

PERSONAL INFORMATION



Dr. Waldemar A. Marmisollé

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CONICET staff Researcher at Soft Matter Laboratory-INIFTA-UNLP

<http://softmatter.quimica.unlp.edu.ar/>

ACADEMIC CAREER

-MS in Chemistry (Physical Chemistry)-2007

Exact Sciences Faculty, National University of La Plata (UNLP), Argentina.

-PhD in Chemistry-2011

Research Institute of Theoretical and Applied Physical Chemistry (INIFTA), National University of La Plata, Argentina.

Thesis: "Study of the physicochemical properties of electroactive synthetic macromolecules. Polyaniline and derivatives"

Director: Prof. Dra. M. Inés Florit Co-Director: Prof. Dr. Dionisio Posadas

-Post- Doc Fellow of CONICET (2011-2013)

Director: Dr. D. H. Murgida

Co-director: Dr. M. A. Martí

Biophysical Chemistry and Raman Spectroscopy Laboratory,

Institute of Physical Chemistry of Materials, Environment and Energy (INQUIMAE), Exact and Natural Sciences, University of Buenos Aires, Argentina.

-Assistant Researcher of CONICET (2013-2016)

Softmatter Laboratory,

Research Institute of Theoretical and Applied Physical Chemistry (INIFTA), National University of La Plata, Argentina.

Director: Dr. O. Azzaroni; Co-director: Dr. D. H. Murgida

-Adjunct Researcher of CONICET (2017-present)

Softmatter Laboratory,

Research Institute of Theoretical and Applied Physical Chemistry (INIFTA), National University of La Plata, Argentina.

TEACHING ACTIVITY

- Professor. Physical Chemistry Area, Faculty of Exact Sciences (UNLP). Jun/2018-Present
- Teaching Assistant Graduate (Chief of Experimental Works). Physical Chemistry Area, Faculty of Exact Sciences (UNLP). Sept/2011-may/2018
- Teaching Assistant Graduate. Physical Chemistry Area, Faculty of Exact Sciences (UNLP). Sept/2008-Ago/2011
- Teaching Assistant Student. Physical Chemistry Area, Faculty of Exact Sciences (UNLP). Ago/2005-Ago/2008

SCIENTIFIC PUBLICATIONS

(* indicates corresponding author/s)

1- ***"Electrochemical Aging of Poly(Aniline) and Its Ring Substituted Derivatives"***

Waldemar A. Marmisollé, Dionisio Posadas, M. Inés Florit*.

J. Phys. Chem. B. 112 (2008) 10800-10805. ISSN 1089-5647. DOI: 10.1021/jp800890k.

2- ***"The Coupling among Electron Transfer, Deformation, Screening and Binding in Electrochemically Active Macromolecules"***

Waldemar A. Marmisollé, M. Inés, Florit, Dionisio Posadas*.

Phys. Chem. Chem. Phys. 12 (2010) 7536 -7544. ISSN 1463-9076. DOI: 10.1039/b922973f.

3- ***"A Formal Representation of the Anodic Voltammetric Response of Polyaniline"***.

Waldemar A. Marmisollé, M. Inés Florit*, Dionisio Posadas.

J. Electroanal. Chem. 655 (2011) 17-22. ISSN 1572-6657. DOI: 10.1016/j.jelechem.2011.02.019.

4- ***“Electrochemically Induced Ageing of Polyaniline monitored by the changes in its voltammetric response”.***

Waldemar A. Marmisollé, M. Inés Florit*, Dionisio Posadas.

J. Electroanal. Chem. 660 (2011) 26-30. ISSN 1572-6657. DOI: 10.1016/j.jelechem.2011.05.027

5- ***“Effect of the Potential on the Electrochemically Induced Ageing of Polyaniline Films”.***

Waldemar A. Marmisollé, M. Inés Florit*, Dionisio Posadas.

J. Electroanal. Chem. 669 (2012) 42-49. ISSN 1572-6657. DOI: 10.1016/j.jelechem.2012.01.017

6- ***“Electrochemically Induced Ageing of Poly(aniline). An Electrochemical Impedance Spectroscopy Study”.***

Waldemar A. Marmisollé, M. Inés Florit*, Dionisio Posadas.

J. Electroanal. Chem. 673 (2012) 65-71. ISSN 1572-6657. DOI: 10.1016/j.jelechem.2012.03.016.

7- ***“Phosphate Mediated Adsorption and Electron Transfer of Cytochrome C. A Time-Resolved SERR Spectroelectrochemical Study”***

D.A. Capdevila, W. A. Marmisollé, F. J. Williams, D. H. Murgida*.

Phys. Chem. Chem. Phys. 15 (2013) 5386-5394. ISSN 1463-9076. DOI: 10.1039/C2CP42044A.

8- ***“Self-Assembled Monolayers of NH₂-Terminated Thiolates: Order, pKa, and Specific Adsorption”***

Waldemar A. Marmisollé, Daiana A. Capdevila, Ezequiel de la Llave, Federico J. Williams, and Daniel H. Murgida*

Langmuir 29 (2013) 5351-5359. ISSN: 0743-7463. DOI: 10.1021/la304730q.

9- ***“Coupling between proton binding and redox potential in electrochemically active macromolecules. The example of Polyaniline”***

Waldemar A. Marmisollé, M. Inés Florit, Dionisio Posadas*.

J. Electroanal. Chem. 707 (2013) 43-51. ISSN 1572-6657. DOI: 10.1016/j.jelechem.2013.08.012

10- ***“An experimental study of the intrinsic fluorescence emission and electrochemically induced ageing in poly-o-methylaniline films”***

W. Marmisollé*; D. Posadas; M. Inés Florit*.

Electrochim. Acta 109 (2013) 894-900. ISSN 0013-4686. DOI:10.1016/j.electacta.2013.07.170

11- ***“Acid-Base Equilibrium in Conducting Polymers. The case of Reduced Polyaniline”***

W. Marmisollé*, M. Inés Florit*, D. Posadas.

J. Electroanal. Chem. 734 (2014) 10-17. ISSN 1572-6657. DOI: 10.1016/j.jelechem.2014.03.003

12- ***“Effect of Gold Nanoparticles on the Structure and Electron Transfer Characteristics of Glucose Oxidase-Redox Polyelectrolyte-Surfactant Complexes”***

Cortez, M. Lorena; Marmisollé, Waldemar; Pallarola, Diego; Pietrasanta, Lía; Murgida, Daniel; Ceolín, Marcelo; Azzaroni, Omar*; Battaglini, Fernando*.

Chemistry, A European Journal 20 (2014) 13366-13374. ISSN: 0947-6539. DOI: 10.1002/chem.201402707

13- ***“Specific Methionine Oxidation of Cytochrome c in Complexes with Zwitterionic Lipids by Hydrogen Peroxide: Potential Implications for Apoptosis”***

Daiana A. Capdevila,[#] Waldemar A. Marmisollé,[#] Florencia Tomasina, Verónica Demicheli, Magdalena Portela, Rafael Radi, Daniel H. Murgida.*

Chemical Science 6 (2015) 705-719. ISSN 2041-6520. DOI: 10.1039/C4SC02181A [#]These authors contributed equally.

14- ***“Supramolecular surface chemistry: Substrate-independent, phosphate-driven growth of polyamine-based multifunctional thin films”***

Waldemar A. Marmisollé, Joseba Irigoyen, Danijela Gregurec, Sergio Moya and Omar Azzaroni*

Advanced Functional Materials 25 (2015) 4144-4152. ISSN: 1616-3028. DOI: 10.1002/adfm.201501140

15- ***“Polyanilines with pendant amino groups as electrochemically active copolymers at neutral pH”***

Waldemar A. Marmisollé,* Danijela Gregurec, Sergio Moya and Omar Azzaroni

ChemElectroChem 2 (2015) 2011-2019. ISSN 2196-0216. DOI: 10.1002/celec.201500315

16- ***“Nanofluidic Diodes with Dynamic Rectification Properties Stemming from Reversible Electrochemical Conversions in Conducting Polymers”***

Gonzalo Pérez-Mitta, Waldemar A. Marmisollé, Christina Trautmann, María E. Toimil-Molares and Omar Azzaroni*

J. Am. Chem. Soc. 137 (2015) 15382-15385. ISSN 0002-7863. DOI: 10.1021/jacs.5b10692

17-***“Recent Developments in the Layer-by-Layer Assembly of Polyaniline and Carbon Nanomaterials for Energy Storage and Sensing Applications. From Synthetic Aspects to Structural and Functional Characterization” (Feature Article)***

Waldemar A. Marmisollé* and Omar Azzaroni*

Nanoscale 8 (2016) 9890-9918. ISSN 2040-3364. DOI: 10.1039/C5NR08326E

18-***“Metal-organic frameworks help conducting polymers optimize the efficiency of the oxygen reduction reaction in neutral solutions”***

Matías Rafti, Waldemar A. Marmisollé and Omar Azzaroni*

Advanced Materials Interfaces 3 (2016) 1-5. Online ISSN: 2196-7350. DOI: 10.1002/admi.201600047

19-***“Amine-appended polyaniline as a water dispersible electroactive polyelectrolyte and its integration into functional self-assembled films”***

Waldemar A. Marmisollé,* Eliana Maza, Sergio Moya and Omar Azzaroni

Electrochimica Acta 210 (2016) 435-444. ISSN 0013-4686. DOI: 10.1016/j.electacta.2016.05.182

20-***“Dangerous liaisons: anion-induced protonation in phosphate-polyamine interactions and their implications for charge states of biologically relevant surfaces”***

Gregorio Laucirica, Waldemar A. Marmisollé* and Omar Azzaroni

Phys. Chem. Chem. Phys. 19 (2017) 8612-8620. ISSN 1463-9076. DOI: 10.1039/C6CP08793K.

21-***“Layer-by-layer assemblies of highly connected polyelectrolyte capped-Pt nanoparticles for electrocatalysis of hydrogen evolution”***

Gonzalo E. Fenoy, Eliana Maza, Eugenia Zelaya, Waldemar A. Marmisollé*, Omar Azzaroni

Applied Surface Science 416 (2017) 24-32. ISSN 0169-4332. DOI: 10.1016/j.apsusc.2017.04.086.

22-***“An All-Plastic Field-Effect Nanofluidic Diode Gated by a Conducting Polymer”***

Gonzalo Pérez-Mitta,* Waldemar A. Marmisollé, Christina Trautmann, María E. Toimil-Molares and Omar Azzaroni*

Advanced Materials 1700972 (2017). ISSN 0935-9648. DOI: 10.1002/adma.201700972.

23-***“Integration of Biorecognition Elements on PEDOT Platforms through Supramolecular Interactions”***

Luciano D. Sappia, Esteban Piccinini, Waldemar Marmisollé, Natalia Santilli, Eliana Maza, Sergio Moya, Fernando Battaglini, Rossana E. Madrid, Omar Azzaroni*

Advanced Materials Interfaces 1700502 (2017). Online ISSN: 2196-7350. DOI: 10.1002/admi.201700502.

24-***“Phosphate-Responsive Biomimetic Nanofluidic Diodes Regulated by Polyamine–Phosphate Interactions: Insights into Their Functional Behavior from Theory and Experiment”***

Gonzalo Pérez-Mitta,* Waldemar A Marmisollé, Alberto G Albesa, María Eugenia Toimil-Molares, Christina Trautmann, Omar Azzaroni*

Small 1702131 (2017). Online ISSN: 1613-6829. DOI: 10.1002/smll.201702131.

25- ***“Proton-gated rectification regimes in nanofluidic diodes switched by chemical effectors”***

Gonzalo Pérez-Mitta,* Waldemar A Marmisollé, María Eugenia Toimil-Molares, Christina Trautmann, Omar Azzaroni*

Small 1703144 (2018). Online ISSN: 1613-6829. DOI: 10.1002/smll.201703144.

26-***“Reversible modulation of the redox activity in conducting polymer nanofilms induced by hydrophobic collapse of a surface-grafted polyelectrolyte”***

Gonzalo E. Fenoy, Juan M. Giussi, Catalina von Bilderling, Eliana M. Maza, Lía I. Pietrasanta, Wolfgang Knoll Waldemar A. Marmisollé* and Omar Azzaroni

Journal of Colloid and Interface Science 518 (2018) 92-101. ISSN: 0021-9797 .DOI: 10.1016/j.jcis.2018.02.014

27-***“Electrochemical Nanoarchitectonics through Polyaminobenzylamine-Dodecyl Phosphate Complexes: Redox Activity and Mesoscopic Organization in Self-Assembled Nanofilms”***

Agustín Lorenzo, Waldemar A. Marmisollé,* Eliana M. Maza, Marcelo Ceolín and Omar Azzaroni

Phys. Chem. Chem. Phys. 20 (2018) 7570-7578. ISSN 1463-9076. DOI: 10.1039/C7CP08139A.

28-***“Highly-organized stacked multilayers via layer-by-layer assembly of lipid-like surfactants and polyelectrolytes. Supramolecular superlattice structures for electrochemical nanoarchitectonics”***

M. Lorena Cortez*, Agustín Lorenzo, Waldemar Marmisollé, Catalina von Bilderling, Eliana Maza, Lía Pietrasanta, Wolfgang Knoll, Fernando Battaglini, Marcelo Ceolín and Omar Azzaroni*

Soft Matter 14 (2018) 1939-1952. Online ISSN:1744-6848. DOI: 10.1039/C8SM00052B

29-***“Layer-by-layer assembly of iron oxide-decorated few-layer graphene/PANI:PSS composite films for high performance supercapacitors operating in neutral aqueous electrolytes”***

Gonzalo E. Fenoy, Benoit Van der Schueren, Juliana Scotto, Fouzia Boulmedais, Marcelo R. Ceolín, Sylvie Bégin-Colin, Dominique Bégin, Waldemar A. Marmisollé*, Omar Azzaroni*
Electrochimica Acta 283 (2018) 1178-1187. ISSN 0013-4686. DOI: 10.1016/j.electacta.2018.07.085.

30-**"Self-assembled phosphate-polyamine networks as biocompatible supramolecular platforms to modulate cell adhesion"**

Nicolás E. Muzzio, Miguel A. Pasquale, Waldemar A. Marmisollé, Catalina von Bilderling, M. Lorena Cortez, Lía I. Pietrasanta and Omar Azzaroni*
Biomaterials Science 6 (2018) 2230-2247. DOI: 10.1039/C8BM00265G.

31-**"Powering up the Oxygen Reduction Reaction through the Integration of O₂-adsorbing Metal-Organic Frameworks on Nanocomposite Electrodes"**

Gonzalo E. Fenoy, Juliana Scotto, Julio Azcárate, Matías Rafti,* Waldemar A. Marmisolle,* Omar Azzaroni
ACS Applied Energy Materials 1 (2018) 5428-5436. ISSN: 2574-0962. DOI: 10.1021/acsaem.8b01021

32-**"Conducting Polymers-based Electrochemical Platforms: from biosensing to energy storage"**

Juliana Scotto, Gonzalo E. Fenoy, Luciano D. Sappia, Waldemar A. Marmisollé*
An. Asoc. Quim. Argent. 105(2018) 135-156. Mini-Review Temático. ISSN: 0365-0375.; 2545-8655.

33-**"Practical Use of Polymer Brushes in Sustainable Energy Applications: Interfacial Nanoarchitectonics for High-Efficiency Devices" (Review)**

Giussi, Juan M.; Cortez, M. Lorena; Marmisollé, Waldemar A.; Azzaroni, Omar*
Chemical Society Reviews 48 (2019) 814-849. ISSN 0306-0012. DOI: 10.1039/C8CS00705E.

34-**"Continuous assembly of supramolecular polyamine-phosphate networks on surfaces: preparation and permeability properties of nanofilms"**

Maximiliano L. Agazzi, Santiago E. Herrera, M. Lorena Cortez, Waldemar A. Marmisollé, Catalina von Bilderling, Lía I. Pietrasanta, Omar Azzaroni*
Soft Matter 15 (2019) 1640-1650. Online ISSN: 1744-6848. DOI: 10.1039/C8SM02387E.

35-**" Polyamine Colloids Cross-Linked with Phosphate Ions: Towards Understanding the Solution Phase Behavior"**

Herrera, Santiago; Agazzi, Maximiliano; Cortez, M.; Marmisollé, Waldemar; Tagliacucchi, Mario; Azzaroni, Omar
ChemPhysChem 20 (2019) 1044-1053. Online ISSN: 1439-7641. DOI: 10.1002/cphc.201900046.

36-**"Layer-by-Layer Integration of Conducting Polymers and Metal Organic Frameworks onto Electrode Surfaces: Enhancement of the Oxygen Reduction Reaction through Electrocatalytic Nanoarchitectonics"**

Ana Paula Mártire, Gustavo M. Segovia, Omar Azzaroni,* Matías Rafti,* and Waldemar Marmisollé*
Molecular Systems Design & Engineering 4 (2019) 893-900. DOI: 10.1039/C9ME00007K.

37-**"About the capacitive currents in conducting polymers: the case of polyaniline" (Review)**

Juliana Scotto, Waldemar A. Marmisollé, Dionisio Posadas*
J. Solid State Electrochem. 23 (2019) 1947-1965. ISSN: 1432-8488. DOI: 10.1007/s10008-019-04291-9

38-**"Molecular Design of Solid-State Nanopores Fundamental Concepts and Applications" (Review)**

Gonzalo Pérez-Mitta, María Eugenia Toimil-Molares, Christina Trautmann, Waldemar A. Marmisollé, Omar Azzaroni.
Advanced Materials 1901483 (2019). ISSN 0935-9648. DOI: 10.1002/adma.201901483.

39-**"Layer-by-layer formation of polyamine-salt aggregate/polyelectrolyte multilayers. Loading and controlled release of probe molecules from self-assembled supramolecular networks"**

Santiago E. Herrera, Maximiliano L. Agazzi, M. Lorena Cortez, Waldemar A. Marmisollé, Catalina von Bilderling, Omar Azzaroni*
Macromol. Chem. Phys. 1900094 (2019) 1-10. Online ISSN: 1521-3935. DOI: 10.1002/macp.201900094.

40-**"Redox-Driven Reversible Gating in Solid-State Nanochannels Modified with Redox Polymers"**

Gregorio Laucirica, Waldemar A. Marmisollé, María Eugenia Toimil-Molares, Christina Trautmann, Omar Azzaroni*
ACS Applied Materials and Interfaces 11 (2019) 30001-30009. ISSN: 1944-8244 .DOI:10.1021/acsaami.9b05961.

41-**"Modulation of Hydrophilic/Hydrophobic Character of Porous Environments in Metal Organic Frameworks via Direct Polymer Capping Probed by NMR Diffusion Measurements"**

Velasco, Manuel; Acosta, Rodolfo; Marmisollé, Waldemar; Azzaroni, Omar; Rafti, Matías
J. Phys. Chem. C 123 (2019) 21076-21082. ISSN: 1932-7447.DOI: 10.1021/acs.jpcc.9b06824.

42-**"Acetylcholine biosensor based on the electrochemical functionalization of graphene field-effect transistors"**

Gonzalo Fenoy; Waldemar Marmisollé; Wolfgang Knoll; Azzaroni, Omar*

Biosensors and Bioelectronics 418 (2020) 111796. ISSN: 2577-2260. DOI: 10.1016/j.bios.2019.111796.

43- "**Amine-Phosphate Specific Interactions within Nanochannels: Binding Behavior and Nanoconfinement Effects**"

Gregorio Laucirica, Gonzalo Pérez-Mitta, M. Eugenia Toimil-Molares, Christina Trautmann, Waldemar A. Marmisollé* and Omar Azzaroni*

J. Phys. Chem. C 123 (2019) 28997-29007. ISSN: 1932-7447. DOI: 10.1021/acs.jpcc.9b07977.

44- "**Multitasking Polyamine/Ferrioxalate Nano-Sized Assemblies: Thermo-, Photo-, and Redox-Responsive Soft Materials Made Easy**"

Herrera, Santiago; Agazzi, Maximiliano; Cortez, M.; Marmisollé, Waldemar; Tagliacruzchi, Mario; Azzaroni, Omar*

Chem. Comm. 55 (2019) 14653-14656. ISSN: 1364-548X. DOI: 10.1039/C9CC06942A

45- "**PEDOT-polyamine composite films for bioelectrochemical platforms - flexible and easy to derivatize**"

Luciano D. Sappia,[‡] Esteban Piccinini,[‡] Catalina Von Bilderling, Wolfgang Knoll, Waldemar Marmisollé,* and Omar Azzaroni*

Materials Science and Engineering C 109 (2020) 110575 (1-10). ISSN: 0928-4931. DOI: 10.1016/j.msec.2019.110575.

46- "**Insulin-Delivery from Glucose-Responsive Polyamine-Salt Aggregates: Smart "Sense-and-Treat" Nanocarriers Made Easy**"

Agazzi, Maximiliano; Herrera, Santiago; Cortez, M.; Marmisollé, Waldemar; Tagliacruzchi, Mario; Azzaroni, Omar*

Chemistry, A European Journal 26 (2020) 2456-2463. ISSN: 1521-3765. DOI: 10.1002/chem.201905075.

47- "**Electrochemically addressable nanofluidic devices based on PET nanochannels modified with electropolymerized poly-o-aminophenol films**"

Laucirica, Gregorio; Cayón, Vanina; Toum Terrones, Yamili; Cortez, M. Lorena; Toimil-Molares, Maria Eugenia; Trautmann, Christina; Marmisollé, Waldemar*; Azzaroni, Omar*

Nanoscale 12 (2020) 6002-6011. ISSN: 2040-3364. DOI: 10.1039/C9NR10336H.

48- "**Shape Matters: Enhanced Osmotic Energy Harvesting in Bullet-shaped Nanochannels**"

Laucirica, Gregorio; Albesa, Alberto; Toimil-Molares, Maria Eugenia; Trautmann, Christina; Marmisollé, Waldemar*; Azzaroni, Omar*

Nano Energy 71 (2020) 104612. ISSN: 2211-2855. DOI: 10.1016/j.nanoen.2020.104612

49- "**Self-Assembled Peptide Dendrigrift Supraparticles with Potential Application in pH/enzyme-Triggered Multistage Drug Release**"

Agazzi, Maximiliano; Herrera, Santiago; Cortez, M.; Marmisollé, Waldemar; Azzaroni, Omar*

Colloids and Surfaces B: Biointerfaces 190 (2020) 110895. ISSN: 0927-7765. DOI: 10.1016/j.colsurfb.2020.110895.

50- "**Redox-Active Polyamine-Salt Aggregates as Multistimuli-Responsive Soft Nanoparticles**"

Santiago E. Herrera, Maximiliano L. Agazzi, M. Lorena Cortez, Waldemar A. Marmisollé, Mario Tagliacruzchi, Omar Azzaroni*

PhysChemChemPhys 22 (2020) 7440-7450. ISSN: 1463-9076. DOI: 10.1039/DOCP00077A.

51- "**Flexible conducting platforms based on PEDOT and graphite nanosheets for electrochemical biosensing applications**"

Juliana Scotto, Esteban Piccinini, Catalina von Bilderling, Lucy L. Coria-Oriundo, Fernando Battaglini, Wolfgang Knoll, Waldemar A. Marmisollé*, and Omar Azzaroni*

Applied Surface Science (accepted april 2020). ISSN 0169-4332. DOI: 10.1016/j.apsusc.2020.146440

Book Chapters

1- "**Functionalization of Surfaces Using Polymer Brushes: An Overview of Techniques, Strategies, and Approaches**"

Giussi, Juan M., Cortez, M. Lorena, Marmisollé, Waldemar A., Azzaroni, Omar

Polymer and Biopolymer Brushes: for Materials Science and Biotechnology (O. Azzaroni, I. Szleifer Eds.) John Wiley & Sons, Inc. (2018). ISBN: 9781118928905. Capítulo 1. DOI: 10.1002/9781119455042.ch1.

2- "**Nanoarchitectonic Design of Complex Materials Using Polymer Brushes as Structural and Functional Units**"

Cortez, M. Lorena, Díaz, Gisela, Marmisollé, Waldemar A., Giussi, Juan M., Azzaroni, Omar

Polymer and Biopolymer Brushes: for Materials Science and Biotechnology (O. Azzaroni, I. Szleifer Eds.) John Wiley & Sons, Inc. (2018). ISBN: 9781118928905. Capítulo 26. DOI: 10.1002/9781119455042.ch26.

Technical Reports

1- "**Quantification of Urea in Ethanol by Raman Spectroscopy**"

Marmisollé, Waldemar A., <http://bwtek.com/appnotes/quantification-of-urea-in-ethanol-by-raman-spectroscopy/>

Application Note for B&W Tek (2017). DOI: 10.13140/RG.2.2.26609.79205