

## *Curriculum Vitae*

ESCANDAR, Graciela Mónica

Department of Analytical Chemistry, Faculty of Biochemical and Pharmaceutical Sciences,  
National University of Rosario, Argentina.

### **Short summary**

Full Professor, Department of Analytical Chemistry, Faculty of Biochemical and Pharmaceutical Sciences (FBPS), National University of Rosario (NUR), and Research Fellow, National Research Council of Argentina (CONICET). Formation of a scientific group with research lines in Analytical Chemistry, and collaborations with researchers from the country and abroad. Supervision of seven Ph. D.; four of them received prizes and mentions granted by Argentine science entities. Principal and co-principal investigator of more than 20 funded projects. Publication of more than 110 scientific papers, 1 book and 7 chapters. Co-editing of 2 international publishing books. Member of the Argentine Association of Analytical Chemists since its foundation, integrating its directive board on several occasions. Research interests: Solid phase luminescence and organized media coupled with chemometric tools with applications in environmental analytical chemistry.

### **1.- University studies**

B. Sc. in Biochemistry (1983) and Ph. D. (1992), NUR.

### **2.- Present position**

- Full Professor, Department of Analytical Chemistry, FBPS, University of Rosario.
- Research Fellow, National Research Council (CONICET)

### **3.- Scholarships, internships and scientific visits abroad**

Faculty of Science, Extremadura University, Badajoz, Spain (1997, 2000, 2003, 2006, 2010); Department of Analytical Chemistry, North Dakota University, ND, USA (2001); Environmental Chemical Department IDAEA-CSIC, Barcelona, Spain (2008); Pontifical Catholic University of Valparaíso (PCUV), Chile (2011); Pontifical Catholic University of Río de Janeiro (PCU-Rio), Brazil (2011).

### **4.- Training of human resources**

#### **Supervision of doctoral thesis**

- Gabriela Ibañez, Ph. D. Thesis: "Thermodynamic and structural study of complex systems formed by metal ions and organic polidentate ligands containing conjugated heterocycles", NUR, 1995-1999.
- Juan Arancibia, Ph. D. Thesis: "Thermodynamic and structural study of inclusion complexes. Analytical applications", NUR, 1999-2002.
- Gisela Piccirilli, Ph. D. Thesis: "Development of luminescent analytical methods for the determination of biological and environmental relevant compounds", NUR, 2006-2010.

- Santiago Bortolato, Ph. D. Thesis: "Analytical applications of molecular luminescence for the determination of polycyclic aromatic hydrocarbons and other compounds of environmental interest", NUR, 2007-2011.
- Rocío Pérez, Ph. D. Thesis: "Novel spectroscopic methods for the determination of endocrine disruptors in complex samples", NUR, 2012-2016.
- Rocío Pellegrino, Ph. D. Thesis: "Green analytical strategies for the determination of endocrine disruptors in the environment", NUR, 2013-2017.
- Maira Carabajal. Ph. D. Thesis: "Green analytical methods applied to the analysis of chemical species of environmental relevance", NUR, 2014-2019.

#### **Supervision of postdoctoral fellows CONICET**

- Dra. Ma. Julia Culzoni, 2009-2010
- Dra. Valeria Lozano, 2011-2012.

#### **Supervision of researchers CONICET**

- Dr. Juan Arancibia, 2005-2010.
- Dr. Valeria Lozano, 2013-2017.

#### **Supervised dissertations and foreign interns**

Supervision of six chemistry bachelor dissertations and six foreign interns.

#### **5.- Prizes**

- Prize "Dr. Pedro N. Arata 2010 ", Toxicology area (Argentine Chemical Association) and prize "Dr. José A. Catoggio" for the best Doctoral Thesis in Analytical Chemistry (2011 edition, Argentine Association of Analytical Chemists) by G. Piccirilli Doctoral Thesis (Supervisor: G. Escandar).
- Prize "Dr. José A. Catoggio" for the best Doctoral Thesis in Analytical Chemistry (2013 edition, Argentine Association of Analytical Chemists) and Provincial Mention in the Biological Sciences Area to a Doctoral Thesis by S. Bortolato (Supervisor: G. Escandar).
- Provincial Mention to Doctoral Thesis in the Basic Sciences Area to Rocío Pérez's Thesis, (Supervisor: G. Escandar, 2016).
- Award for paper presented at conference: "Extraction by rotating disc sorption of PAHs in water and direct measurement of fluorescent spectra in nylon membranes" A. Cañas, G. Escandar, P. Richter (VII Ibero-American Congress Environmental Physics and Chemistry and XII Meeting of Analytical Chemistry and Environment, Viña del Mar, Chile, 2014).
- Award for paper presented at conference: "Chemometric modeling of second-order chromatographic data with mixed detection. Application to the analysis of agrochemicals" M. Carabajal, J. Arancibia, G. Escandar (VIII Argentine Congress of Analytical Chemistry, La Plata, 2015). Work belonging to the doctoral thesis of M. Carabajal.

#### **6.- Projets**

- Principal investigator of 12 funded research projects.

- Co-principal investigator of 9 funded research projects.
- Member of the research group in collaborative projects with Spain (funded by the Spanish Agency for International Cooperation and the Ministry of Science and Innovation of Spain) and with Brazil (funded by CONICET and the National Council for Scientific and Technological Development of Brazil).

### **7.- Research grants as principal investigator**

- Antorchas Foundation, 1999, 2000, 2002.
- CONICET, Institutional Evaluation Program (PEI), 2004.
- FONCyT (Fund for Scientific and Technol. Res.), Strategic Areas Program, 2006-2008.
- CONICET, Multi-annual Research Project, 2009-2011, 2013-2015.
- NUR, 1995-2003, 2003-2005, 2006-2009, 2010-2013, 2014-2017, 2018-2021.

### **8.- Collaborations with foreign researchers**

The scientific articles arising from these collaborations are shown in the list of publications.

- Dr. Arsenio Muñoz de la Peña, Extremadura University, Badajoz, Spain.
- Dr. Andrés Campiglia, University of Central Florida, USA.
- Dr. Ricardo Aurelio, PCU-Rio, Brazil.
- Dr. Manuel Bravo, PCUV, Valparaíso, Chile.
- Dr. Pablo Richter, University of Chile, Chile.
- Dr. Isabel Durán Merás, University of Extremadura, Spain.
- Dr. Romá Tauler, Institute of Chemical and Environmental Research of Barcelona, Spain.

### **9.- Publications**

#### **Bibliometric indices** (database SCOPUS, updated to June 2023)

- Number of documents: 114
- h index = 31 (excluding self-citations)
- Number of citations = 3928 (excluding self-citations)
- Position in the Stanford University Bibliometric Index list: 99 of 223 Argentinean scientists.

#### **Book**

Practical Three-Way Calibration. A. Olivieri, G. Escandar. Elsevier, Amsterdam (2014).

#### **Book edition**

Data Handling in Science and Technology, Fundamentals and Analytical Applications of Multiway Calibration, A. Muñoz de la Peña, H. Goicoechea, G. Escandar, A. Olivieri (eds). Elsevier, Amsterdam, vol. 29, 2015.

#### **Book chapters**

- Luminescence techniques in pharmaceutical analysis. Recent advances in experimental methods and chemometric applications. G Escandar, A Olivieri, *New Advances in Analytical Chemistry*, Atta-ur-Rahman (ed), Taylor & Francis, London, vol. 3, 277 (2002).
- Multivariate calibration: a powerful tool in pharmaceutical analysis. P Damiani, G Escandar, A Olivieri, H Goicoechea. *Current Pharmaceutical Analysis*, Bentham Science Publishers, Amsterdam (Netherlands), vol. 1, 145 (2005).
- Determination of fungicide residues in environmental samples. G Escandar, *Fungicides: Chemistry, Environmental Impact and Health Effects*, P De Costa, P Bezerra (eds.), Nova Science Publishers, New York, Cap. 7, 187 (2009).
- Herbicidas en aguas naturales. J Arancibia, G Escandar. *Segundo Taller Argentino de Ciencias Ambientales*. L.F. Sala (Ed.), Editorial Zeus, Rosario Cap. 9, 119 (2013).
- Fluorescence and phosphorescence chemical sensors applied to water samples. G. Ibañez, G. Escandar, *Smart Sensors for Real-Time Water Quality Monitoring*, S.C. Mukhopadhyay, A. Mason (Eds.), Springer, New York, Cap. 3, 45 (2013).
- Unfolded and Multiway Partial Least-Squares with Residual Multilinearization: Fundamentals. A. Olivieri, G. Escandar, H. Goicoechea, A. Muñoz de la Peña, *Data Handling in Science and Technology, Fundamentals and Analytical Applications of Multiway Calibration*, A. Muñoz de la Peña, HGoicoechea, G. Escandar, A. Olivieri (eds), Elsevier, Amsterdam, vol. 29, Cap. 7, 2015.
- Unfolded and Multiway Partial Least-Squares with Residual Multilinearization: Applications. A Olivieri, G Escandar, H Goicoechea, A Muñoz de la Peña, *Data Handling in Science and Technology, Fundamentals and Analytical Applications of Multiway Calibration*, A Muñoz de la Peña, H Goicoechea, G Escandar, A Olivieri (eds), Elsevier, Amsterdam, vol. 29, Cap. 8, 2015.

### **Educational publications**

- Rigorous potentiometric determination of metal complexes stability constants. An undergraduate laboratory practice. G Escandar, L Sala, *J Chem Educ* 74, 1329 (1997).
- Determination of equilibrium constants of metal complexes from spectrophotometric measurements. An undergraduate laboratory experiment. G Ibañez, A Olivieri, G Escandar, *J Chem Educ* 76, 1277 (1999).
- Room-temperature-phosphorescence (RTP) in aqueous solutions. An advanced undergraduate laboratory experiment. G Escandar, A Muñoz de la Peña. *Chem Educator* 8, 251 (2003).
- Formation constants of copper(II)-salicylic acid complexes from multi-wavelength spectrophotometric pH titration data analyzed by alternating least-squares including Newton- Raphson and Gauss-Newton procedures. G Ibañez, G Escandar, A Olivieri, *Chem Educator* 12, 22 (2007).

## Scientific publications

- A facile synthesis of 5-deoxy-D-ribonic acid lactone and 5-deoxy-D-ribose. G Escandar, L Sala, *Organic Preparations and Procedures International* 22, 623 (1990).
- Complex formation between aldonic and uronic acids and ferric ion in aqueous solution. G Escandar, F Gandolfo, L Sala. *Anal Asoc Quím Arg* 78, 37 (1990).
- Complexing behavior of rutin and quercetin. G Escandar, L Sala. *Can J Chem.*69, 1994 (1991).
- Complexes of Cu(II) with D-aldonic and D-alduronic acids in aqueous solution. G Escandar, L Sala. *Can J Chem* 70, 2053 (1992).
- Complexes of Co(II) and Ni(II) with D-aldonic and D-alduronic acids in aqueous solution. G Escandar, L Sala, M Gonzalez Sierra. *Polyhedron* 13, 143 (1994).
- Interaction of Zn(II) ion with D-aldonic acids in the crystalline solid and aqueous solution. G Escandar, M Gonzalez Sierra, J Salas Peregrin, G Labadié, M Santoro, A Frutos, L Sala. *Polyhedron* 13, 909 (1994).
- Iron(III) complexes of lactobionic acid: equilibrium and structural studies in aqueous solution. G Escandar, A Olivieri, M Gonzalez, L. Sala. *JCS Dalton Trans* 1189 (1994).
- Complexation of aluminum (III), gallium (III) and indium (III) ions with D-gluconic and lactobionic acids. A potentiometric and NMR spectroscopic study. G Escandar, A Olivieri, M Gonzalez Sierra, A Frutos, L Sala. *JCS Dalton Trans* 799 (1995).
- Interaction of divalent metal ions with D-gluconic acid in the solid phase and aqueous solution. G Escandar, J Salas, M Gonzalez Sierra, G Labadié, D Martino, M Santoro, A Frutos, S García, L Sala. *Polyhedron* 15, 2251 (1996).
- Spectroscopic and potentiometric study of aromatic hydroxy azo compounds and their copper (II) complexes. G Ibañez, A Olivieri, G Escandar, *J Chem Soc Faraday Trans.* 93, 545 (1997).
- Ground and excited state proton transfer in intramolecularly hydrogen bonded aromatic molecules. G Ledesma, G Ibañez, G Escandar, A. Olivieri, *J Mol Struct* 415, 115 (1997).
- Complex formation between D-lactobionic acid and bivalent metal ions. Studies in solution and in the solid state. A Frutos, G Escandar, J Salas, M. González Sierra, L. Sala. *Can J Chem* 75, 405 (1997).
- Random error analysis in the determination of very stable metal complexes equilibrium constants. G Escandar, A Olivieri, *Anal Letter* 30, 1967 (1997).
- Proton transfer and Cu(II) binuclear complexes of 1,4-bis-*p*-sulfonylazo-2,3-dihydroxynaphthalene: a spectroscopic and potentiometric study in aqueous solution. G Ibañez, A Olivieri, G Escandar, *J Mol Struct* 435, 199 (1997).

- EPSILON: A versatile microcomputer program for spectrophotometric data analysis of metal-ligand equilibria. C Araujo, G Ibañez, G Ledesma, G Escandar, A Olivieri. *Comput Chem* 22, 161 (1998).
- Spectroscopic and theoretical study of aromatic hydroxy hydrazones and their copper (II) complexes in dioxane–water mixtures. G Ledesma, M González Sierra, G Escandar, *Polyhedron* 17, 1517 (1998).
- Room-temperature phosphorescence of acenaphthene in aerated solutions in the presence of bromoalcohols and CD. G Escandar, A Muñoz de la Peña, *Anal Chim Acta* 370, 199 (1998).
- Interaction of Divalent Metal Ions with D-Aldonic Acids in the Solid Phase. Structural Information. A. Frutos, S. Signorella, L. Sala, G. Escandar, J. Salas Peregrin, V Moreno, *Polyhedron* 17, 3369 (1998).
- Complexation of Co(II), Nickel(II), and Zinc(II) ions with Mono and Binucleating Azo Compounds: A Potentiometric and Spectroscopic study in Aqueous Solution. G Ibañez, G Escandar. *Polyhedron* 17, 4433 (1998).
- Bismuth(III) complexes of D-gluconic acid. Studies in aqueous solution and in the solid phase. A Frutos, L Sala, G Escandar, M Devillers, J Salas, M. Gonzalez Sierra, *Polyhedron* 18, 989 (1999).
- The interaction of D-galactonic acid with Cr<sup>VI</sup> and Cr<sup>III</sup>. Structure, stability and physical properties of Cr<sup>III</sup>-aldonate complexes. S Signorella, M Santoro, A Frutos, G Escandar, J Salas, V Moreno, M Gonzalez Sierra, L Sala. *J Inorg. Biochem.* 73, 93 (1999).
- Spectroscopic study of salicylate–cyclodextrin systems in the presence and absence of alcohols. G Escandar, *Spectroch. Acta Part A* 55, 1743 (1999).
- Spectrofluorimetric determination of piroxicam in the presence and in the absence of b-cyclodextrin. G Escandar, *Analyst* 124, 587 (1999).
- 3-Deoxy-D-erythro-hexos-2-ulose *bis* (thiosemicarbazone) copper (II) chelate. Studies in solution and in the solid state. S Signorella, C Palopoli, A Frutos, G Escandar, T Tanase, L Sala, *Can J Chem* 77, 1492 (1999).
- Cu(II), Ni(II), Co(II) and Zn(II) coordination properties and tautomerism of 1,8-*bis*-phenylazo-2,7-dihydroxy naphthalene. A spectroscopic and semiempirical AM1/PM3 study. J Arancibia, A Olivieri, G Escandar, *J Mol Struct* 522, 233 (2000).
- Optimization of the room-temperature phosphorescence of the 6-bromo-2-naphthol- $\beta$ -cyclodextrin system in aqueous solution. A Muñoz de la Peña, M Pérez Rodríguez, G Escandar, *Talanta* 51, 949 (2000).
- Complexation study of diclofenac with  $\beta$ -cyclodextrin and spectrofluorimetric determination. J Arancibia, G Escandar, *Analyst* 124, 1833 (1999).

- Spectrofluorimetric determination of diclofenac in the presence of  $\beta$ -cyclodextrin. J Arancibia, M Boldrini, G Escandar, *Talanta* 52, 261 (2000).
- Spectrofluorimetric determination of phenylephrine in the presence of a large excess of paracetamol. J Arancibia, A Nepote, G Escandar, A Olivieri, *Anal Chim Acta* 419, 159 (2000).
- Room-temperature phosphorescence of 6-bromo-2-naphthol included in  $\beta$ -cyclodextrin in the presence of cyclohexane, G Escandar, M Boldrini, *Talanta* 53, 851 (2001).
- Room-temperature phosphorescence of 1-bromonaphthalene upon formation of beta-cyclodextrin ternary complexes with alcohols and surfactants: optimization of analytical figures of merit by rigorous equilibrium studies, G Escandar, A Muñoz de la Peña, *Appl. Spectrosc.* 55, 496 (2001).
- Determination of naproxen in pharmaceutical preparations by room-temperature phosphorescence. A comparative study of several organized media, J Arancibia, G Escandar, *Analyst*, 126, 917 (2001).
- Cyclodextrin-induced room temperature phosphorescence of 1-bromo-2-naphthol upon formation of ternary complexes. M. Santos, G. Escandar, *Appl Spectrosc* 55, 1483 (2001).
- Proton transfer and coordination properties of aromatic  $\alpha$ -hydroxy hydrazones, G. Ibañez, G Escandar, A Olivieri, *J Mol Struct* 605, 17 (2002).
- Spectrofluorimetric method for the determination of piroxicam and pyridoxine. G Escandar, A Bystol, A Campiglia, *Anal Chim Acta* 466, 275 (2002).
- First- and second-order multivariate calibration applied to biological samples: determination of anti-inflammatories in serum and urine. J Arancibia, A Olivieri, G Escandar, *Anal Bioanal Chem* 374, 451 (2002).
- Ground and excited state intramolecular proton transfer in 3,5-dibromosalicylic acid. G Ibañez, G Labadié, G Escandar, A Olivieri, *J Mol Struct* 645, 61 (2003).
- Spectrofluorimetric study of the CD-ibuprofen complex and determination of ibuprofen in pharmaceutical preparations and serum. L Hergert, G Escandar, *Talanta*, 60, 235 (2003).
- Two different strategies for the fluorimetric determination of piroxicam in serum. J Arancibia, G Escandar, *Talanta* 60, 1113 (2003).
- Determination of carbamazepine in serum and pharmaceutical preparations using immobilization on a nylon support and fluorescence detection. G Escandar, D González, A Espinosa, A Muñoz de la Peña, H Goicoechea, *Anal. Chim. Acta* 506, 161 (2004).
- Phosphorescence properties of *p*-aminobenzoic acid immobilized on a nylon membrane. G Escandar, *Appl Spectrosc* 58, 836 (2004).
- Combined liquid and solid-surface room temperature fluorimetric determination of naproxen and salicylate in serum. G Ibañez, G Escandar, *J Pharm Biom Anal* 37, 149 (2005).

- Determination of triamterene in pharmaceutical formulations and of triamterene and its main metabolite hydroxytriamterene sulfate in urine using solid-phase and solution luminescence. G Ibañez, G Escandar, A Espinosa, A. Muñoz de la Peña, *Anal Chim Acta* 538, 77 (2005).
- Fluorescence enhancement of carbendazim in the presence of cyclodextrins and micellar media. A reappraisal. R Maggio, G Piccirilli, G Escandar, *Appl Spectr.* 59, 873 (2005).
- Application of partial least-squares spectrophotometric multivariate calibration to the determination of 2-sec-butyl-4,6-dinitrophenol (dinoseb) and 2,6-dinitro-*p*-cresol in industrial and water samples containing hydrocarbons, J Arancibia, G Martínez Delfa, C Boschetti, G Escandar, A Olivieri, *Anal Chim Acta* 553, 141 (2005).
- Spectroscopic bilinear least-squares methods exploiting the second-order advantage. Theoretical and experimental study concerning accuracy, sensitivity and prediction error, A Haimovich, R Orselli, G Escandar, A. Olivieri, *Chem Int Lab Syst* 80, 99 (2006).
- A review of multivariate calibration applied to biomedical analysis. G Escandar, P Damiani, H Goicoechea, A Olivieri, *Microchem J* 82, 29 (2006).
- Second-order calibration of excitation–emission matrix fluorescence spectra for the determination of *n*-phenylanthranilic acid derivatives, A Muñoz de la Peña, A Espinosa, N Mora Diez, D Bohoyo, A Olivieri, G Escandar, *Appl. Spectrosc.* 60, 330 (2006).
- Simultaneous determination of flufenamic and meclofenamic acids in human urine samples by second-order multivariate PARAFAC calibration of micellar-enhanced excitation-emission fluorescence, A Muñoz de la Peña, N Mora, D. Bohoyo, A Olivieri, G Escandar, *Anal Chim Acta* 569, 250 (2006).
- A new analytical application of nylon-induced room-temperature phosphorescence: determination of thiabendazole in water samples, R Correa, G Escandar, *Anal Chim Acta* 571, 58 (2006).
- Partial least-squares with residual bilinearization for the spectrofluorimetric determination of pesticides. A solution of the problems of inner-filter effects and matrix interferences, G Piccirilli, G Escandar, *Analyst* 131, 1012 (2006).
- Second and third-order multivariate calibration: Data, algorithms and applications. G. Escandar, N. Faber, H. Goicoechea, A. Muñoz de la Peña, A. Olivieri, R. Poppi, *Trends Anal Chem* 26, 752 (2007). This article was the third of the 10 most cited in the journal in the 2008-2012 period.
- Second-order advantage achieved by unfolded-partial least-squares/residual bilinearization modelling of excitation-emission fluorescence data presenting inner filter effects, D. Bohoyo, A. Muñoz, J Arancibia, G Escandar, A Olivieri, *Anal Chem* 78, 8051 (2006).



- Room-temperature excitation-emission phosphorescence matrices and second-order multivariate calibration for the simultaneous analysis of pyrene and benzo[*a*]pyrene, J Arancibia, G Escandar, *Anal Chim Acta* 584, 287 (2007).
- A novel flow-through fluorescence optosensor for the determination of thiabendazole, G Piccirilli, G Escandar, *Anal Chim Acta* 601,196 (2007).
- Improvement of residual bilinearization by particle swarm optimization for achieving the second-order advantage with unfolded partial least-squares, S Bortolato, J Arancibia, G Escandar, A Olivieri, *J Chemom.* 21, 557 (2007).
- Screening of Oil Samples on the Basis of Excitation-Emission Room-Temperature Phosphorescence Data and Multiway Chemometric Techniques. Introducing the Second-Order Advantage in a Classification Study, J Arancibia, C Boschetti, A Olivieri, G Escandar, *Anal Chem* 80, 2789 (2008).
- A novel application of nylon membranes to the luminescent determination of benzo[*a*]pyrene at ultratrace levels in water samples. S. Bortolato, J. Arancibia, G. Escandar, *Anal Chim Acta* 613, 218 (2008).
- Flow-through photochemically-induced fluorescence optosensor for the determination of linuron. G Piccirilli, G Escandar, F Cañada, I Durán, A. Muñoz, *Talanta* 77, 852 (2008).
- Chemometrics-assisted excitation-emission fluorescence spectroscopy on nylon membranes. Simultaneous determination of benzo[*a*]pyrene and dibenz[*a,h*]anthracene at parts-per-trillion levels in the presence of the remaining EPA-PAH priority pollutants. S Bortolato, J Arancibia, G Escandar, *Anal Chem* 80, 8276 (2008).
- Second-order multivariate calibration procedures applied to high-performance liquid chromatography coupled to fast-scanning fluorescence detection for the determination of fluoroquinolones. F Cañada, J Arancibia, G Escandar, G Ibañez, A Espinosa, A Muñoz de la Peña, A. Olivieri, *J Chromatogr A* 1216, 4868 (2009).
- FIA with on-line nylon powder extraction for room-temperature phosphorescence determination of thiabendazole, G Piccirilli, G Escandar, *Anal Chim Acta* 646, 90 (2009).
- Non-trilinear chromatographic time retention–fluorescence emission data coupled to chemometric algorithms for the simultaneous determination of ten PAHs in the presence of interferences. S Bortolato, J Arancibia, G Escandar, *Anal Chem* 81, 8074 (2009).
- Application of chemometric methods to environmental analysis of organic pollutants: a review. S. Mas, A de Juan, R Tauler, A Olivieri, G Escandar, *Talanta* 80, 1052 (2010).
- Time-alignment of bidimensional chromatograms in the presence of uncalibrated interferences using parallel factor analysis. Application to multi-component determinations using liquid-chromatography with spectrofluorimetric detection, S Bortolato, J Arancibia, G Escandar, A Olivieri, *Chemom. Intell. Lab. Syst.* 101, 30-37 (2010).

- Second-order advantage with excitation-emission fluorescence spectroscopy and a flow-through optosensing device. Simultaneous determination of thiabendazole and fuberidazole in the presence of uncalibrated interferences, G Piccirilli, G Escandar, *Analyst* 135, 1299 (2010).
- Spectrofluorimetry in organized media coupled to second-order multivariate calibration for the determination of galantamine in the presence of uncalibrated interferences, M Culzoni, R Aucelio, G Escandar, *Talanta*, 82, 325 (2010).
- Second- and higher-order multivariate calibration methods applied to non multi-linear data. Advantages and limitations of the different algorithms. A Olivieri, G Escandar, A Muñoz de la Peña, *Trends Anal Chem* 30, 607 (2011).
- Luminescence sensors applied to water analysis of organic pollutants – an update. G Ibañez, G Escandar, *Sensors* 11, 11081 (2011).
- Chemometrics-assisted fluorimetry for the rapid and selective determination of heavy polycyclic aromatic hydrocarbons in contaminated river waters and activated sludges, S. Bortolato, J Arancibia, G Escandar, *Environm Sci Techn* 45, 1513 (2011).
- Spectrofluorimetric study of the herbicide bentazone in organized media. Analytical applications. J Porini, G Escandar, *Anal Methods* 3, 1494 (2011).
- Nylon membrane as a fluorimetric probe for the herbicide bentazone. J Chiarandini, G Escandar, *Anal Bioanal Chem* 402, 2221 (2012).
- A review on second- and third-order multivariate calibration applied to chromatographic data. A Olivieri, J Arancibia, P Damiani, G Ibañez, G Escandar, *J Chrom B* 910, 22 (2012).
- A novel nylon membrane-rhodamine 6G spirocyclic phenylthiosemicarbazide derivative system as a fluorimetric probe for mercury (II) ion. V Lozano, G Escandar, M Mahedero, A Muñoz de la Peña, *Anal Methods* 4, 2002-2008 (2012).
- High-performance liquid chromatography with fast-scanning fluorescence detection and multivariate curve resolution for the efficient determination of galantamine and its main metabolites in serum. M Culzoni, R Aucelio, G Escandar, *Anal Chim Acta* 714, 27 (2012).
- Determination of tributyltin at parts-per-trillion levels in natural waters by second-order multivariate calibration and fluorescence spectroscopy. M Bravo, L Aguilar, W Quiroz, A Olivieri, G Escandar, *Microchem J*, 106, 95 (2013).
- Feasibility of the determination of PAHs in edible oils via unfolded partial least-squares/residual bilinearization and parallel factor analysis of fluorescence excitation emission matrices. F Alarcón, M Báez, M. Bravo, P Richter, G Escandar, A Olivieri, E Fuentes, *Talanta*, 103, 361 (2013).
- Spectrofluorimetric study of estrogen-cyclodextrin inclusion complexes in aqueous systems. R Pérez, G Escandar, *Analyst* 138, 1239-1248 (2013).

- Four-way multivariate calibration using ultra-fast high-performance liquid chromatography with fluorescence excitation-emission detection. Application to the direct analysis of chlorophylls a and b and pheophytins a and b in olive oils. V Lozano, A Muñoz de la Peña, I Durán, A Espinosa, G Escandar, *Chemom. Intell. Lab. Syst.*, 125, 121 (2013).
- Second-order advantage with excitation-emission photoinduced fluorimetry for the determination of the antiepileptic carbamazepine in environmental waters, V Lozano, G Escandar, *Anal Chim Acta* 782, 37 (2013).
- Second- and higher-order data generation and calibration: A tutorial. G. Escandar, H Goicoechea, A Muñoz de la Peña, A Olivieri, *Anal Chim Acta* 806, 8 (2014).
- Second-order chromatographic photochemically-induced fluorescence emission data coupled to chemometric analysis for the simultaneous determination of urea herbicides in the presence of matrix co-eluting compounds. J Arancibia, G Escandar, *Anal Methods* 6, 5503 (2014).
- Liquid chromatography with diode array detection and multivariate curve resolution for the selective and sensitive quantification of estrogens in natural waters. R Pérez, G Escandar, *Anal Chim Acta* 835, 19 (2014).
- Second-order fluorimetric approach based on a boron dipyrromethene (BODIPY) tetraamide derivative for Hg (II) chemosensing in water and fish samples. V Lozano, A Muñoz de la Peña, G Escandar, *Anal Methods* 6, 8535 (2014).
- Chemometrics-assisted excitation-emission fluorescence spectroscopy on nylon-attached rotating disks. Simultaneous determination of PAHs in the presence of interferences, A Cañas, P Richter, G Escandar. *Anal Chim Acta* 852, 105 (2014).
- Solid-surface fluorescent properties of estrogens: green analytical applications. R Pérez, G Escandar, *Microchem J* 118, 141 (2015).
- Green analytical determination of emerging pollutants in environmental waters using excitation-emission photoinduced fluorescence data and multivariate calibration. M Hurtado, V Lozano, M Rodríguez, I Durán Merás, G Escandar, *Talanta* 134, 215 (2015).
- Spectrofluorimetric study of phenolic endocrine disruptors in cyclodextrin media, R Pellegrino, G Ibañez, G Escandar, *RSC Advances* 5, 20914 (2015).
- Chemometrics assisted cyclodextrin enhanced excitation emission fluorescence spectroscopy for the simultaneous green determination of bisphenol A and nonylphenol in plastics, R. Pellegrino, G Ibañez, G Escandar, *Talanta* 143, 162 (2015).
- A novel application of nylon membranes for tributyltin determination in complex environmental samples by fluorescence spectroscopy and multivariate calibration. M Bravo, G Escandar, A Olivieri, E Bardina, L Aguilar, W Quiroz, *Chem Int Lab Syst* 148, 77 (2015).

- Experimental and chemometric strategies for the development of Green Analytical Chemistry (GAC) spectroscopic methods for the determination of organic pollutants in natural waters, R Perez, G Escandar, *Sust Chem Pharm* 4, 1 (2016).
- Multivariate calibration-assisted high-performance liquid chromatography with dual UV and fluorimetric detection for the analysis of natural and synthetic sex hormones in environmental waters and sediments. R Pérez, G Escandar, *Environ Pollut* 209, 114 (2016).
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- Excitation-emission fluorescence-kinetic data obtained by Fenton degradation. Determination of heavy-polycyclic aromatic hydrocarbons by four-way parallel factor analysis. M Carabajal, J Arancibia, G Escandar, *Talanta*, 165, 52 (2017).
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- Advantages of data fusion. First multivariate curve resolution analysis of fused liquid chromatographic second-order data with dual diode array-fluorescent detection. R. Pellegrino, G Ibañez, G Escandar, *Anal Chem* 89, 3029 (2017).
- On-line generation of third-order liquid chromatography–excitation-emission fluorescence matrix data. Quantitation of heavy-PAHs. M Carabajal, J Arancibia, G Escandar, *J Chromatogr A*, 1527, 61 (2017).
- Multivariate curve resolution strategy for non-quadrilinear type 4 third-order/four-way liquid chromatography excitation-emission fluorescence matrix data, M Carabajal, J Arancibia, G Escandar, *Talanta* 189, 509 (2018).
- On-line third-order liquid chromatographic data with native and photoinduced fluorescence detection for the quantitation of organic pollutants in environmental water, R Pellegrino, A Olivieri, G Ibañez, G Escandar, *ACS Omega* 3, 15771 (2018).
- Multi-way chromatographic calibration–A review, G Escandar, A Olivieri, *J Chromatogr A* 1587, 2 (2019).

- Excitation-emission fluorescence-kinetic third-order/four-way data: Determination of bisphenol A and nonylphenol in food-contact plastics, M Carabajal, J Arancibia, G Escandar, *Talanta* 197, 348 (2019).
- Analytical chemistry assisted by multi-way calibration: A contribution to green chemistry, A Olivieri, G Escandar, *Talanta* 204, 700 (2019).
- Determination of ochratoxin A in coffee and tea samples by coupling second-order multivariate calibration and fluorescence spectroscopy, A González, V Lozano, G Escandar, M Bravo, *Talanta* 219, 121288 (2020).
- Multi-way calibration for the quantification of polycyclic aromatic hydrocarbons in samples of environmental impact, G Escandar, A Muñoz, *Microchem J* 164, 106016 (2021).
- Chromatographic Applications in the Multi-Way Calibration Field, F Chiappini, M Alcaraz, G Escandar, H Goicoechea, A Olivieri, *Molecules* 26, 6357 (2021).
- A critical review on the development of optical sensors for the determination of heavy metals in water samples. The case of mercury (II) ion, G Escandar, A Olivieri, *ACS Omega* 7, 39574 (2022).

#### **10.- Meetings**

- Participant in numerous local, national and international meetings on Coordination, Organic, Physical, Environmental and Analytical Chemistry.
- Collaboration in the organization of courses and meetings related to Analytical Chemistry.
- Member of scientific committees in meetings related to Analytical Chemistry.

#### **11.- International and national conferences and courses**

- Invited international conferences
  - University of Extremadura, Badajoz, Spain (2003, 2006, 2013);
  - University of Concepcion, Concepción, Chile (2005);
  - PCU-Rio, Brazil (2011);
  - V Ibero-American Congress of Analytical Chemistry and 2nd Uruguayan Congress of Analytical Chemistry, Montevideo, Uruguay (2012);
  - VII Ibero-American Congress of Physics and Environmental Chemistry and XII Meeting of Analytical and Environmental Chemistry, Viña del Mar, Chile (2014);
  - University of Chile, Chile (2015);
  - VIII Workshop of Chemometrics, Bahía, Brazil (2017);
  - II Encontro Regional Sociedad Brasileira Química-Centro Oeste, Brasilia, Brazil (2018);
  - Universidade Estadual Paulista, Araraquara, Brazil (2019);
  - Faculty of Science of PCUV and Division of Analytical and Environmental Chemistry of the Chilean Society of Chemistry, Valparaiso, Chile (2020);

- XXIV International Symposium on Advances in Extraction Technologies and XV Meeting of Analytical and Environmental Chemistry, Iquique, Chile (2022).
- Invited national conferences
  - Argentinian Congress of Analytical Chemistry (2003, 2013);
  - 1<sup>st</sup> Environmental Analytical Chemistry Workshop in Argentina, Bs As (2017).
- Teaching in international advanced courses:
  - Molecular luminescence in the analytical laboratory (XXXVII Colloquium Spectroscopium Internationale, Buzios, Brazil, 2011);
  - Luminescence Techniques–Analytical Chemistry Applications (PCUV, Chile, 2011);
  - Analytical applications of molecular fluorescence (Republic University, Montevideo, Uruguay, 2014).
- Teaching in national advanced courses (outside the scope of the FCByF):
  - Organic and Inorganic Spectroscopy (National University of Litoral, Santa Fe, 2000); Luminescence Methods (National University of San Luis, San Luis, 2003);
  - Luminescence Methods (National University of Patagonia San Juan Bosco, Trelew, 2007); Second-order Multivariate Calibration (National University of Córdoba, Córdoba, 2019).

### **12.- Argentine Association of Analytical Chemists activities**

- Member of the directive board: secretary (2004-2005), vocal (2007-2009, 2011-2013), vice-president (2014-2015) and president (2016-2017).
- Member of scientific committees of their congresses (2005-2021).

### **13.- Academic and scientific management**

- Postgraduate Commission Member, PhD in Science, FBPS, NUR, 2003-2009.
- Member of the Advisory Commission of the Project for the Improvement of the Teaching of Chemistry in the careers that are dictated in FB&PS, NUR, 1996-2003.
- Academic Director of the Analytical Chemistry Department, FB&PS, NUR, 2011-2013.
- Member of the CONICET Chemical Sciences Advisory Commission, 2009-2010, 2014.
- Coordinator of the CONICET Chemical Sciences Advisory Commission, 2015.
- Member of the Qualification and Promotion Board of CONICET, 2023-.

### **14.- Advisor and evaluation activities**

- Reviewer of articles in scientific journals of Analytical Chemistry, Environmental Chemistry, Physical Chemistry and Spectroscopy, belonging to the following publishers: Elsevier, The American Chemical Society, Royal Society of Chemistry, Springer, Springer-Versita, Wiley, Japan Society of Analytical Chemistry, Taylor and Francis, The Society for Applied Spectroscopy, Future Science, Science Domain International, The Canadian Society of Analytical Sciences and Spectroscopy, The Society for Applied Spectroscopy.

- Evaluation of access and promotions of researchers (CONICET).
- Evaluation of scientific projects (CONICET).
- Evaluation of research projects of national universities (University of Buenos Aires, National University of La Pampa, National University of Litoral, National University of San Luis, National University of San Martín, National University of Tucumán).
- Evaluation of research projects of universities of Colombia and Chile.
- Member of juries for evaluations of national and international Doctoral Theses.
- Member of jury to access teaching positions in national universities.
- Member of Evaluators Board, Secretariat of University Policies, National Ministry of Culture and Education.
- Member of the advisory committee of the Incentive Program to Teachers-Researchers.
- Evaluator of the Teaching Career of NUR.
- Member of the Evaluation Commission for the Houssay, Houssay Trajectory and Jorge Sabato Awards 2021 (Ministry of Science, Technology and Innovation).
- Member of the Evaluation Commission for the RAICES and Leloir Awards – Exacts and Natural Sciences – 2022 edition (Ministry of Science, Technology and Innovation).
- Member of jury for the position of Director of the Center for Inorganic Chemistry, CEQUINOR, CONICET (2021).