Ana Victoria Ponce-Bobadilla

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Professional Appointments

Postdoctoral researcher 2019-Present
Saez-Rodriguez Group, Institute for Computational Biomedicine,
Heidelberg University Hospital, Germany

Education

PhD in Applied Mathematics *2015-2019*
Heidelberg University, Germany
Graduated summa cum laude
Thesis: *Mathematical Models of Cell Migration and Proliferation in Scratch Assays*
Supervisors: Prof. Thomas Carraro (Heidelberg University, Germany), Prof. Tomás Alarcón (Centre de Recerca Matemàtica, Spain), Prof. Helen Byrne, Prof. Philip K. Maini (University of Oxford, UK)

Master of Science in Complex Systems Science *2014-2015*
École Polytechnique, France
Thesis developed in the Wolfson Centre for Mathematical Biology at the University of Oxford
Thesis: *Stochastic model for tumor control probability: effects of repair from sublethal damage*
Supervisors: Prof. Helen Byrne, Prof. Philip K. Maini

Master of Science in Complex Systems Science *2013-2014*
University of Warwick, United Kingdom
Thesis: *Modelling calcium waves in different dendritic structures*
Supervisor: Dr. Yulia Timofeeva

B. Sc. in Mathematics *2008-2013*
National Autonomous University of Mexico, Mexico
Graduated with Honors, Overall GPA: 9.96/10
Thesis: *Pattern formation by the Turing mechanism in reaction-diffusion systems*
Supervisor: Prof. Antonio Capella Kort

Publications

Journal articles

Ponce-Bobadilla, A. V., Carraro, T., Byrne, H. M., Maini, P. K., & Alarcón, T. (2019). Age structure can account for delayed logistic proliferation of scratch assays. *Bulletin of Mathematical Biology*, 1–19.

Ponce-Bobadilla, A. V., Arévalo, J., Sarró, E., Byrne, H., Maini, P., Carraro, T., ... Alarcón, T. (2019). In vitro cell migration quantification method for scratch assays. *Journal of the Royal Society Interface*, *16*(151).

Ponce-Bobadilla, A. V., Maini, P. K., & Byrne, H. (2017). A stochastic model for tumour control probability that accounts for repair from sublethal damage. *Mathematical medicine and biology: a journal of the IMA*, *35*(2), 181–202.

Peer-Reviewed Conference Papers

Ponce-Bobadilla, A. V., Bartmanski, B., Grima, R., & Othmer, H. G. (2019). The status of the QSSA approximation in stochastic simulations of reaction networks. *2018 MATRIX Annals*.

Ponce-Bobadilla, A. V., Doursat, R., & Amblard, F. (2015). An agent-based model of avascular tumor growth. In *Artificial Life Conference Proceedings 13* (pp. 648–655).

Awards, Scholarships and Funding

Travel Grant to attend the 8th IMO Workshop: Evolutionary Therapy *November 2018*
Grant awarded by the Integrated Mathematical Oncology Department of the H. Lee Moffitt Cancer Center & Research Institute to fully cover the participation in the 8th Integrated Mathematical Oncology (IMO) workshop at the Moffitt Cancer Center at Tampa, Florida, USA.

Landahl Travel Award *July 2018*
Travel grant awarded by the Society of Mathematical Biology to attend the 2018 SMB Annual Meeting at Sydney, Australia.

Travel Grant of the Graduate Academy *July 2018*
Travel grant awarded by the Heidelberg University Graduate Academy to support a research visit to Prof. Matthew Simpson at Queensland University of Technology, Brisbane, Australia and the participation in the "Spatio-temporal stochastic systems in biology workshop" at Creswick, Australia.

Short-term Scientific Missions Grant *March-April 2018*
Mobility grant awarded by the Mathematics for Industry Network (European Cooperation in Science and Technology Action TD1409) to visit Prof. Tomás Alarcón at the Centre de Recerca Matemàtica, Barcelona, Spain.

HGS MathComp Scholarship *2015-2018*
Full scholarship awarded by the HGS MathComp for proceeding PhD studies.

Erasmus Mundus Category A Scholarship *2013-2015*
Full scholarship awarded by the European Union Education, Audiovisual and Culture Executive Agency to pursue a two year international Msc programme.

Exxon Mobil Scholarship for Research and Success *2012*
Research scholarship awarded by the Institute of International Education (IIE) Latin America and the Caribbean to support undergraduate research.

International Mobility Scholarship UNAM-DGECI *2011*
Awarded by the National Autonomous University of Mexico for studying abroad the fall semester at the University of Ottawa.

3rd Place in the 21st Mexican Mathematical Olympiad *2007*
Coahuila, Mexico.

Talks and Posters

Talks

Age structure as key to delayed logistic proliferation in scratch assays

- International Congress on Industrial and Applied Mathematics, Valencia, Spain, 2019.
- 2018 Annual Meeting of the Society for Mathematical Biology, University of Sydney, Australia, 2018.

Quantitative frameworks for understanding cancer cell invasion through in-vitro scratch assays

- BIRS Workshop on Bridging Cellular & Tissue Dynamics from Normal Development to Cancer. Banff, Canada, 2019.
- Analysis and Modelling of Complex Systems seminar, University of Freiburg, Germany, 2019.
- Maths-Bio-Medicine seminars, University of Leeds, UK, 2018.
- 60th British Applied Mathematics Colloquium, University of St. Andrews, UK, 2018.

Mathematical models for studying in vitro tumour invasion

- School of Mathematics, Statistics and Actuarial Science (SMSAS) Postgraduate Research Seminar, University of Kent, UK, 2017.

Modelling calcium waves in different dendritic structures

- 4th SIAM National Student Chapter Conference, University of Oxford, UK, 2014.

Pattern formation by Turing mechanism: squeme and simulations

- XXII National School of Optimization and Numerical Analysis, University of Tabasco, Mexico, 2012.

Posters

Mathematical frameworks for understanding in-vitro cancer cell invasion

- Philip Maini's 60th birthday workshop on growth and pattern formation, University of Oxford, UK, 2019.
- 8th Integrated Mathematical Oncology (IMO) workshop, Moffitt Cancer Center, Florida, USA, 2018.

Multiscale model of cancer invasion and extracellular matrix interaction

- European Conference in Mathematical and Theoretical Biology, Nottingham, UK, 2016.

Stochastic models of tumor response to fractionated radiotherapy

- Workshop Computational and multiscale mathematical modelling of cancer growth and spread, ICMS, Edinburgh, 2014.

Modelling calcium waves in different dendritic structures

- 6th Young Researchers in Mathematics, University of Warwick, UK, 2014.
- 3rd SIAM National Student Chapter Conference, University of Oxford, UK, 2014.

Teaching Experience

Teaching assistant *2019-2020*
Master course: Mathematics for Systems Biology
Heidelberg University, Germany.
Teaching assistant *2011-2013*
Undergraduate courses: Modern Algebra II, Linear Algebra I, Modern Algebra I, Linear Algebra II
Faculty of Science, UNAM.

Research supervision Experience

-Master thesis by Anna Maria Ranno 2018-2019
-Master project by Françoise Anne Kemp Sep-Dec 2016

Organization Experience

Co-founder of "Mathematics of Life" Special Interest Group under the umbrella of the HGS MathComp.
Co-organizer of the HGS MathComp 7th Annual Colloquium "Applied Sciences: Theory Comes True", Altleiningen, Germany, Nov 30 - Dec 1, 2015.
Organizer of the seminar "Biological Complex Systems" at the Complex Systems Institute, Paris Île-de-France, Dec 4, 2014.

Workshops, Schools and Conferences (Attendance)

- Spatio-temporal stochastic systems in biology workshop, Creswick, Australia *2018*
- School on Mathematical Modelling of Tumour Growth and Therapy,
Centre de Recerca Matemàtica, Barcelona, Spain *2018*
- New Trends in Mathematical Biology Conference, Centre de Recerca Matemàtica, Barcelona, Spain *2018*
- 4th Quantitative Biology in Oxford (QBiox) Colloquium, University of Oxford, UK *2017*
- Mathematical modelling in biology and medicine, Santiago de Cuba, Cuba *2016*

Outreach

Speaker at the third Science-Com: "Science for Everyone" organized in Heidelberg, Germany on February 27, 2019.
Participant of the program "Skype a Scientst" that allows students from all over the world to chat with scientists.

Skills

Languages: Spanish (native), English (advance), French (basic), German (basic)
Programming (proficient): C++, Bash, Python, Matlab, Netlogo, git
Programming (familar): R, HTML
Office suites: LaTeX, Microsoft Office

References

Available on request.

Last actualization: 19/02/2020