DARIO ARRUA
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Education

04/2004-05/2009	**PhD in Chemistry**, Universidad Nacional de Córdoba, Argentina. Dissertation title: "Synthesis of macroporous polymer rods. Potential applications as stationary phases in affinity chromatography" Advisor: Prof. Cecilia Alvarez
01/1999-09/2003	**B.S. Chemistry** Universidad Nacional de Córdoba, Argentina.

Research Experience

03/2016-	**Foundation Fellow**. Future Industries Institute, University of South Australia, Adelaide, Australia.
08/2010-02/2016	**Postdoctoral Research Fellow**. Australian Centre for Research on Separation Science (ACROSS), University of Tasmania, Tasmania, Australia. Collaborators: Prof. Emily Hilder and Prof. Paul Haddad.
03/2013-	**Invited International Collaborator**. UVSOR synchrotron Radiation Facility, Institute for Molecular Science (IMS), Okazaki, Japan. Collaborator: Prof. Nobuhiro Kosugi.
04/2009-07/2010	**Postdoctoral researcher**. Argentinean Research Council (CONICET). Argentina

Scientific Skills

Expertise:
Porous polymers
Stationary phases
Monoliths
Liquid chromatography
Surface modification of polymers.

Characterisation techniques: IR spectroscopy, NMR spectrometry, UV spectrophotometry, mercury intrusion porosimetry, determination of specific surface area by gas sorption experiments, dynamic light scattering, scanning electron microscopy (SEM) and scanning transmission X-ray microscopy (STXM).

Publications

Refereed Journal Articles:

1. "Flow-Dependent Separation Selectivity for Organic Molecules on Metal-Organic Frameworks Containing Adsorbents". Anton Peristyy, Pavel N. Nesterenko, Anita Das, Deanna M. D'Alessandro, Emily F. Hilder and **R. Dario Arrua***. Chem. Commun., 2016, 52, 5301-5304.
2. "Preparation of inverse polymerized high internal phase emulsions using an amphiphilic macro-RAFT agent as sole stabilizer". Aminreza Khodabandeh, **R. Dario Arrua**, Christopher T. Desire, Thomas Rodemann, Stefan A.F. Bon, Stuart C. Thickett and Emily F. Hilder*. *Polymer Chemistry*, 2016, 7, 1803-1812.
3. "Highly ordered monolithic structures by directional freezing and UV-initiated cryopolymerisation. Evaluation as stationary phases in high performance liquid chromatography". **R. Dario Arrua**, Emily F. Hilder*. *RSC Advances*, 2015, 5, 71131-71138.
4. "Characterisation of Polymer Monoliths Containing Embedded Nanoparticles by Scanning Transmission X-Ray Microscopy (STXM)". **R. Dario Arrua**, Adam P. Hitchcock, Wei B. Hon, Marcia West, Emily F. Hilder*. *Analytical Chemistry*, 2014, 86, 2876-2881.
5. "Monolithic cryopolymers with embedded nanoparticles. II. Capillary liquid chromatography of proteins using charged embedded nanoparticles". **R. Dario Arrua**, Paul R. Haddad, Emily. F. Hilder*. *Journal of Chromatography A*, 2013, 1311, 121-126.
6. "Valve based on novel hydrogels: From synthesis to application". Marcelo Romero, **R. Dario Arrua**, Emily F. Hilder, Cecilia I. Alvarez Igarzabal*. *Sensors and Actuators B: Chemical*, 2013, 188, 176-184.
7. "Poly (ethylene glycol)-based monolithic capillary columns for hydrophobic interaction chromatography of immunoglobulin G subclasses and variants". CT Desire, **RD Arrua**, M Talebi, NA Lacher, EF Hilder*. *Journal of Separation Science*, 2013, 36, 2782-2792.
8. "Epoxy-based monoliths for capillary liquid chromatography of small and large molecules". Mohammad Talebi, **R. Dario Arrua**, Andras Gaspar, Nathan A. Lacher, Qian Wang, Paul R. Haddad, Emily F. Hilder*. Anal Bioanal Chem, 2013, 7, 2233-2244.
9. "Monolithic cryopolymers with embedded nanoparticles. I. Efficient capillary chromatography of proteins using neutral embedded nanoparticles". **R. Dario Arrua**, Anna Nordborg, Paul R. Haddad, Emily. F. Hilder*. *Journal of Chromatography A*, 2013, 1273, 26-33.
10. "Recent Developments and Future Possibilities for Polymer Monoliths in Separation Science". **R. Dario Arrua**, Tim J. Causon, Emily F. Hilder*. *Analyst*, 2012, 137, 5179-5189.

11. "Synthesis of macroporous polymers with radical scavenging properties by immobilization of polyphenolic compounds". **R. Dario Arrua**, Juan F. Basbus, Miriam C. Strumia, Cecilia I. Alvarez Igarzabal*, Mónica A. Nazareno*. *Reactive and Functional Polymers*, 2012, 72 (11), 807-813.
12. "Review of recent advances in the preparation of organic polymer monoliths for liquid chromatography of large molecules". **R. Dario Arrua***, Mohammad Talebi, Tim J. Causon, Emily F. Hilder. *Analytica Chimica Acta*, 2012, 738, 1-12. **Invited Review**
13. "Macroporous monolithic supports for affinity chromatography". **Ruben Dario Arrua**, Cecilia I. Alvarez Igarzabal*. *Journal of Separation Science*, 2011, 34(16-17), 1974-1987.
14. "Immobilization of Caffeic Acid on a Polypropylene Film: Synthesis and Antioxidant Properties". **Dario Arrua**, Miriam Cristina Strumia, Mónica Azucena Nazareno*. *J. Agric. Food Chem.*, 2010, 58(16), 9228-9234.
15. "Preparation of macroporous monoliths based on epoxy-bearing hydrophilic terpolymers and applied for affinity separations". **Ruben Dario Arrua**, Cristian Moya, Eugenia Bernardi, Jorge Zarzur, Miriam Strumia, Cecilia I. Alvarez Igarzabal*. *European Polymer Journal*, 2010, 46(4), 663-672.
16. "Macroporous polymers monoliths: synthesis, properties and application". **Ruben Dario Arrua**, Miriam Strumia, Cecilia I. Alvarez Igarzabal*. *Materials*, 2009, 2(4), 2429-2466.
17. "Preparation of polymeric macroporous rods systems: study of the influence of the reaction parameters on the porous properties". **Ruben Dario Arrua**, Julio San Roman, Alberto Gallardo, Miriam Strumia, Cecilia I. Alvarez Igarzabal*. *Materials Chemistry and Physics*, 2008, 112, 1055-1060.
18. "Synthesis of macroporous polymer rods based on an acrylamide derivative monomer". **Ruben Dario Arrua**, Cecilia I. Alvarez Igarzabal*, Miriam Strumia, Daniel Serrano, Gustavo Pastrana. *Journal of Polymer Science Part A: Polymer Chemistry*, 2006, Vol. 44, 6616-6623.
19. "Crosslinking reactions and swelling behavior of matrices based on N-acryloyl-TRIS (hydroxymethyl)-aminomethane". Cecilia I. Alvarez Igarzabal*, **Ruben Dario Arrua**. *Polymer Bulletin*, 2005, Vol 55, Núm. 1-2, 19-29.

Book Chapters:

"Monolithic HPLC columns". Encyclopedia of Analytical Chemistry. Wiley. CT Desire, EF Hilder and **RD Arrua**. Manuscript under revision.

Conferences

Author or co-author of 31 presentations at national and international scientific meetings.

Ongoing Supervisions, with Students Holding Fellowships

- Mr Adam Sutton (Co-Supervisor, Ph.D. Candidate, University of South Australia). Continuing

- Ms Sara Thomas (Co-Supervisor, Ph.D. Candidate, University of South Australia). Continuing

- Mr Ricardo Neto (Co-Supervisor, Ph.D. Candidate, University of South Australia). Continuing

- Mr Aminreza Khodabandeh (Co-Supervisor, Ph.D. Candidate, University of Tasmania).

- Mr Christopher Desire (Co-Supervisor, Ph.D. Candidate, University of Tasmania). Continuing

Teaching Experience

- Collaboration with lectures for "Water Chemistry" (CIVE 2011). School of Environmental and Built Environments, Division of Information Technology, Engineering and the Environment, University of South Australia, Australia.

- Laboratory Demonstrator at the units "Chemistry" (KRA113) (2011, 2012 and 2014) and "Chemical Analysis" (KRA223) (2011). School of Physical Sciences-Chemistry, Faculty of Science, Engineering & Technology, University of Tasmania, Australia

Research Funding

-FAPESP SPRINT 4th Edition 2015. Collaboration between University of South Australia and FAPESP (São Paulo Research Foundation). Project title: "*Greening sample preparation of complex matrices by using natural deep eutectic solvents (NADES) together with porous polymeric adsorbents for subsequent analyses by liquid chromatography (LC) and nuclear magnetic resonance (NMR)*". 2016-2017. Funding: $ 35,551.

-ARC Industrial Transformation Training Centres Project: *"ARC Training Centre for Portable Analytical Separation Technologies (ASTech)"*. Chief Investigator. ARC Project: IC140100022. Funding: $ 2,148,935.

-Beamtime at UVSOR synchrotron facility, Japan. Project title: *"Comprehensive characterization of monolithic polymers by scanning transmission X-ray microscopy (STXM)"*. June 2016, March 2015, July 2014 and October 2013. Funding for each visit: $ 2,374*.

-Research Enhancement Grant Scheme (REGS) 2015, University of Tasmania. Project title: *"Polymer/metal-organic frameworks core-shell microparticles. Application as stationary phases in separation science"*. December 2014. Funding: $ 16,890.

*Equivalent in beamtime running costs.