# **Simone Rusconi** | Curriculum Vitae

## Personal Data

**Date of Birth**: October 6, 1989

**Place of Birth**: Como, Italy

### Contacts

**Address**: Calle el Perro 4 (3I), Bilbao, Spain 48005

**Webpage**: `http://www.bcamath.org/en/people/srusconi`

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## Research Interests

Probabilistic models and stochastic simulation algorithms for various physical, biological and chemical processes

## Current Position

**Postdoctoral Fellow**
*BCAM - Basque Center for Applied Mathematics, Bilbao, Spain* *June 2018 - Present*
Research Line: Modelling and Simulation in Life and Material Sciences

## Education

### Studies

**International PhD Thesis cum Laude eligible for Extraordinary Doctoral Award**
*UPV/EHU - University of the Basque Country, Leioa, Spain* *June 2014 - June 2018*
Thesis Title: Probabilistic Modelling of Classical and Quantum Systems
Thesis Supervisors: Prof. Elena Akhmatskaya & Prof. Dmitri Sokolovski

**Internship**
*BCAM - Basque Center for Applied Mathematics, Bilbao, Spain* *Sep 2013 - Feb 2014*
Research Line: Modelling and Simulation in Life and Material Sciences
Title: Mathematical modeling of Controlled Radical Polymerization
Supervisor: Prof. Elena Akhmatskaya

**Master Degree of Mathematical Engineering (Statistics)**
*Politecnico di Milano, Milano, Italy* *2011 - 2014*
Thesis Title: Mathematical modeling of Controlled Radical Polymerization
Thesis Supervisors: Prof. Maurizio Grasselli & Prof. Elena Akhmatskaya

**Bachelor Degree of Mathematical Engineering**
*Politecnico di Milano, Milano, Italy* *2008 - 2011*
Thesis Title: Dynamics of two competing species
Thesis Supervisor: Prof. Maurizio Grasselli

### Computer Skills

**Operating Systems**: Ubuntu, Scientific Linux, Windows

**Languages**: C, C++, R, Matlab, MS Excel

**Parallel CPU**: OpenMP, MPI, CUDA

**Others**: MS Word, MS Power Point, MS Photoshop, LaTeX

### Languages

**Italian**: Mothertongue

**English, Spanish**: Conversationally fluent

## Awards & Grants

**2019**: Travel grant for participation in *Spring school on the mathematical design of materials* held at Isaac Newton Institute for Mathematical Sciences (Cambridge, United Kingdom), covered from Institute Workshop funds.

**2016**: Travel grant for participation in *European Study Group with Industry ESGI 2016* (Barcelona, Spain), funded by EU COST Action MI-Net (Maths for Industry Network).

**2015**: Travel grant for participation in *Workshop on Mathematical Technology Transfer: CTA-IMUS-math-in* (Sevilla, Spain), funded by Red Española de Matemática - Industria [math-in].

**2015**: Travel grant for *Visiting Fellowship* at Shanghai University Department of Mathematics (Shanghai, P. R. China), funded by Start-up Grant of Shanghai 1000 Plan.

**2015**: Travel grant for participation in *8th International Congress on Industrial and Applied Mathematics ICIAM 2015* (Beijing, China), funded by Red Española de Matemática - Industria [math-in].

**2015**: Travel grant for participation in *New Perspectives in Markov Chain Monte Carlo* school (Valladolid, Spain), funded by Instituto de Matemáticas de la Universidad de Valladolid.

**2014**: Grant SVP-2014-068451, BCAM Severo Ochoa accreditation SEV-2013-0323, Spanish Ministry of Economy and Competitiveness MINECO.

**2012**: Grant *Thesis Abroad*, D.D. n. 2451 prot. n. 25166, Politecnico di Milano, Italy.

## Visiting Fellowships

- **LAMA - Laboratorie de Mathématiques**, *Univeristé de Savoie*, Le Bourget-du-Lac, France, August 28 - September 29, 2017. Supervisor: Prof. Denys Dutykh.
- **Department of Mathematics**, *Shanghai University*, Shanghai, People's Republic of China, August 17-19, 2015. Supervisor: Dr. Peicheng Zhu.
- **Computational Science and Engineering Research Group**, *UCSB - University of California*, Santa Barbara, USA, April 8 - June 5, 2015. Supervisor: Prof. Linda Petzold.
- **LAMA - Laboratorie de Mathématiques**, *Univeristé de Savoie*, Le Bourget-du-Lac, France, January 19-23, 2015. Supervisor: Prof. Denys Dutykh.

## Supervision

- *Jorge Lemos*, Bachelor student, Universidad Autonoma de Madrid (Spain), Project "Tracking development of resistance to anti-cancer therapy through mathematical modeling", BCAM (Spain), June - July, 2019.

## Attended Schools & Workshops

- *Introduction to Piecewise Deterministic Markov Processes and Applications to Neuroscience*, Basque Center for Applied Mathematics, Bilbao, Spain, 2019.
- *Measurement Error and Misclassification in statistical models: Basics and applications*, Basque Center for Applied Mathematics, Bilbao, Spain, 2019.
- *Geometric Numerical Integration*, Basque Center for Applied Mathematics, Bilbao, Spain, 2019.
- *Theory of Coarse-Graining and its applications towards the modelling of complex fluids*, Basque Center for Applied Mathematics, Bilbao, Spain, 2019.
- *Spring school on the mathematical design of materials*, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom, 2019.
- *Population Dynamics: Theory and Approximation*, Basque Center for Applied Mathematics, Bilbao, Spain, 2016.
- *Introduction to Linux Basics*, Basque Center for Applied Mathematics, Bilbao, Spain, 2016.
- *Stan Tutorial*, Universidad de Deusto, Bilbao, Spain, 2016.
- *BCAM-IMUVA Summer School on Uncertainty Quantification for Applied Problems*, Universidad de Deusto, Bilbao, Spain, 2016.
- *IV International Congress on Multiphysics, Multiscale and Optimization Problems*, BCAM, Bilbao, Spain, 2016.
- *Introduction to Parallel Programming*, Basque Center for Applied Mathematics, Bilbao, Spain, 2016.
- *Introduction to Computational Fluid Dynamics by the Finite Volume Method*, Basque Center for Applied Mathematics, Bilbao, Spain, 2016.
- *European Study Group with Industry ESGI 2016*, Centre de Recerca Matemàtica, Barcelona, Spain, 2016.
- *Workshop on Mathematical Technology Transfer: CTA-IMUS-math-in*, Universidad de Sevilla, Sevilla, Spain, 2015.
- *8th International Congress on Industrial and Applied Mathematics ICIAM 2015*, Beijing, China, 2015.

- ▷ *V Workshop Quantum Days in Bilbao*, BCAM, Bilbao, Spain, 2015 (Organizing Committee).
- ▷ *New Perspectives in Markov Chain Monte Carlo*, Universidad de Valladolid, Valladolid, Spain, 2015.
- ▷ *Introduction to Generalized Linear Models with R*, Basque Center for Applied Mathematics, Bilbao, Spain, 2014.
- ▷ *A Two-day Meeting on Mathematical Biology*, ICMAT - Instituto de Ciencias Matemáticas, Madrid, Spain, 2014.
- ▷ *IV Workshop Quantum Days in Bilbao*, BCAM, Bilbao, Spain, 2014 (Organizing Committee).

## Invited Talks

1. *Modelling Controlled Radical Polymerization: A Proposed Solution to Unresolved Issues*, Control Theory and Systems Biology Laboratory, ETH Zürich, Switzerland, April 16, 2019.
2. *Multi-phase Particles Morphology Formation: Model & Methods*, MOX-Laboratory for Modeling and Scientific Computing, Politecnico di Milano, Italy, December 21, 2018.
3. *A Computationally Feasible Model for Multiphase Particles Morphology Formation*, Separation Processes Laboratory, ETH Zürich, Switzerland, December 7, 2018.
4. *Modelling & Simulation of Classical and Quantum Systems*, BCAM LIGHT seminar, BCAM, Bilbao, Spain, May 22, 2018.
5. *Probabilistic Modelling of Classical and Quantum Systems*, BCAM Scientific Advisory Committee Meeting, BCAM, Bilbao, Spain, May 2, 2018.
6. *Stochastic Simulation of Continuous Quantum Measurements*, LAMA - Laboratorie de Mathématiques, Univeristé de Savoie, Le Bourget-du-Lac, France, September 28, 2017.
7. *Prediction of Polymers Particles Morphology Development: Models and Methods*, Fourth International Congress on Multiphysics, Multiscale, and Optimization Problems, BCAM, Bilbao, Spain, May 27, 2016.
8. *Mathematical Modeling of Chemical Reactions at Basque Center for Applied Mathematics*, Workshop on Mathematical Technology Transfer: CTA-IMUS-math-in, Universidad de Sevilla, Sevilla, Spain, December 11, 2015.
9. *Mathematical Modelling of Polymers Particles Production*, Minisymposium Success Stories of Spanish Industrial Mathematics with Industry, ICIAM 2015, Beijing, China, August 14, 2015.
10. *Mathematical Modelling of Polymers Particles Production*, Minisymposium Particle Systems and Particulate Flows in Environmental, Social and Industrial Applications, ICIAM 2015, Beijing, China, August 11, 2015.
11. *Dynamic Development of Particles Morphology*, University of California, Santa Barbara, USA, April 9, 2015.
12. *Kinetic Processes in Controlled Radical Polymerization*, BCAM Scientific Seminar, BCAM, Bilbao, Spain, February 3, 2015.
13. *Modelling of Delayed Processes in Controlled Radical Polymerization*, LAMA - Laboratorie de Mathématiques, Univeristé de Savoie, Le Bourget-du-Lac, France, January 23, 2015.
14. *Mathematical Modeling of Chemical Reactions Kinetics*, IV Workshop Quantum Days in Bilbao, BCAM, Bilbao, Spain, July 16, 2014.
15. *Study on Controlled Radical Polymerization*, Workshop on Dynamical Systems and Applications, BCAM, Bilbao, Spain, December 11, 2013.
16. *Parallel Slice Sampling*, BAyesian Young Statistician Meeting 2013, CNR-IMATI, Milano, Italy, June 6, 2013.

## Publications


[1] **S. Rusconi**, D. Dutykh, A. Zarnescu, D. Sokolovski, E. Akhmatskaya. *An optimal scaling to computationally tractable dimensionless models: Study of latex particles morphology formation*, submitted to Computer Physics Communications, 2019.

[2] D. Sokolovski, **S. Rusconi**, S. Brouard, E. Akhmatskaya. *Reexamination of continuous fuzzy measurement on two-level systems*, Phys. Rev. A 95 (4): 042111, 2017.

[3] V. Cregan, R. Bacsa, M. Calvo Schwarzwälder, M. Fernández-Pendás, B. Florio, A. Marquina, I. Moyles, T. Myers, H. Ribera Ponsa, **S. Rusconi**, S. Serna. *Synthesis of Monodisperse Spherical Nanocrystals*. Proceedings of the 115th European Study Group with Industry, Barcelona, January 2016. ISBN: 978-84-697-5163-3.

[4] **S. Rusconi**, E. Akhmatskaya, D. Sokolovski, N. Ballard, J.C. de la Cal. *Relative Frequencies of Constrained Events in Stochastic Processes: an Analytical Approach*, Phys. Rev. E 92 (4): 043306, 2015.

[5] D. Sokolovski, **S. Rusconi**, E. Akhmatskaya, J.M. Asua. *Non-Markovian models of the growth of a polymer chain*, Proc. R. Soc. A 471: 20140899, 2015.

[6] N. Ballard, **S. Rusconi**, E. Akhmatskaya, D. Sokolovski, J.C. de la Cal, J.M. Asua. *Impact of Competitive Processes on Controlled Radical Polymerization*, Macromolecules 47 (19), 6580-6590, 2014.

[7] T. Pietrabissa, **S. Rusconi**. *The Contribution of Young Researchers to Bayesian Statistics*, Chapter 16. Proceedings of BAYSM 2013, Milano, June 2013. ISBN: 978-3-319-02083-9.