
CURRICULUM VITAE OF MARIA BRUNA

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Citizenship: Spanish

Employment

- 10/2013–present: **Junior Research Fellow in Mathematics.** St John's College, University of Oxford.
Independent Early-Career Position.
- 04/2013–12/2013: **Postdoctoral Researcher (Secondment).** Microsoft Research, Cambridge.
Worked at the Computational Ecology and Environmental Science group with Dr Matthew Smith.
- 11/2012–10/2013: **Postdoctoral Researcher.** Computer Science Department, University of Oxford.
Advisor: Prof David Gavaghan.
- 04/2012–10/2012: **Postdoctoral Researcher.** Mathematical Institute, University of Oxford.
Advisor: Prof Radek Erban.

Career breaks

- 01/2016–12/2016: **Maternity leave.** Child born 13/01/2016.

Education

- 10/2008–11/2012: **D. Phil. in Mathematics (Special Commendation).** University of Oxford.
Thesis on *Excluded-volume Effects in Stochastic Models of Diffusion*. Advisor: Prof Jon Chapman.
Viva date: 28/09/2012.
- 10/2007–09/2008: **M. Sc. Mathematical Modelling and Scientific Computing (Distinction).** University of Oxford.
Dissertation on *Mathematical Modelling of Macular Holes*. Advisor: Prof Jon Chapman.
- 09/2002–12/2008: **M.Eng. Industrial Engineering (5 year diploma).** Universitat Politècnica de Catalunya, Barcelona.
Graduated 2nd of class of 465.
- 09/2004–06/2007: **Bachelor in Mathematics (4 year diploma).** Universitat Politècnica de Catalunya, Barcelona.
Graduated 2nd of class of 50.

Fellowships and Awards

- 2018: **Humboldt Research Fellowship for Experienced Researchers.** Germany (124K€).
- 2018: **"la Caixa" Junior Leader Fellowship.** BGSMath, Barcelona (300K€, declined).
- 01/2017–12/2017: **L'Oréal-UNESCO UK and Ireland For Women in Science Fellowship (€15K).**
Success rate for 2016: 1.3%.
- 2016: **Women of the Future 2016 Award.** Category Science.
- 10/2013–12/2018: **St John's College Junior Research Fellowship.** Oxford (£151K).
- 09/2015–11/2015: **Olga Taussky Pauli Fellowship.** Wolfgang Pauli Institute, Vienna (3K€).

Research Funding

- 01/2018–07/2018: **Dyson Ltd.** *Improving filter efficiency in vacuum cleaners using mathematical modelling,* with Dyson Ltd. (PI, £78K). Funding for one full-time and one 10% post-doctoral researchers working.

- 01/2017–12/2017: **EPSRC Impact Acceleration Account Grant and Dyson Ltd.** *Improving filter efficiency in vacuum cleaners using mathematical modelling*, with Dyson Ltd. (Co-I, £84K). Funding for one post-doctoral researcher working with me, Dr Griffiths and Dyson Ltd.
- 10/2015–04/2018: **John Fell Fund and St John's College Grant.** *Sustainable software for reaction-diffusion processes of interacting particles* (PI, £70K). Funding for one post-doctoral researcher.
- 02/2015–09/2015: **EPSRC Impact Acceleration Account Grant.** *Membrane modelling: optimal design and selection*, with Pall Corporation (PI, £38K). Funding for one post-doctoral researcher.
- 10/2014–01/2015: **2020 Science Programme Grant.** *Mathematical modelling of particle transport through asymmetric membranes* (PI, £29K). Funding for one intern and one software developer.
- 10/2009–03/2012: **EPSRC Postgraduate Research Scholarship** (£65K).
- 10/2007–09/2008: **Fundación Caja Madrid Postgraduate Studentship** (£21K).

Visiting positions

- 03/2017–04/2017: **Visiting Researcher.** Westfälische Wilhelms-Universität, Münster (Germany).
- 05/2016–06/2016: **Visiting Researcher at the “Stochastic Dynamical Systems in Biology: Numerical Methods and Applications” Programme.** Isaac Newton Institute for Mathematical Sciences, Cambridge (UK).
- 09/2015–11/2015: **Senior Postdoctoral Researcher.** Austrian Academy of Sciences, Vienna (Austria).
- 01/2011–03/2011: **Visiting Student.** University of Sydney (Australia).
- 10/2010–11/2010: **Visiting Student at the “Partial Differential Equations in Kinetic Theories” Programme.** Isaac Newton Institute for Mathematical Sciences, Cambridge (UK).

Selected Talks

- 2018: **Applied Mathematics Seminar.** Open University, UK.
Computational Science and Engineering Seminar. Universitat Politècnica de Catalunya, Barcelona, Spain.
- 2017: **Applied Mathematics Seminar.** University of Birmingham, UK.
Applied and Computational Mathematics Seminar. Heriot-Watt University, UK.
Physical Applied Mathematics Seminar. University of Manchester, UK.
Invited speaker at the SIAM Student Chapter. University of Strathclyde, UK.
- 2016: **Spatially Distributed Stochastic Dynamical Systems in Biology Workshop.** Isaac Newton Institute for Mathematical Sciences, UK
Workshop on Multiscale phenomena in electrochemical and porous systems. University of Warwick, UK.
British Applied Mathematics Colloquium 2016. University of Oxford, UK.
- 2015: **Plenary speaker at the Inaugural Mathematics-in-Industry NZ (MINZ).** Massey University, NZ.
Applied Maths Seminar. University of Southampton, UK.
Institute of Mathematics and Scientific Computing Seminar. University of Graz, Austria.
Mathematics and Statistics Seminar. University of Canterbury, NZ.
Numerical Analysis and Applied Mathematics Seminar. KU Leuven, Belgium.
Mathematical Modelling of synthetic nanopores Workshop. TU Darmstadt, Germany.
- 2014: **Nanostructures for Photovoltaics and Energy Storage Meeting.** TU Berlin, Germany.
18th European Conference on Mathematics for Industry. Taormina (Italy).
Bath Spring School: Microscopic descriptions and mean-field equations in physics and social sciences. University of Bath, UK.
DK Seminar. TU Wien, Austria.

- 2013: **Applied Partial Differential Equations Seminar.** Imperial College London, UK.
KI-Net Young researchers workshop: Kinetic and macroscopic models for complex systems. University of Maryland, US.
Slow–Fast Dynamics: Theory, Numerics, Application to Life and Earth Sciences Workshop. Centre de Recerca Matemàtica, Barcelona, Spain.
Applied Maths Seminar. University of Southampton, UK.
- 2012: **British Ecological Society Annual Meeting.** University of Birmingham, UK.
Scale transitions in chemistry and biology Workshop. ICMS, Edinburgh, UK.
Partial differential equations and applications Seminar. Universitat de Girona, Spain.
- 2011: **Mathematics Seminar.** University of Auckland, NZ.
Sydney Dynamics Group Seminar. University of New South Wales, Australia.
- 2010: **Partial differential equations and applications Seminar.** Universitat Politècnica de Catalunya, Barcelona, Spain.
Applied Mathematics Seminar WWU Münster, Germany.

Postdoctoral Supervision

2017-	G. Printsypar	Improving filter efficiency in vacuum cleaners (with Dyson).
2015-	M. Robinsion	Sustainable software for reaction-diffusion processes of interacting particles.
2015-2017	S. Mondal	Mathematical Modelling of Design Strategies for Membrane Filtration.
2014-2015	M. Dalwadi	Membrane modelling: optimal design and selection (with Pall Corporation).

Graduate Supervision

D. Phil.

2015-	L. Alasio	Stability of nonlinear diffusion PDEs (PDEs CDT).
2015-2017	P. Romanazzi	Hot spot temperature estimation in electrical machines (Dept. of Engineering).

Short CDT Projects

2016	D. Lunz	Prediction of Bulk Properties from Microstructure (InFoMM CDT).
2016	D. Wilson	Modelling reactions and excluded volume (Systems Biology DTC).
2015	L. Alasio	Nonlocal diffusion and volume exclusion (PDEs CDT).
2014	J. Page	The effect of migration on coral reefs (Systems Biology DTC).

M. Sc. Mathematical Modelling and Scientific Computing

2017	S. Ridderbusch	Mean exit times of robots modelled by velocity jump processes.
2015	M. Schmidtchen	Anisotropic particles with excluded-volume interactions.
2015	T. Allieri	Ant transport in foraging networks.

Visiting Students

2018	T. Ralph (University of Auckland, NZ).
2017	R. Neuhausler (University of California, Berkeley, US).
2017	M. Schmidtchen (Imperial College London, UK).
2015	E. Daus (Technische Universität Wien, Austria).

Teaching experience

- **Lecturer of a short course** “Excluded-volume effects in systems of interacting particles” at the Weissensee Summer School of the Vienna Doctoral School in Nonlinear PDEs.
- **College tutor** at St John's College, covering first and second year courses including Mathematical Modelling in Biology, Introductory Calculus, Optimisation, Multivariable Calculus, Differential Equations and Numerical Analysis.
- **Teaching assistant** at the Mathematical Institute, University of Oxford, covering third and fourth year courses including Topics in Fluid Mechanics, Mathematical Biology and Ecology, and Waves and Compressible Flow.

Collegial activities

- **Workshop organisation:** Organiser of a mini-symposium at the European Conference on Mathematics for Industry (2014, Taormina), co-organiser of a WPI workshop (2015, Vienna) and organiser of two workshops in Oxford (2017 & 2018).
- **Reviewer** for Acta Appl. Math., Appl. Math. Model., J. Eng. Math., EPL, J. Math. Biol., Physica A, PLOS One, Results Phys., SIAM J. Appl. Math., J. Fluid. Struct. (2013 to present).

Press coverage

- Article in the Spanish Magazine for Education **Innovamos** (2017).
<http://revistainnovamos.com/2017/05/08/en-casa-me-ensenaron-a-disfrutar-de-las-matematicas/>
- Article in the Magazine **Mathematics Today** of the Institute of Mathematics and its Applications (2016).
<https://ima.org.uk/3332/interview-maria-bruna-loreal-unesco-fellow/>
- Article in the **Oxford Science blog** (2016). <http://www.ox.ac.uk/news/science-blog/two-oxford-scientists-selected-women-science-fellowships-0>
- **American Institute of Physics (AIP) News** article *Prey-Predator Made Simple* highlighting the results of my J. Chem. Phys. 2014 publication (2014).
<https://publishing.aip.org/publishing/journal-highlights/predator-prey-made-simple>

Languages

English (C2), German (B1/2), French (C1), Catalan (native), Spanish (bilingual).