

Alexander Castro Grijalba

Postdoct Position– Team 4 LCPO

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**PROFESIONAL BIOGRAPHY**

Alexander Castro Grijalba received his **B.Sc. in Chemistry** from University of Cauca (Popayán, Colombia) in 2005. He then worked for almost 4 years (2006-2009) in the private sector (department of R&D in the field of food additives). In 2011, he obtained a Master scholarship from the International University of Andalucia to join the **master program in chemical processes and products** from the University of Huelva. Finally, he received his **Ph.D. from the National University of San Luis** (San Luis, Argentina) in March of 2017, after conducting a doctoral thesis on the development of methodologies for speciation analysis of As and Se in ionic liquids with chromatographic and non-chromatographic methods. In 2017, he was awarded a **CONICET Postdoctoral Fellowship** through a highly competitive call to join the group of Prof. Eduardo Coronado at the National University of Córdoba (Argentina). Currently, he works as postdoc in the group of Professor Georges Hadziioannou in a project related to the modulation of the conductance in organic semiconductors developing activities inside the **University of Bordeaux** (Bordeaux, France).

To date, Alexander has published **12 scientific articles (10Q1, H-index=9, 179 citations)** in high and medium impact journals (**Average=5.3**). He is **first author on 10** of them and is second author of 2 review articles. He attended more than **14 national and international conferences** giving 3 oral presentations (two being in English). He has been awarded with **two international mobility scholarships**. One of them took place during his Ph.D. studies and was a 2 month stay working in the group of Prof. Maria Soledad Cárdenas Aranzana at the **University of Córdoba**. The other scholarship was for a postdoctoral stay of 6 months in the Colloid Chemistry Group at the **University of Vigo**. He has participated in **12 R&D projects** funded through competitive calls: 4 regional project (National University of Cuyo), 7 national (6 from the Science and Technology Ministry in Argentina and 1 from COLCIENCIAS in Colombia) and 1 international (Organization for the prohibition of chemical weapons from in Netherlands). He contributes to the larger chemistry community by acting as a peer review for unpublished manuscripts. The applicant has wide experience in **University teaching (more than 3000 hours)** in different subjects related to Analytical Chemistry at the **National University of Cuyo** and **National University of Cordoba**. Alexander has been co-supervisor of one bachelor degree thesis.

ACADEMIC EDUCATION

- 03/2017** **Ph.D. in Analytical Chemistry.** Excellent, at the National University of San Luis, San Luis, Argentina.
Thesis title: *Implementation of Ionic Liquids in microseparative and chromatographic processes for speciation analysis of Arsenic and Selenium.*
- 01/2011** **Master in chemical processes and products.** Excellent, at the University of Huelva and International University of Andalucia, Huelva, Spain.

Thesis title: "Design of a barium sulphate suspension for Dysphagia diagnosis through X-ray". Project for Fresenius Kabi-Germany.

10/2005 B.Sc. Chemistry. Excellent, at the University of Cauca, Popayán, Colombia.
Thesis title: "Fatty alcohols obtaining through hydrogenation of palm oil methyl esters with cassiterite-based catalysts"

PROFESSIONAL EXPERIENCE

2019-to date Postdoctoral position – UNIVERSITÉ DE BORDEAUX.
2017-2019 Postdoctoral fellow – CONICET. The National University of Cuyo and the National University of Córdoba. Córdoba, Argentina. Director: Prof. Eduardo Coronado.
2012-2018 Part time assistant teaching, Analytical Chemistry. National University of Cuyo, Mendoza, Argentina.
2011-2012 R&D management, Colombia Industrial y Automotriz, Yumbo, Colombia.
2010-2011 R&D management, Polymers Crop Ltda, Jamundi, Colombia.
2006-2009 R&D assistant, Frutaroma Ltda, Yumbo Colombia.

EXPERIMENTAL SKILLS

- Synthesis of magnetic and gold nanoparticles.
- Synthesis of polymeric and monomeric ionic liquids.
- Growth of thin films by chemical (spin-coating) methods.
- Synthesis of molecularly imprinted polymers.
- Functionalization of gold nanoparticles and core-shell synthesis.
- Use of different characterization techniques and interpretation of the results: 1) Gas chromatography. 2) High performance liquid chromatography. 3) Raman and infrared spectroscopy at room temperature. 4) Transmission Electron Microscopy. 5) Atomic absorption spectrometry. 6) Atomic fluorescence spectrometry. 7) Particle size distribution using the laser diffraction particle size technique and zeta potential. 8) Film thickness by profilometry of high resolution 3D needle. 9) Shear and extensional rheometers. 10) Hydrogenation of high pressure reactor. 11) X-ray diffraction. 12) Conductive and conventional atomic force microscopy. 13) Glovebox. 14) Semiconductor analyzer. 15) Screen printer for electronics. 16) Metal deposition of electrodes by evaporation in ultravacuum. 17) Determination of impedance and capacitance of polymeric films.

PUBLICATIONS IN REFEREED JOURNALS

- 1) **Alexander Castro Grijalba**, Verónica Montes-García, María José Cordero-Ferradás, Eduardo Andres Coronado, Jorge Pérez-Juste, Isabel Pastoriza-Santos. ACS sensors. DOI: 10.1021/acssensors.9b01882.
- 2) **Alexander Castro Grijalba**, Pamela Y. Quintas, Emiliano Franco Fiorentini, Rodolfo G. Wuilloud. Journal of Analytical atomic spectrometry. 33 (2018) 822-834. DOI: 10.1039/C8JA00059J.
- 3) Estefania Martinis, **Alexander Castro Grijalba**, Maria B. Perez, Mauricio Llaver, Rodolfo G. Wuilloud. Trends in Analytical Chemistry, 97 (2017) 333-344. DOI: 10.1016/j.trac.2017.10.004.
- 4) **Alexander Castro Grijalba**, María Emilia Reyes-Gallardo, Rodolfo G. Wuilloud, Rafael Lucena, María Soledad Cárdenas Aranzana. RSC Advances, 7 (2017) 42979-42985. DOI: 10.1039/C7RA07947H.

- 5) **Alexander Castro Grijalba**, Emiliano Franco Fiorentini, Rodolfo G. Wuilloud. Journal of Chromatography A, 1491 (2017) 117–125. DOI: 10.1016/j.chroma.2017.02.045
- 6) **Alexander Castro Grijalba**, Estefania Martinis, Rodolfo G. Wuilloud. Food Chemistry 2017, 219, 102-108. DOI: 10.1016/j.foodchem.2016.09.117.
- 7) **Alexander Castro Grijalba**, Emiliano Franco Fiorentini, Luis Dante Martinez, Rodolfo G. Wuilloud. Journal of Chromatography A 2016, 1462, 44-54. DOI: 10.1016/j.chroma.2016.07.069.
- 8) **Alexander Castro Grijalba**, Leticia B. Escudero, Rodolfo G. Wuilloud. Analytical methods. 2015, 490-499. DOI: 10.1039/C4AY02324B
- 9) **Alexander Castro Grijalba**, Estefania Martinis, Gustavo Lascalea, Rodolfo Wuilloud. Spectrochimica acta Part B. 2015, 103, 49-56. DOI: 10.1016/j.sab.2014.11.007
- 10) **Alexander Castro Grijalba**, Leticia B. Escudero, Rodolfo G. Wuilloud. Spectrochimica Acta Part B. 2015, 110, 118-123. DOI: 10.1016/j.sab.2015.06.005
- 11) Leticia B. Escudero, **Alexander Castro Grijalba**, Estefania Martinis; Rodolfo G. Wuilloud. Analytical and Bioanalytical chemistry. 2013, 7597-7613. DOI: 10.1007/s00216-013-6950-x
- 12) **Alexander Castro Grijalba**, Julian Diel Urresta, Alfonso Ramirez and Joel Barrault. Journal of the argentine chemical society. 98 (2011) 48-58.

MOST RELEVANT CONTRIBUTIONS TO CONGRESSES AND CONFERENCES

- 1) **Oral communication:** *Molecularly imprinted plasmonic sensor for highly selective SERS detection.* Nanomaterials applied to Life Sciences. Gijon, Spain, 12-15th December, 2017.
- 2) **Oral communication:** *Ionic liquids as mobile phase modifiers for the separation of arsenic species in wine by liquid chromatography coupled to atomic fluorescence detection.* 5th Iberoamerican Meeting on Ionic Liquids (IMIL 2017). Santos, Sao Paulo, Brasil, 2017.
- 3) **Oral communication:** *Obtención de alcoholes grasos a partir de esteres metílicos de aceite de palma con catalizadores a base de estaño.* Seminario nacional de estudiantes de Química Universidad del Quindío. Universidad de Quindío. Armenia. 2005.
- 4) **Poster:** *Separation and determination of Selenium species in food and beverages by ionic liquid-assisted reversed-phase liquid chromatography.* 5th Iberoamerican Meeting on Ionic Liquids (IMIL 2017). Santos, Sao Paulo, Brasil, 2017.
- 5) **Poster:** *Removal of arsenic using a phosphonium ionic liquid impregnated-resin.* 5th International congress on arsenic in the environment. Buenos Aires, 2014.
- 6) **Poster:** *Ion pair formation with Ionic Liquids for highly efficient microextraction of arsenic.* 5th International congress on arsenic in the environment. Buenos Aires, 2014.

INTERNATIONAL STAYS

- 1) **09/2017-03/2018 Group of colloidal Chemistry.** University of Vigo, Vigo, Spain. *Development of a multiplex sensor for PHAs using a molecularly imprinted polymer with a gold substrate and detection by Surface enhancement Raman spectroscopy.* Supervisor. Prof. Isabel Pastoriza Santos and Prof. Jorge Perez-Juste.
- 2) **01/2017-03/2017 Group of Analytical Chemistry.** University of Cordoba, Cordoba, Spain. *Synthesis and characterization of a nanocomposite of polymeric ionic liquid and magnetite nanoparticles and its potential application for microextraction of non-steroidal*

antiinflammatories in biological fluids. Supervisor: Prof. Rafael Lucena and Prof. Maria Soledad Cardenas Aranzana.

3) **01/2010-06/2010 Group of chemical engineering**. University of Huelva, Huelva, Spain. "Design of a barium sulphate suspension for Dysphagia diagnosis through X-ray" Project for Fresenius Kabi-Germany. Supervisor: Prof. Crispulo Gallegos Montes and Prof. Concepción Barragan.

AWARDS AND HONOURS

1) **04/2017-03/2019 Postdoctoral fellow. CONICET**. Group of Nanoplasmonics. Prof. Eduardo Coronado. National University of Cordoba, Cordoba, Argentina

2) **01/2017-03/2017 International Mobility Grant. National University of Cuyo – Patagonia Bank**. Group of Analytical Chemistry. Prof. Maria Soledad Cardenas Aranzana. University of Cordoba, Cordoba, Spain.

3) **04/2012-03/2017 Doctoral Fellow. CONICET**. Group of Analytical Chemistry. Prof. Rodolfo Wuilloud. National University of Cuyo, work place. Ph. D title offered by National University of San Luis, San Luis, Argentina.

4) **01/2010-06/2010 Master fellow. International University of Andalucia**. Group of Chemical Engineering. Prof. Crispulo Gallego Montes. University of Huelva, Huelva, Spain.

5) **10/1999-03/2005. Bsc Chemistry award** for free taxes due to the highest score in all the semesters of the career.

HUMAN RESOURCES DIRECTION

1) **B.Sc. Chemistry thesis codirection**. Emiliano Franco Fiorentini. 03/2016-12/2016. Ionic liquids in chromatographic determination of Arsenic and selenium in food samples. National University of Cuyo, Mendoza, Argentina.

2) **Internship practices codirection**. Emiliano Franco Fiorentini. 07/2015-12/2015. Development of a gravimetric methodology for determination of copper in fungicides. National University of Cuyo, Mendoza, Argentina.

REFERENCES CONTACT INFORMATION

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