# Ana Victoria Ponce Bobadilla

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Computational Biomedicine
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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.**, Bartmanski, B., Grima, R., & Othmer, H. G. (2019). The status of the QSSA approximation in stochastic simulations of reaction networks. *Accepted for publication in the 2018 MATRIX Annals*.

**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.**, 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: 09/01/2020*