

Sepideh Mirrahimi

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Positions

- since 2012 : CNRS permanent researcher (chargé de recherche), Institut de Mathématiques de Toulouse (IMT), France.
07/2015-10/2015 : Career break of 4 months for maternity leave.
- 2011-2012 : Postdoc at Ecole Polytechnique, Centre de mathématiques appliquées (CMAP), Palaiseau, France.
Mentors : S. Méléard and S. Gaubert.

Education

- 2008-2011 : PhD in Applied Mathematics, Paris VI University, defended on 29 June 2011,
Advisors : G. Barles and B. Perthame,
Subject : Concentration phenomena in PDEs from biology,
Jury : L. Desvillettes, F. Murat, J.-M. Roquejoffre (Ref.), M. Soner (Ref.), P. E. Souganidis.
- 2007-2008 : M.Sc. in Numerical Analysis and Partial Differential Equations, Paris VI University and Ecole Polytechnique, with highest honors.
- 2004-2007 : Ecole Polytechnique, Saclay, France.
- 2002-2004 : Mathematics Department, Sharif University of Technology, Tehran, Iran.

Teaching experience

- Fall 2015 : Contribution to Master's reading seminar "Dynamics of structured populations and climate change", 2h, Université Paul Sabatier, Toulouse, France.
- Fall 2013 and 2014 : Master's course "Deterministic and stochastic modeling of complex systems in biology", Toulouse. 33h/year, course split into two equal parts, given together with X. Bressaud. Université Paul Sabatier, Toulouse, France
- 2008-2011 : Teacher assistant. 196h of exercise classes for first and second year undergraduate students. Paris VI University, France
- 2002-2004 : Combinatorics teacher for high school students in the National center of the Olympiads, Tehran, Iran.

Supervision of graduate students and postdoctoral fellows

- Since 2018 : Supervision of L. Dekens with V. Calvez, Graduate student.
Subject : A kinetic system describing the evolutionary equilibria of a population with sexual reproduction mode in a heterogeneous environment.

- 2017-2018 : Mentoring of C. Etchegaray with M. Costa, Postdoctoral fellow.
Subject : Selection-mutation models in temporally piecewise constant environments.
Currently on a postdoc position at Inria of Bordeaux in France.
- Since 2017 : Supervision of A. Léculier, with J.-M. Roquejoffre, for a master thesis followed by a PhD thesis.
Subject : Unconventional diffusion models and acceleration phenomena in ecology and evolutionary biology.
- Since 2016 : Supervision of S. Figueroa's PhD thesis.
Subject : Integro-differential models for evolutionary dynamics of populations in time-heterogeneous environments
- 2016-2017 : Mentoring of C. Quininao, CIMI Postdoctoral fellow.
Subject : Non-concave Hamilton-Jacobi equations coming from evolutionary biology.
Currently on a permanent position at the University of O'Higgins in Chile.

Long-term research visits

- Visiting researcher, "Center of Mathematical Sciences and Applications", Department of mathematics, Harvard university, Boston, US, invited by S.-T. Yau, April 2014.
- Visiting PhD student, The University of Chicago, US. Invited by P. E. Souganidis, January-March 2011.

Awards and fellowships

- 2011-2012 : Hadamard fellowship for a postdoctoral position.
- 2007 : Prize of the Scientific Option at Ecole Polytechnique for the Final Project.
- 2004-2007 : EIFFEL excellence fellowship of the French Government for international students, EGIDE, France.
- 2002 : Silver medal of the International Mathematical Olympiad, IMO2002, Glasgow, UK.
- 2001 : Gold medal of the National Mathematical Olympiad, Tehran, Iran.

Academic responsibilities

- Since 2018 : Member of "collège scientifique" in mathematics at the Paul Sabatier University in Toulouse.
This committee is in charge of the formation of selection committees for permanent academic positions.
- 2015-2017 : Member of the prospective committee of the excellence laboratory (Labex) CIMI : <http://www.cimi.univ-toulouse.fr>.
The role of this committee was to participate in the selection of the research projects and the Master and postdoctoral fellowships attributed by the Labex CIMI.
- 2014-2017 : Member of the scientific and prospective committee at the mathematics institute of Toulouse.
The role of this committee was to study possible axes of development of the mathematics in Toulouse and to suggest scientific directions to be developed for future.
- Member of two hiring committees for assistant professor positions (Maitre de Conférence), (Institut national des sciences appliquées-INSA Toulouse-2015 and Orsay University-2017)
- PhD committees : A.-C. Coulon-Chamlin 07-2014, A. Pauthier 06-2016 and N. Caillerie 07-2017.

Organization of scientific events

- 2017-2018 : Co-organizer of Labex CIMI event : "Thematic semester : mathematics and computer science for life sciences", Toulouse, France.
Interdisciplinary committee of organisation : C. Bernon (Institut de Recherche en Informatique de Toulouse (IRIT)), S. Déjean (IMT), H. Luga (IRIT), C. Soulé Dupuy (IRIT), P. Weiss (IMT).
- October 2017 : Co-organizer of a conference in the framework of the above thematic semester, "Ecology and evolutionary biology, deterministic and stochastic models", October 2017, Toulouse.
List of co-organizers : R. Aguilé (Laboratoire Evolution et diversité biologique, Toulouse), M. Costa (IMT), G. Faye (IMT), S. Gandon (Centre d'écologie fonctionnelle et évolutive, Montpellier)
- July 2017 : Co-organizer of conference "New Challenges in Applied Mathematics, An Ecole polytechnique and Sharif University Event", Tehran, Iran.
List of co-organizers : M. O. Haji Mirsadeghi (Université de Sharif), S. Méléard (Ecole Polytechnique).
- 2015-2018 : Organizer of the mathematical biology seminar, Université Paul Sabatier, Toulouse.
- March 2014 : Co-organizer of "Thematic school on mathematical biology, particle systems and reaction-diffusion".
List of Co-organizers : X. Bressaud (IMT), J.-M. Roquejoffre (IMT).
- May 2013 : Organizer of a minisymposium at SMAI Conference 2013 "Modèles pour l'évolution du vivant et l'écologie", Seignosse, France.

Fundings

- 2015-2020 : Member of the ERC starting grant 2014, "Mesoscopic models for propagation in biology" (MESOPROBIO), PI : V. Calvez.
- 2017-2019 : Member of the Royal Society/CNRS project "Segregation models in social sciences". PIs : A. Blanchet and P. Degond.
- 2014-2018 : Member of the ANR(national research agency) Blanche project "Kinetic models in Biology Or Related Domains" (KIBORD), PI : L. Desvillettes.
- 2014-2018 : Member of the ANR young researcher project "Mathematical models from evolutionary biology" (MODEVOL), PI : G. Raoul.
- 2014-2015 : Member of the Royal Society/CNRS project "Mathematical analysis and simulation of collective dynamics models". PIs : J. A. Carrillo and G. Raoul.

Communications

Plenary speaker at conferences and colloquium talks :

- 04/2019 : Colloquium talk at the department of mathematics of Stanford University, US.
- 11/2018 : Conference "Molecular interactions in biology : describing, modeling and predicting their evolutionary properties", annual meeting of GDR AEIM (Interdisciplinary approach for molecular evolution), Lille, France.
- 08/2018 : Short course at conference "Interacting Particle Systems and Parabolic PDEs", Banff international research center (BIRS), Canada.
- 05/2018 : National conference of numerical analysis (CANUM-2018), Cap d'Agde, France.

Invited talks in conferences and workshops :

- 02/2019 : UK-France bilateral international meeting organized by the Royal Society and the French Academy of Sciences, Chicheley Hall, UK.
- 09/2018 : Conference "Differential Equations arising from Organising Principles in Biology", Oberwolfach, France.
- 09/2018 : Conference "Populations : Interactions and Evolution", Paris, France.
- 02/2018 : Conference "The Mathematics of Mechanobiology and Cell Signaling", Oberwolfach, Germany.
- 11/2017 : Conference "Reaction-diffusion, Propagation, Modelling", the closing event of the ERC project ReaDi, Paris, France.
- 07/2017 : Conference "New Challenges in Applied Mathematics, an event of Ecole polytechnique and Sharif University of Technology ", Tehran, Iran.
- 06/2017 : One-day common workshop between the theoretical physics laboratory(LPT) and the mathematics institute of Toulouse (IMT), Toulouse, France.
- 03/2017 : One-day workshop on PDEs for evolutionary biology, INRA, Avignon, France.
- 01/2017 : Annual workshop of ANR Nonlocal, Toulouse, France.
- 12/2016 : CIMPA school "Mathematical models in biology and medicine", Ile Maurice.
- 09/2016 : One-day workshop for the chaire MMB(mathematical modeling and biodiversity), CMAP, Ecole Polytechnique, France.
- 08/2016 : Conference "Stochastic and Deterministic Models for Evolutionary Biology", Oaxaca, Mexico.
- 09/2014 : Conference "Front Propagation and Particle Systems", Banff, Canada.
- 06/2014 : Conference "New trends in modeling, control and inverse problems", Toulouse, France.
- 11/2013 : "French-Mexican Meeting on Industrial and Applied Mathematics", Villahermosa, Mexico.
- 10/2013 : "France-Taiwan Joint Conference on Nonlinear partial differential equations", Taipei, Taiwan.
- 08/2013 : Workshop "Modeling with measures : from structured populations to crowd dynamics", Lorentz Center, Leiden, The Netherlands.
- 03/2013 : Conference "Mathematical methods and modeling of biophysical phenomena", Cabo Frio, Brazil.
- 03/2013 : Conference "Biological invasions and evolutionary biology, stochastic and deterministic models", Lyon, France.
- 12/2012 : "Frontiers in Mathematical Sciences, a conference in honor of Siavash Shahshahani's 70th birthday", Tehran, Iran.
- 06/2012 : Conference Readilab "Mathematical Modeling and Analysis in Biology and Medicine", Orsay, France.
- 06/2012 : One-day workshop for the chaire MMB(mathematical modeling and biodiversity), CMAP, Ecole Polytechnique, France.
- 11/2011 : "SIAM Conference on Analysis of Partial Differential Equations", San Diego, US.
- 09/2011 : Conference of "Front propagation, biological problems and related topics : viscosity solution methods for asymptotic analysis", Hokkaido, Japon.
- 04/2011 : Mathematics and Biology : Young Investigators International Workshop, Rouen.
- 04/2011 : One-day workshop on "Mathematics and Biology : probability and PDE", LPMA, Pierre et Marie Curie University, Paris, France.
- 09/2010 : Workshop on "Fluid-Kinetic Modelling in Biology, Physics and Engineering", Cambridge, UK.
- 06/2010 : "Conference on Computational and Mathematical Population Dynamics", Bordeaux, France.
- 03/2010 : Workshop in honor of John Ball, Jacques-Louis Lions Laboratory, Paris, France.
- 02/2010 : Conference "Motions of Interfaces and Nonlinear PDEs", Tours, France.

- 11/2009 : Workshop on "Bio-mathematics and bio-mechanic" , Tozeur, Tunisia.
- 10/2009 : Workshop on "Chemotaxis, gravitation and swarming" , Institut Henri Poincaré.

Seminars :

- 04/2019 : "Applied math seminar" at Stanford University, Stanford, US.
- 04/2018 : Seminar of the numerical analysis group, IRMAR (institute of research in mathematics in Rennes), France.
- 02/2018 : Introductory mini-course and talk at "Nonlinear analysis and PDE" seminar, common between ENS, UPMC and Paris-Diderot University, Paris, France.
- 01/2018 : Seminar of the research group ACSIOM (Analysis, Industrial scientific computing and optimization), IMAG (L'Institut Montpelliérain Alexander Grothendieck), Montpellier, France.
- 04/2017 : PDE/Numerical analysis/Modeling seminar, JAD Laboratory, University of Nice.
- 02/2017 : PDE, modeling and scientific computing seminar, Lyon (Institut Camille Jordan and UMPA), France.
- 05/2016 : Seminar at mathematics department of the University of Sharif, Tehran, Iran.
- 02/2016 : Seminar of Jacques-Louis Lions Laboratory, Paris, France.
- 03/2015 : Mathematics for biology seminar, Toulouse.
- 01/2015 : "Applied PDEs seminar" , Imperial college, London, UK.
- 04/2014 : Seminar at the center of of mathematical sciences and applications, Department of mathematics, Harvard University, Boston, US.
- 11/2013 : Seminar at the laboratory of evolution and biologic diversity, Paul Sabatier University, Toulouse, France.
- 10/2013 : Seminar of the research group MIP, Institut de mathématiques de Toulouse, France.
- 12/2012 : Seminar at the institute for analysis and numerics, University of Münster Germany.
- 11/2012 : Seminar Laurent Schwarz, IHES, Bures-sur-Yvette, France.
- 10/2012 : Seminar CEREMADE-analysis and probability, Paris-Dauphine University, France.
- 01/2012 : Seminar of the research group "PDE and numerical analysis" , Department of mathematics, Orsay University, France.
- 01/2012 : Seminar "Homogenization and multiple scales, J.-L. Lions Laboratory, Pierre et Marie Curie University, Paris, France.
- 01/2012 : Seminar of the research group MIP, Institut de mathématiques de Toulouse, France.
- 12/2011 : Seminar at the laboratory "Ecology and Evolution" , Ecole Normale Supérieure, Paris, France.
- 12/2011 : Seminar at the LAGA laboratory, Paris 13 University, France.
- 10/2011 : Seminar of the center of applied mathematics (CMAP), Ecole Polytechnique, Palaiseau, France.
- 04/2011 : Seminar at "Faculty of Mathematics and Natural Sciences" , Cologne, Germany.
- 10/2010 : Seminar of the research group MEV (Modeling of the evolution of the living beings), CMAP, Ecole Polytechnique, Palaiseau, France.
- 12/2009 : Seminar at "Meiji Institute for Advanced Study of Mathematical Sciences (MIMS)", Tokyo, Japon.

Languages

- French : Bilingual
- English : Fluent
- Persian : Native