

PAULA FACAL MARINA

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PROFILE

I am an **Early Career Researcher** with a **PhD in Materials Science** currently employed as a post-doctoral scientist at the **University of Adelaide**. I have extensive experience working within interdisciplinary research teams, including students, post-docs and senior academic and professional staff. My research interests are focused on the synthesis of inorganic/organic nanomaterials and their characterisation utilising a wide variety of basic and advanced analytical techniques. I have developed research expertise in various state-of-the-art methods to develop new materials for different applications: manufacture of sensors, plasmonics, surface chemistry and more recently for biomedical applications. I favour research that is applied and collaborative, addressing real-world problems.

I combine my research activities with my role as **Program Coordinator for the Diploma of Engineering and IT** at **SAIBT - UniSA**. I am a qualified educational leader and valued team member; I have demonstrated ability in working to enhance learning experiences for the students and developed my leadership and management skills.

EDUCATION

- Doctor of Philosophy (FI-EA-LPHD) | Future Industries Institute, University of South Australia (2017)
- Masters' in Science and Technology of Colloids and Interfaces | University of Vigo, Spain (2012)
- Masters' in Quality Management (ISO 9001-2008) and Internal Quality Auditor, Spain (2010)
- Bachelor of Chemistry Sciences | School of Science, University of Buenos Aires, Argentina (1993)

RESEARCH EXPERIENCE | 1993 - current

I have over **18 years of experience as a scientific researcher** that spans across different fields of expertise, **electrochemistry, colloid science** and more recently, **advanced materials for biomedical and pharmaceutical application**. My PhD studies focused on the fundamental aspects of particle-stabilised emulsions with a view to gain further understanding of the mechanism of formation and stabilization of emulsions. My research interests include the optimisation of the synthesis and formation mechanisms of metal, semiconductor, magnetic and hybrid nanoparticles with controlled composition, size and morphology and the creation of colloidal bio-composites. More recently, I gained experience in organic/polymeric synthetic procedures for the manufacture of materials for the localised delivery of anticancer agents and antibiotic resistant biofilms.

- Research Associate (ARA) – School of Medical and Health Sciences – The University of Adelaide (2020 – current)

- Research Associate (ARA) - School of Pharmacy and Medical Sciences - University of South Australia (2017-2020)
- Research Assistant (ARAS) - Future Industries Institute - University of South Australia (2016-2017)
- Research Fellowship Electronic Microscopy – CACTI (Scientific and Technological Research Assistance Centre) – University of Vigo (2012-2013)
- Research Assistant Colloid Chemistry Group – School of Chemistry - University of Vigo (2012-2013)
- Research Fellow - Nanotechnology and Surface Analysis - CACTI (Scientific and Technological Research Assistance Centre) – University of Vigo (2010-2011)
- Research Assistant - School of Industrial Engineering - University of Vigo (1998 -2008)



CONTRIBUTIONS TO RESEARCH FIELD | EXCELLENCE



INDUSTRY-FUNDED PROJECTS | EXCELLENCE 1

As recognition of my skills and abilities I have been involved in many **industry-funded projects**:

- New antibacterial meshes for hernia repair, Hospital Research Foundation
- Delivery gel lead optimisation: chemical formulation, Carina Biotech - CRC-P2 -**patent filed**
- Development of a thermo-responsive gel formulation for the localised delivery of CAR-T cells for the treatment of solid tumours, Cell Therapy Manufacturing CRC-funded project (P1-10)
- Development of functionalised nanoparticles for the detection and in situ treatment of cancer tumours, University of South Australia, 2016
- Method for marking magnetic nanoparticles to enhance microwave coatings and other applications, Frinova, University of Vigo, 2012. – translated and commercialised
- Different strategies for gold nanoparticles bio functionalisation for bacteria quantification, University of Vigo, 2011-2012.
- Development of an atmospheric physico chemistry dynamic model for local contamination analysis, 1999



PUBLICATIONS | EXCELLENCE 2

I have published 19 articles (another 4 articles currently in preparation), including 6 first authorships, 3 of which were published in journals with an impact factor above 10. The articles have been published in world-class peer-reviewed journals and have been frequently cited over the years.

- Polymers and Hydrogels for biomedical applications ([19], [18], [1], [2], [3], [4])
- Colloid chemistry and nanomaterials applications ([5], [6], [7], [8], [9], [10], [11], [12])
- Electrochemistry and application for soil contamination ([13], [14], [15], [16])
- Waste and environment protection ([17])



GRANTS AND AWARDS | EXCELLENCE 3

My growing capacity to attract competitive funding is evidenced by the fact that since my first appointment as post-doctoral scientist in Australia, I have **secured over \$50,000** including:

- 2020 Australian Federation of University Women SA Inc. Trust Postdoctoral Grant
- China–Australia Centre for Health Sciences Research (CACHSR) – CHIEF INVESTIGATOR 2018
- China–Australia Centre for Health Sciences Research (CACHSR) - 2017
- UniSA Travel Grant – University of South Australia - 2015
- PhD Scholarship – International President Scholarship – University of South Australia - 2012
- Post-Graduate Travel Grant – University of Vigo – 1998/2000/2011

CONTRIBUTIONS TO RESEARCH | IMPACT

PATENTS | IMPACT 1

- Injectable formulations for the controlled delivery of T cells – filed March 2018: Delivery system for the localised delivery of CAR-T cells for the treatment of solid tumours.

SCIENCE OUTREACH AND CONTRIBUTION TO SOCIETY | IMPACT 2

- Premier's Women's Directory - January 2020 – current
- EMCR Representative of the University of South Australia for the EMCR Representative Network, 01/2019 – 08/2020
- Scimex (the Science Media Exchange) - Online news portal aimed primarily at helping journalists cover science - July 2017 - current
- Scientists and Mathematicians in Schools (SMiS) – Volunteer - Managed by CSIRO – 08/2017 - current
- Member of the FII ECR committee – 03/2017 – 08/2020
- Member of the ITMS HDR committee – 06/2016 – 02/2017
- Student representative Wark Fund Advisory Group – 06/2013 – 10/2016
- IACIS (International Association of Colloid and Interfaces Scientist) – 01/2015 - current
- Australian Nanotechnology Network – 01/2014 – current
- Contributions as a reviewer: Carbohydrate Polymers & Materials Science and Engineering C

CONTRIBUTIONS TO RESEARCH | NETWORKING

PRESENTATION AND CONFERENCES

6 oral presentation at International Conferences and 4 poster presentations that led to fruitful collaborations.

RESEARCH STAY

- Max Planck Institute for Polymer Research – Mainz, Germany (2015)

TEACHING EXPERIENCE

I am a **qualified STEM teacher with over 20 years of experience**. I started my teaching career when I was an undergraduate student. Through connecting students learning with their interests, I have been successful in engaging students in learning. I found that incorporating real-world examples into learning of STEM subjects can help students understand why they are in school and how these lessons lead them to achieve their goals. I progressed in my career that began as a helpdesk teacher to a highly competent lecturer and I am currently the Academic Coordinator for the Diploma of Engineering and IT at SAIBT.

CONTRIBUTIONS TO TEACHING | EXCELLENCE

EXTENSIVE PROFESSIONAL EXPERIENCE | EXCELLENCE 1

I have experience in teaching STEM subjects at all levels, from primary school to University students and experience in teaching science to non-scientists. During my PhD studies at UniSA and after my graduation I have been working as a tutor delivering classes F2F and the past year online. My field of expertise spans across Inorganic and Organic Chemistry (Chem 100, Chem 101 Intro Chem for Engineers),

Synthetic and Advanced Synthetic Chemistry, Advanced Structure Determination and Analysis, Physics 1 and 2 for the Diploma of Engineer and Maths&Stats for business.

- Lecturer and Course Coordinator Physics 1,2 and Maths and Stats – SAIBT (2017- currently)
- Tutor Chemistry – UniSA (2017 – current)
- Tutor Chemistry Foundation studies – UniSA (2015-2017)
- Lab Demonstrator Chemistry – UniSA (2015 – 2017)
- Support teacher (Year 4 – year 12 students) – Academia Barreiro – Spain (2006 – 2013)
- Online and F2F seminars WHS – Chemical Waste Management and Storage – various companies – Spain (2006-2012)
- Mats and Stats for Engineers Tutor - CentroVigo – Spain (2009-2013)
- Lab demonstrator Physical chemistry – University of Vigo – Spain (2000-2001)
- Teacher Year 1 – Colegio Marcote – Spain (1993-1994)
- Helpdesk teacher – Sciences in general – Argentina (1985-1993)



LEADERSHIP IN TEACHING | EXCELLENCE 2

As recognition of my teachings skills I have been named co-supervisor of honours and HDR students. I am currently working as Academic Coordinator for the Diploma of Engineering and IT at SAIBT. I undertake independent teaching and make an independent contribution through professional practice. As Academic Coordinator I coordinate and/or lead the activities of other staff, as appropriate to the discipline. I was responsible for the re-structure of the IT Diploma Modules (stage 2 – equivalent to UniSA's 1 year IT Degree) to adapt them to UniSA's recent changes.

- Program Coordinator Diploma of Engineering and IT – SAIBT - UniSA
- Discipline Lead and later Academic Coordinator for the Diploma of Engineering and IT – SAIBT (2020)
- Supervision of placement students – The University of Adelaide
- Supervision of HDR students – UniSA (2019-current)
- Supervision of Honours Students – UniSA (2017-2018)
- Supervision of summer students – UniSA (2017-2019)



ENGAGEMENT WITH COMMUNITY | EXCELLENCE 3

As an education professional, I am committed to contributing with my knowledge and area of expertise not only in the classroom but also to the community. My aim is to provide a positive role model for new generations of learners, actively participating with governmental and non-governmental agencies, those which have an impact and add value to the University.

- Scientists and Mathematicians in Schools (SMiS) – Volunteer - Managed by CSIRO – 08/2017 - current



PROFESSIONAL DEVELOPMENT | SKILLS GROWTH

During my professional career I have been committed to continuous development with the aim of being at the forefront of technical developments in my area of expertise, but also expanding my knowledge to other relevant fields. Emergency Fire Warden, Tactical Training Australia (November 2018 repetition)

- First Aid –St John (May 2017)
- Teaching AND Research at UniSA, UniSA workshop (April 2016)
- Marking and Student Online Reports Training Introduction, UniSA workshop (February 2016)

- Creative and Critical Thinking, e-Grad School LEAP Australia (June 2015)
- Project Management, e-Grad School LEAP Australia (October 2013)
- Research Commercialisation, e-Grad School LEAP Australia (October 2013)
- Publishing your Research and What Journal Editors Want, UniSA RESA workshop (July 2013)
- Internal Quality Auditor (March 2010)
- HND in Waste Management (January 2010)
- Work, Health and Safety Auditor (September 2009)
- Formador de formadores, Activa Formacion (August 2009) [Teacher of teachers]
- Quality, Health, Safety and Environment (QHSE) Management (May 2009)
- Integración y usos educativos de la Web 2.0 en Moodle: e-Learning 2.0, CECAP (May 2009)
[Integration and educational uses of Web 2.0 in Moodle: e-Learning 2.0]
- R+D+i Management, UNE 166002:2006, Aimen (April 2009)
- Waste Management (March 2009)
- Administración Moodle 2.0, CECAP (March 2010) [Moodle 2.0 Administration]
- Microbiological Analysis (2004)