

CURRICULUM VITAE

1. PERSONAL DATA

Name: Héctor Casimiro Goicoechea

Date of birth: May 15th, 1961

Country of birth: Argentina

Passport Number: 14 396 980

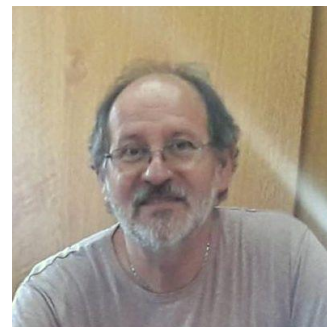
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2. EDUCATION

1987- B.Sc. Biochemistry. Facultad de Bioquímica y Ciencias Biológicas. Universidad Nacional del Litoral, Argentina.

2000 - PhD. Facultad de Ciencias Bioquímicas y Farmacéuticas, Universidad Nacional de Rosario, Argentina.

3. RESEARCH INTERESTS

The primary focus of research is in the development of methods for the efficient extraction of information from chemical measurements, or chemometrics. Chemometrics has been broadly defined as the application of mathematical, statistical and formal logic methods to chemistry.

4. FELLOWSHIP

- FOMEC: from June 1st 1997 for four years for post degrees studies at Facultad de Ciencias Bioquímicas y Farmacéuticas, UNR. Subject: "New Spectroscopy Strategies to Analyze Drugs in Pharmaceuticals and Biological Fluids". Advisor: Dr. Alejandro C. Olivieri.

- Post Doctoral Associate 2003, Department of Chemistry and Molecular Biology, North Dakota State University, Fargo, ND, USA.

5. RECOGNITION AWARDS

- Award **Konex 2023**: Honorary Diploma in Nano Science and Analytical Chemistry. Award for the 100 leading figures in science and technology of the decade 2013-2023.

-Award **María Zambrano**: for the attraction of international talent, which calls for grants for the requalification of the Spanish university system for 2021-2023. Faculty of Exact Sciences of the UEX, Badajoz, Spain.

- Award "**DR. Reinaldo Vanossi 2016**". Recognition in Analytical Chemistry by the Argentinean Association of Chemistry (AQA).

- Award "**Dr Cattoggio 2007**". Best doctoral thesis by Argentinean Association of Analytical Chemistry (AAQA).

6. VISITOR PROFESSOR AT UNIVERSITIES IN FOREIGN COUNTRIES

1) Department of Analytical Chemistry, University of Extremadura, Badajoz, Spain:

a) From February 10th to March 10th 2001. Subject: Method of multivariate calibration based on net analyte signal applied to stopped-flow kinetic data. Advisor: Professor Dr. Arsenio Muñoz de la Peña. b) . June 2002. Subject: Second order calibration method applied to analysis of antibiotics mixtures in serum and urine. Advisor: Professor Dr. Arsenio Muñoz de la Peña. . c) February 2006, d) December 2007, e) May 2014.

2) Department of Chemistry of North Dakota State University, Fargo, U.S.A. From February 18th to March 15th 2002. Subject: Chemometrics applied to high-resolution luminescence. Advisor: Professor Dr. Andrés Campiglia.

3) Laboratory of Chemometrics and Analytical Chemistry, Universidade Estadual de Campinas, Brazil.

a) September 2005, b) September 2006.

4) Department of Hydrogeology and Analytical Chemistry, Universidad de Almería, España:

a) February 2006, b) March 2007, c) December 2007.

5) Department of Chemistry, University of Central Florida, Orlando, U.S.A. October 2008 and May 2013.

6) Department of Chemistry, University Federal of Paraíba, Joao Pessoa, Brazil. February 2009.

7) Institut für Chemische, Technologien und Analytik, Technische Universität, Viena, Austria. July 2012.

8) Department of Chemistry, University Federal de Sao Carlos, Sao Carlos, Brazil. February 2013.

7. SUBSIDIES

1) Antorchas Foundation 2001. Proposal: "Development of new analytical methodologies based on chemometrics processing of modern instrumentation signals".

- 2) CAI+D 2002, Universidad Nacional del Litoral. Proposal: N° 219.
- 3) PROMAC 2002. Universidad Nacional del Litoral.
- 4) PME 2004. For equipment acquisition.
- 5) PICTO-UNL (ANCyT) 2005. N° 35124.
- 6) CAI+D 2012, Universidad Nacional del Litoral. Proposal: n° 12/65.
- 7) PIP(CONICET): N° 2988 (2009), N° 455 (2012) and N° 0111 (2015).
- 8) CAI+D Tipo II PI Universidad Nacional del Litoral. Proposal: N° 12-65, 2009-2011
- 9) PICT 2011-0005, 2014-0347, 2017-0340, and 2020-0111 (ANPCyT).

8. TEACHING

Present position: Full Professor, full-time dedication in Chemistry Department. Facultad de Bioquímica y Ciencias Biológicas. Universidad Nacional del Litoral, Santa Fe, Argentina

9. RESEARCHING EXPERIENCE.

- 1) CONICET Scientific and Technological Researcher Career. Category: Superior. From 2016.
- 2) Development of new analytical strategies based on chemometric modeling of multidimensional data. Application to the determination of pharmaceutical drugs in environmental and biological samples.
- 3) Generation and chemometric modeling of novel multidimensional data. Development of strategies for complex environmental samples.

10. SCIENTIFIC MEETINGS CONTRIBUTIONS

International: 105

Local: 118

11. SCIENTIFIC PUBLICATIONS: 225 (Scopus)

H index = 46

Number of citations = 7498

Stanford University: selected among the world's top 100,000 scientists by c-score (with and without self-citations) or a percentile rank of 2% or higher in the subfield.

List of the 6 most important scientific publications

- 1) "Enhanced Synchronous Spectrofluorometric Determination of Tetracycline in Blood Serum by Chemometric Analysis. Comparison of Partial Least-Squares (PLS-1) and Hybrid Linear Analysis (HLA) Calibrations". H. Goicoechea y A. Olivieri. **Anal. Chem.** 71 (1999) 4361-4368.
- 2) "Detection of unintended stress effects based on a metabonomic study in tomato fruits after treatment with carbofuran pesticide. Capabilities of MCR-ALS applied to LC-MS three-way data arrays". I Sánchez Pérez, MJ Culzoni, GG Siano, MD Gil García, H.C. Goicoechea* and M Martínez Galera*, **Anal. Chem.** 81 (2009) 8335-8346.
- 3) "Experimental design and multiple response optimization. Using the desirability function in analytical methods development". L Vera-Candioti, M Cámara, MM De Zan, H Goicoechea*. **Talanta** 124 (2014) 123–138.
- 4) "Third order chromatographic-excitation-emission fluorescence data: Advances, challenges and prospects in analytical applications". M. Montemurro, G.G. Siano, M.R. Alcaráz, H.C. Goicoechea,* **Trends Anal. Chem. (TRAC)** 93 (2017) 119-133.
- 5) "Open-source Assisted Laboratory Automation through Graphical User Interfaces and 3D Printers. Application to Equipment Hyphenation for Higher-order data Generation". Gabriel Siano, Milagros Montemurro, Mirta Alcaráz, Héctor Goicoechea*. **Anal. Chem.** 89 (2017) 10667-10672.
- 6) "Data Handling in Data Fusion: Methodologies and Applications". Silvana M. Azcaratea, Rocío Ríos-Reina, José M. Amigo and Héctor C. Goicoechea. **Trends Anal. Chem. (TRAC)** (2021).

List of scientific publications since 2018:

- 1) "Exploiting the Synergistic Effect of Concurrent 2 Data Signals: Low-Level Fusion of Liquid Chromatographic with Dual Detection Data". CM. Teglia, SM. Azcarate, MR. Alcaráz, H.C. Goicoechea, MJ Culzoni, **Talanta** 186 (2018) 481-488.
- 2) "Multiway analysis through direct excitation-emission matrix imaging", M.R. Alcaraz, E. Morzán, C. Sorbello, H.C. Goicoechea, R. Etchenique. **Anal. Chim. Acta**, 1032 (2018) 32-39.
- 3) "Modeling second-order data for classification issues: data characteristics, algorithms, processing procedures and applications". S Azcarate, A. de Araújo Gomes, A. Muñoz de la Peña, H.C. Goicoechea.* **Trends Anal. Chem. (TRAC)** 107(2018) 151-169.
- 4) "Determination of six veterinary pharmaceuticals in egg by liquid chromatography: chemometric optimization of a novel air assisted-dispersive liquid-liquid microextraction by solid floating organic drop". C. Teglia, L. Gonzalo, M.J. Culzoni, H.C. Goicoechea. **Food Chem.** 273 (2019) 194-202.

- 5) "Resolution of intermediate surface species by combining modulated infrared spectroscopy and chemometrics", M.R. Alcaraz, A. Aguirre, H.C. Goicoechea, M.J. Culzoni, S. Collins, **Anal. Chim. Acta** 1049 (2019) 38-46.
- 6) "High-performance organized media-enhanced spectrofluorimetric determination of pirimiphos-methyl in maize", M. Montemurro, R. Brasca, M.J. Culzoni, H.C. Goicoechea, **Food Chem.** 278(2019) 711-719.
- 7) "An improved signal-conservative approach to cope with Rayleigh and Raman signals in fluorescence landscapes", F. Chiaoini, Mirta Alcaráz*, H.C. Goicoechea*, **Chemom. Intell. Lab. Syst.** 187 (2019) 6-10.
- 8) "Four- and five-way excitation-emission luminescence-based data acquisition and modeling for analytical applications. A review" M R Alcaraz, O Monago-Maraña, H C Goicoechea, A Muñoz de la Peña. **Anal. Chim. Acta** 1083 (2019) 41-57.
- 9) "A Graphical User Interface as a new tool for scattering correction in fluorescence data". F.A. Chiappini, M.R. Alcaraz,* H.C. Goicoechea,* A.C. Olivieri. **Chemom. Intell. Lab. Syst.** 193 (2019) 103810.
- 10) "Enhancement of multianalyte mass spectrometry detection through response surface optimization by least squares and artificial neural network modeling", Carla M. Teglia, María Guiñez, Héctor C. Goicoechea, María J. Culzoni, Soledad Cerutti. **J. Chromatogr. A**, 1611 (2020) 460613.
- 11) "Modelling of bioprocess non-linear fluorescence data for at-line prediction of etanercept based on artificial neural networks optimized by response surface methodology". F. Chiappini, C.M. Teglia, G. Forno, H.C. Goicoechea.* **Talanta** 210 (2020) 120664.
- 12) "Applications of mixture experiments for response surface methodology implementation in analytical methods development" S. Azcarate, Licarion Pinto, H.C. Goicoechea*, **Journal of Chemometrics** 2020; e3246. <https://doi.org/10.1002/cem.3246>.
- 13) "Multi-level Data Fusion Strategies for Modeling Three-way Electrophoresis Capillary and Fluorescence Arrays Enhancing Geographical and Grape-variety Classification of Wines", Rocío Ríos-Reina, Silvana M. Azcarate, José M. Camiña, Héctor C. Goicoechea, **Anal. Chim. Acta**, 1126 (2020) 52-62.
- 14) "In-syringe dispersive liquid-liquid microextraction vs. solid phase extraction: a comparative analysis for the liquid chromatographic determination of three neonicotinoids in cotyledons". CM Teglia, ML Senovieski, SA Gegenschatz, F Chiappini, MJ Culzoni, H.C. Goicoechea. **Microchem J**, 158 (2020) 105181.
- 15) "Fluorescence-kinetic four-way data generation and modeling for abacavir determination in water samples", Lesly Paradina, Romina Brasca, Hector Goicoechea, María Julia Culzoni, **Microchem J**, 159, December 2020, Article number 105315.
- 16) "Sensitivity for multivariate calibration based on multilayer perceptron artificial neural networks" Chiappini, F; Allegrini, F.; Goicoechea, H.; Olivieri, A., **Analytical Chemistry**, 92 (2020) 12265–12272.
- 17) "MVC1_GUI: A MATLAB graphical user interface for first-order multivariate calibration. An upgrade including artificial neural networks modelling", F. Chiappini, HC Goicoechea, AC Olivieri, **Chemom. Intell. Lab. Syst.** 206 (2020) 104162.
- 18) "Exploring the potential of combining chemometric approaches to model non-linear multi-way data with quantitative purposes - A case study". M. Palomino Vasco; N. Mora Diaz; M.I. Rodríguez-Cáceres; M.I. Acedo-Valenzuela; M.R. Alcaraz, H.C. Goicoechea, **Anal. Chim. Acta** 1141 (2021) 63-70. **Front cover and Future article.**
- 19) "Multivariate optimization of a dispersive liquid-liquid microextraction method for the determination of six antiparasite drugs in kennel effluent waters by using second-order chromatographic data". M. Carabajal, C. Teglia, A.Maine, H.C. Goicoechea*, **Talanta** 224 (2021)121929.
- 20) "Chemometric modeling for spatiotemporal characterization and self-depuration monitoring of surface water assessing the pollution sources impact of northern Argentina rivers". M.A. Jurado Zavaletaa, M.R. Alcaraz, L.G. Peñaloza, A. Boemo, A. Cardozo, G. Tarcaya, S.M. Azcarate*, H.C. Goicoechea, **Microchem. J.** 162 (2021) 105841.
- 21) "Interference-free calibration with first-order instrumental data and multivariate curve resolution. When and why?" Fabricio, F. A. Chiappini, F. Gutierrez, H.C. Goicoechea, A. Olivieri, **Anal. Chim. Acta** 1161 (2021) 338465.
- 22) "Prospective inference of bioprocess cell viability through chemometric modelling of fluorescence multiway data". Fabricio, F. A. Chiappini, Silvana Azcarate, Quela Alcaráz, G. Forno, H.C. Goicoechea, **Biotechnol. Progress** (2021) e3173.
- 23) "Data Handling in Data Fusion: Methodologies and Applications". Silvana M. Azcarate, Rocío Ríos-Reina, José M. Amigo and Héctor C. Goicoechea. **Trends Anal. Chem. (TRAC)** 143 (2021) 116355.
- 24) "Achieving the analytical second-order advantage with non-bilinear second-order data", Fabricio A. Chiappini, Fabiana Gutierrez, Hector C. Goicoechea and Alejandro C. Olivieri, **Anal. Chim. Acta** 1181 (2021) 338911.
- 25) "Second-order electrochemical data generation to quantify carvacrol in oregano essential oils", Gastón D. Pierini, Santiago A. Bortolato, Sebastian N. Robledo, Mirta R. Alcaraz, Héctor Fernández, Héctor C. Goicoechea, María A. Zon, **Food Chem.** 368 (2021)130840 <https://doi.org/10.1016/j.foodchem.2021.130840>
- 26) "Chromatographic applications in the multi-way calibration field". Fabricio Chiappini, Mirta R. Alcaraz, Graciela M. Escandar, Hector C. Goicoechea, Alejandro C. Olivieri. **Molecules** 26 (2021) 6357. <https://doi.org/10.3390/molecules26216357>.
- 27) "Rapid determination of three textile surfactants in environmental samples by modeling excitation-emission second-order data with multi-way calibration methods" R.A. Martínez, D.C. Fechner, M.R. Delfino, R.G. Pellerano, Héctor C. Goicoechea, **Environm. Sci. Pollut. Res.** 2021.

- 28) "Binding the gap between experiments, statistics and method comparison: a tutorial for computing limits of detection and quantification in univariate calibration for complex samples", Sofía A. Gegenschatz, Fabricio A. Chiappini, Carla M. Teglia, Arsenio Muñoz de la Peña, Héctor C. Goicoechea*, **Anal. Chim. Acta** (2022) doi.org/10.1016/j.aca.2021.339342.
- 29) "Natural deep eutectic solvent: a novelty alternative as multi-walled carbon nanotubes dispersing agent for the determination of paracetamol in urine". C.M. Teglia, F. Gutierrez, Héctor C. Goicoechea, **Talanta** 242 (2022) 123290.
- 30) "Improving the oral delivery of benzimidazole nanoparticles by optimizing the formulation parameters through a design of experiment and optimization strategy". E.C. Arrua, O. Hartwig, B. Lotetz, H. Goicoechea, X. Murgia, C-M. Lehr, C.J. Salomon, **Colloids and Surfaces B: Biointerfaces**, 217 (2022) 112678.
- 31) "Application of QCL-IR Spectroscopy and Chemometrics for In-line Discrimination of Co-eluting Proteins from Preparative Size Exclusion Chromatography". Christopher K. Akhgar, Julian Ebner, Mirta R. Alcaraz, Julian Kopp, Héctor Goicoechea, Oliver Spadiut, Andreas Schwaighofer and Bernhard Lendl. **Analytical Chemistry** 94 (2022)11192-11200.
- 32) "High-throughput methotrexate sensing strategy based on a chemometrically assisted pH-switchable optical nanosensor". Milagros Montemurro, Damián A. Uriarte, Héctor C. Goicoechea, Sebastián E. Collins, María J. Culzoni **Sensors and Actuators B: Chemical**. 378 (2023) 133217.
- 33) "Comparative study of uncoated and tetraethylorthosilicate-coated magnetic chitosan beads in the adsorption of two textile dyes". F. Santillán, I. M. M. Mejía, H. C. Goicoechea, **International Journal of Environmental Science and Technology**. (2023) DOI <https://doi.org/10.1007/s13762-023-04769-0>.
- 34) "An upgrade of MVC2, a MATLAB graphical user interface for second-order multivariate calibration: beyond trilinear models." F.A. Chiappini, A. Muñoz de la Peña, H.C. Goicoechea, A.C. Olivieri. **Chemom. Intell. Lab. Syst.** 237 (2023) 104814.
- 35) "A novel and sustainable pipette-tip solid-phase microextraction testing of six carbon-based nanomaterials as proof of concept for the determination of sixteen emerging pollutants from active veterinary principles". Carla M. Teglia, María E. Guíñez, Soledad Cerutti, Fabiana Gutierrez, Héctor C. Goicoechea. **Green Analytical Chemistry** 5 (2023) 100060.
- 36) "A novel optimized polyoxometalate-modified silver nanocomposite. Application to the development of antibacterial textiles". Milagros Montemurro, Ana G. Enderle, Fabiana Gutierrez, Leonardo Lizaraga, Irene Alvarez, Héctor C. Goicoechea, Sebastián E. Collins, Mariela Bollini, María J. Culzoni. **Materials Today Communications** (2023) press.

Reviews and Tutorials:

- 1) "Multivariate calibration: a powerful tool in pharmaceutical analysis". P. Damiani, G. Escandar, A. Olivieri* and H.C. Goicoechea*, **Curr. Pharm. Anal.**, **2005**, 1, 145-154.
- 2) "A review of multivariate calibration methods applied to biomedical analysis", G. Escandar, P. Damiani, H. Goicoechea and A. Olivieri, **Microchem. J.**, **2006**, 82, 29-42.
- 3) "Second and third-order multivariate calibration: Data, algorithms and applications". GM. Escandar, NM. Faber, HC. Goicoechea, A. Muñoz de la Peña, AC. Olivieri, RJ. Poppi. **Trends Anal. Chem. (TRAC)**, **2007**, 26, 752-765.
- 4) "The application to wastewaters of chemometric approaches to handling problems linked to highly complex matrices". M. Martínez Galera, M. Gil García y HC. Goicoechea, **Trends Anal. Chem. (TRAC)**, **2007**, 26, 1032-1042.
- 5) "Rhodamine and BODIPY chemodosimeters and chemosensors for the detection of Hg²⁺, based on fluorescence enhancement effects" M.J. Culzoni, A. Muñoz de la Peña, A. Machuca, H.C. Goicoechea, R. Babiano, **Anal. Methods**, 5 (2013) 30-49.
- 6) "Second- and higher-order data generation and calibration: A tutorial". GM Escandar, HC Goicoechea, A. Muñoz de la Peña, AC Olivieri. **Anal. Chim. Acta** 806 (2014) 8-26.
- 7) "Experimental design and multiple response optimization. Using the desirability function in analytical methods development". L Vera-Candioti, M Cámara, MM De Zan*, H Goicoechea*. **Talanta** 124 (2014) 123-138.
- 8) "Applications and challenges of multi-way calibration in electrochemical analysis". AR. Jalalvand, HC. Goicoechea, Douglas N. Rutledge. **Trends Anal. Chem. (TRAC)** 87 (2017) 32-48.
- 9) "Applications of electrochemical data analysis by multivariate curve resolution-alternating least squares" AR. Jalalvand, HC. Goicoechea. **Trends Anal. Chem. (TRAC)** 88 (2017) 134-166.
- 10) "Third order chromatographic-excitation-emission fluorescence data: Advances, challenges and prospects in analytical applications". M. Montemurro, G.G. Siano, M.R. Alcaráz,* H.C. Goicoechea,* **Trends Anal. Chem. (TRAC)** 93 (2017) 119-133.
- 11) "Modeling second-order data for classification issues: data characteristics, algorithms, processing procedures and applications". S Azcarate, A. de Araújo Gomes, A. Muñoz de la Peña, H.C. Goicoechea.* **Trends Anal. Chem. (TRAC)** 107(2018) 151-169.
- 12) "MATLAB in Electrochemistry: A review". Ali R. Jalalvand, Farid Najafi, Hector C. Goicoechea, Douglas N. Rutledge, Hui-Wen Gu, **Talanta**, 194(2019)205-225.
- 13) "Four- and five-way excitation-emission luminescence-based data acquisition and modeling for analytical applications. A review" M R Alcaraz, O Monago-Maraña, H C Goicoechea, A Muñoz de la Peña. **Anal. Chim. Acta** 1083 (2019) 41-57.
- 14) "Applications of liquid-phase microextraction procedures to complex samples assisted by response surface methodology for optimization". M. Carabajal, C.M. Teglia, S. Cerutti, M.J. Culzoni, H.C. Goicoechea*, **Microchem. J.**, 152 (2020)104436.

- 15) "Applications of mixture experiments for response surface methodology implementation in analytical methods development" S. Azcarate, Licarion Pinto, H.C. Goicoechea*, **Journal of Chemometrics** (2020); e3246. <https://doi.org/10.1002/cem.3246>.
- 16) "Past, present and future of multivariate calibration in analytical chemistry". H.C. Goicoechea. Point of view en **Journal of Brazilian Analytical Chemistry** 8 (2021).
- 17) "Data Handling in Data Fusion: Methodologies and Applications". Silvana M. Azcaratea, Rocío Ríos-Reina, José M. Amigo and Héctor C. Goicoechea. **Trends Anal. Chem. (TRAC)** (2021).
- 18) "Chromatographic applications in the multi-way calibration field". Fabricio Chiappini, Mirta R. Alcaraz, Graciela M. Escandar, H. C. Goicoechea, Alejandro C. Olivieri. **Molecules** 26 (2021) 6357. <https://doi.org/10.3390/molecules26216357>
- 19) "Binding the gap between experiments, statistics and method comparison: a tutorial for computing limits of detection and quantification in univariate calibration for complex samples", Sofía A. Gegenschatz, Fabricio A. Chiappini, Carla M. Teglia, Arsenio Muñoz de la Peña, Héctor C. Goicoechea*, **Anal. Chim. Acta** 1209 (2021) 339342.
- 20) "Pattern recognition techniques in food quality and authenticity: A guide on how to process multivariate data in food analysis". A. de Araújo Gomes, S.M. Azcarate, I. Špánik, L. Khvalbota and H.C. Goicoechea, **Trends Anal. Chem. (TRAC)** (2023) press.

12. BOOKS AND CHAPTERS

- 1) "**Fundamentals and Analytical Applications of Multi-way Calibration**" (2015). Ed.: AC Olivieri, GM Escandar, HC Goicoechea, A Muñoz de la Peña. Elsevier. Ámsterdam. Pages: 591. ISBN: 978-0-444-63527-3.
- 2) "**La Calibración en Química Analítica**", (2007) H.C. Goicoechea & A.C. Olivieri. Ed. UNL, Santa Fe, Argentina. Pages: 180. ISBN: 978-987-508-900-6.
- 3) "**Introduction to Quality by Design in Pharmaceutical Manufacturing and Analytical Development**" (2023). Ed.: Marcia Cristina Breitreitz & HC Goicoechea. Part of the book series: AAPS Introductions in the Pharmaceutical Sciences (AAPSINSTR, volume 10). Springer. Pages: 250. ISBN: 978-3-031-31504-6 (<https://link.springer.com/book/9783031315046>).
- 4) "**Virgin Olive Oil. Production, composition, uses and benefits for man**" (2014). Editor Antonella de Leonardis. Capítulo 9: "Olive oil: production and nutritional properties", MP Godoy-Caballero, MI Acedo Valenzuela, T Galeano-Díaz, HC Goicoechea, MJ Culzoni. Ed. Nova Science Publishers, Inc. Cantidad de páginas: 392. ISBN: 978-1-63117-656-2 (978-1-63117-656-3 e-book).
- 5) "**Current Applications of Chemometrics**" (2014). Editor Mohammadreza Khanmohammadi. Capítulo 7: "Multiway Calibration Approaches to Handle Problems Linked to the Determination of Emergent Contaminants in Waters". Mirta R. Alcaráz, Romina Brasca, María S. Cámara, María J. Culzoni, Agustina V. Schenone, Carla M. Teglia, Luciana Vera-Candiotti and Héctor C. Goicoechea. Ed. Nova Science Publishers, Inc. Cantidad de páginas: 274. ISBN-13: 978-1634631174 ISBN-10: 163463117X.
- 6) "**Liquid Chromatography. Vol 1: Fundamentals and Instrumentation**" (2017). Editors Fanali Salvatore, Paul Haddad and Marja Riekkola. Chapter 21: "Data Analysis", A.Olivieri, P.Pissano, A. Muñoz de la Peña, H. Goicoechea. Ed. Elsevier. ISBN-13: 978-0124158078.
- 7) "**Food Safety and Preservation. Modern Biological Approaches to Improving Consumer Health**" (2018). Editors: A.M. Grumezescu and A.M. Holban. Chapter 6: **Multiway Calibration Approaches for Quality Control of Food Samples**, R. Brasca, H.C. Goicoechea, M.J. Culzoni. Ed. Elsevier. Amsterdam. Cantidad de páginas: 673. ISBN: 978-0-12-814956-0.
- 8) "**Fingerprinting Techniques in Food Authentication and Traceability**" (2018). Editors: Leo Nollet and Khwaja Siddiqi. Chapter 10: **Experimental Design**, Héctor Goicoechea. CRC Press, New York, 440 páginas. ISBN-10: 113819767X.

13. LECTURES, SEMINARS AND ORAL PRESENTATIONS

- 1) "Recientes aplicaciones en análisis farmacéutico asistido por técnicas quimiométricas" Semiplenary Conference. III Congreso Argentino de Química Analítica, Merlo, San Luis, Argentina, 2005.
- 2) "Aportes de la informática al desarrollo de la química analítica". Conference in Universidad de Extremadura, Badajoz, España, December 2007.
- 3) "Evaluation of chemometric approaches for the analysis of textile fibers via room-temperature fluorescence excitation emission matrices". Oral presentation en FACSS, Reno, USA, 2008.
- 4) "Chemometric resolution of fully overlapped capillary electrophoresis bands: quantitation of carbamazepine in human serum in the presence of several interferents". Oral presentation en FACSS, Reno, USA, 2008.
- 5) "Chemometric modeling with second-order signals" Conference Chemistry Department, Universidade Federal de Paraíba, Joao Pessoa, Brazil. 2009.
- 6) "Recent application of experimental design". Conference 3 Workshop of Chemometrics, Arembepe, Brazil, Abril 26 2012.
- 7) "Applications of Multivariate Analysis to Analytical Methods Developments" Seminar in Institut für Chemische, Technologien und Analytik, Technische Universität, Vienna, Austria. July 2, 2012.

- 8) "Applications of Multivariate Analysis to Analytical Methods Developments" Conference Universidad Federal de Sao Carlos, Brazil. February 3, 2013.
- 9) "Calibracao Multivariada em desenvolvimento de metodos analiticos" Lecture Universidad Estadual de Paraiba, Campina Grande, Brazil. May 2, 2013.
- 10) "Applications of Multivariate Calibration to analytical developments" Seminar, Universidad Federal de Rio Grande do Norte, Natal, Brazil. May 3, 2013.
- 11) "Recent analytical developments ussing multivariate data". Lecture, VI Congreso Argentino de Química Analítica, Mendoza, Argentina, October 1-4, 2013.
- 12) "Second- and higher-order data generation and processing". Lecture, 2 Escola de Inverno de Quimiometria, Universidad Federal de Campinas, July 20-24, 2015.
- 13) "Calibration with multivariate data". Seminar, Universidad de Extremadura, Badajoz, Spain, May 2014.
- 14) "Determinación de fluoroquinolonas en matrices acuosas mediante HPLC con detección fluorescente y calibración multivariada de segundo y tercer orden". Oral Presentation, 5º Congreso Iberoamericano de Química Analítica, Montevideo, Uruguay, October 2012.
- 15) "Diferentes estrategias analíticas aplicadas al control de calidad de fármacos. Uso de quimiometría en espectroscopía UV". Oral Presentation, 1º Congreso Iberoamericano de Química Analítica, Niteroi, Brazil, October 2005.
- 16) "Determinación de colorantes en jugos de fruta en polvo utilizando datos espectrales obtenidos por gradiente de pH en flujo y un nuevo método de modelado para datos de segundo orden con dependencia lineal Oral Presentation, 1º Congreso Iberoamericano de Química Analítica, Niteroi, Brazil, October 2005.
- 17) "Aplicaciones analíticas y biotecnológicas de diseño experimental y optimización de respuestas múltiples". Plenary Conference, XXI Encuentro Argentino de Biometría, Corrientes, Argentina, September 28-30, 2016.
- 18) "Third-order data: un small step for the man but a large step for the analytical chemistry". Oral Presentation, VI Congreso Iberoamericano de Química Analítica, Cancún, México, November 2016.
- 19) "Experimental design. Recent analytical applications". Plenary Conference VI Congreso Iberoamericano de Química Analítica, Cancún, México, November, 2016.
- 20) "Multidimensional data for forensic analysis". Lecture, VIII Workshop of chemometrics, Salvador, Brazil, April 24-27, 2017.
- 21) "Design of experiments (DOE) and response surface methodology (RSM): nowadays it is a necessity and an obligation for the analytical chemists". Lecture VIII Workshop of chemometrics, Salvador, Brazil, April 24-27, 2017.
- 22) "**Recientes aplicaciones de modelado de datos multidimensionales al análisis de muestras ambientales**". Lecture in Primer Taller de Química Analítica Ambiental, Universidad Nacional de San Martín 30-11 and 1-12, 2017.
- 23) "**Datos multidimensionales aplicados al análisis agroalimentario. Aumentando la capacidad analítica**". Lecture Universidad de Cádiz, Spain, March 30, 2018.
- 24) "**Generation and proper modeling of third-order chromatographic data for quantitation of analytes in complex samples**". Lecture in Chemometrics in Analytical Chemistry (CAC XVII), Halifax Canadá, June 25-29, 2018.
- 25) "**What can we add to our work by applying chemometrics when developing analytical separations?** Conferencia in LACE (24th Latin-American Symposium on Biotechnology, Biomedical, Biopharmaceutical, and Industrial Applications of Capillary Electrophoresis and Microchip Technology) 2018, Mendoza, Argentina, December, 2018.
- 26) "**Datos multidimensionales ¿es posible aumentar la potencialidad de las mediciones químicas?** Plenary Lecture en el XXI Congreso Argentino de Físicoquímica y Química Inorgánica, Tucumán, Argentina, April, 2019.
- 27) "**¿Es posible obtener mejoras en el desarrollo de métodos analíticos aplicando modelado quimiométrico?**" Seminar in Departamento de Química Analítica, Universidad de Extremadura, Badajoz, Spain, September 12, 2019.
- 28) "**Advantages of second- and thirdorder data modeling for classification applications**" Lecture en el XI Workshop de Quimiometría. Brazil, December, 2021.

14. POST GRADUATE ADVISOR

Finished

- 1) **María Silvia Cámara**, 2007 PhD. Biological Sciences. Facultad de Bioquímica y Ciencias Biológicas UNL. Subject: "New analytical strategies based on the combination of computational techniques and dynamic and of equilibrium spectroscopy. Application to biological, pharmaceutical and environmental samples".
- 2) **Nilda Raquel Marsilli**, 2007 PhD. Biological Sciences. Facultad de Bioquímica y Ciencias Biológicas UNL. Subject: "Design of new analytical methods based on spectroscopic and electrochemical techniques. Solving problems related with food and environmental samples."
- 3) **Julia Culzoni**: 2008 PhD. Biological Sciences. Facultad de Bioquímica y Ciencias Biológicas UNL. Subject: "Development of new analytical strategies to the determination of pharmaceuticals in bioequivalence studies by using first and second order data".
- 4) **Luciana Vera Candiotti**: 2009 PhD. Biological Sciences. Facultad de Bioquímica y Ciencias Biológicas UNL. Subject: "Development of new analytical strategies based on capillary electrophoresis chemometric modeling applied to pharmaceutical and its metabolites in biological fluids".

- 5) **María Mercedes De Zan**, 2011. PhD Biological Sciences. Facultad de Bioquímica y Ciencias Biológicas UNL. "Development of analytical methods based on chromatography (HPLC and GC) coupled to chemometrics for the resolution of analytical problems related with pharmaceuticals and its metabolites in biological fluids.
- 6) **Gabriel Siano**. PhD. Biological Sciences 2013. Facultad de Bioquímica y Ciencias Biológicas UNL. Subject: "Application of ANN to analytical systems and biotechnological processes".
- 7) **Pablo Giordano**. 2012 PhD Biological Sciences. Facultad de Bioquímica y Ciencias Biológicas UNL. "Application of advanced chemometric Tools to the optimization of biotechnological problems".
- 8) **Agustina Schenone**. 2014 PhD Biological Sciences. Facultad de Bioquímica y Ciencias Biológicas UNL. "Application of chemometrics to second order data as tool for the correction of problems related with the determination of analytes in complex samples".
- 9) **Adriano Araújo Gomes** 2015 PhD Chemistry. Successive projection algorithm for sensor selection in second-order multivariate calibration.
- 10) **Mirta Raquel Alcaráz**. 2016 PhD Chemistry. "New analytical strategies for the analysis of complex samples based on chromatographic multidimensional data modeling".
- 11) **Carla Teglia**. Beginning 2013 PhD Chemical Sciences "Development of analytical strategies based on chromatographic techniques and chemometric modelling for the determination of coccidiostat and retinoic acid residues as markers of contamination in biological samples".
- 12) **Milagros Montemurro**. 2019 PhD Chemistry: "Development of analytical strategies based on higher-order data generation for quantitation of toxic agroecological residues in fruits".
- 13) **Fabricio Chiappini** 2021 PhD Chemical Biological Sciences: "Generation and evaluation of multidimensional data for quality control and optimization of recombinant protein production processes."

14. TRANSFER TO PRODUCTION COMPANIES

- 1) Consultancy and technical report to biopharmaceutical company Zelltek SA (Argentina): "Data processing and statistic consulting". Purpose: to analyze the homogeneity of historical fermentation data, in terms of cell growth and protein productivity, of a standard industrial bioprocess. December 2020.
- 2) Consultancy and technical report to biopharmaceutical company AKRON for the optimization of biotechnological products. Florida, USA. 2021 and 2022.
- 3) Technical advice on experimental design and data processing for a robustness study of the purification process of a recombinant protein to Zelltek SA (Argentina). August 2010.
- 4) Development and transfer of a technique for the determination of benzoic acid in juice concentrate to a juice concentrate producer company in Concordia, Entre Ríos (Argentina).
- 5) Development and transfer of a technique for the determination of alkaloids in plant extract by capillary electrophoresis to Eriochem SA (Argentina).