.; Rampazzo L.; Stoessel P.; Breuning E. JP2008506657 2008. Property of Merck Patent GmbH.

Spirobifluorene oligomerization derivative, its preparation and application. Mattiello L.; Fioravanti G.; Rampazzo L. CN101076508B 2011. Property of Merck Patent GmbH.

Derivati del bifluorenilidene, loro preparazione e loro uso. Mattiello, L.; Rampazzo, L. RM2008A522A1 2010. Property of Sapienza University of Rome.

Derivati carbonilici a simmetria C<sub>3</sub>, loro preparazione e loro uso. Mattiello, L.; Rampazzo, L. RM2008A523A1 2010. Property of Sapienza University of Rome.

Bifluorenylidene derivatives, their preparation and uses thereof. Mattiello, L.; Rampazzo, L. WO2010038251 2010, EP2342172A1 2011. Property of Sapienza University of Rome.

Carbonyl derivatives having a C<sub>3</sub> symmetry, their preparation and uses thereof. Mattiello, L.; Rampazzo, L. WO2010038252 2010, EP2334630A2 2011. Property of Sapienza University of Rome.