

# CURRICULUM VITÆ

## Michail Loulakis

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**D.O.B.:** 1<sup>st</sup> January 1973.

### EDUCATION

- 1996–2001 Courant Institute of Mathematical Sciences, New York University.  
MSc & PhD in Mathematics.
- 1995–1996 Graduate programme in Mathematics, University of Crete.
- 1990–1995 School of Electrical Engineering, National Technical University of Athens.  
Diploma in Electrical Engineering

### EMPLOYMENT HISTORY

- 2017– Institute of Applied & Computational Maths, Foundation for Research and Technology-Hellas.  
Affiliated Faculty.
- 2015– School of Applied Mathematical & Physical Sciences, TU Athens, Greece. Associate Professor.
- Spring 2019 CNRS, Université de Rouen, Chercheur en Probabilités et mécanique statistique, catégorie A.
- 2011–2015 School of Applied Mathematical & Physical Sciences, TU Athens, Greece. Assistant Professor.
- 2005–2011 Department of Applied Mathematics, University of Crete, Greece. Assistant Professor.
- 2002–2005 Department of Pure Mathematics and Mathematical Statistics, University of Cambridge.  
Marie Curie Fellow (interrupted for 6 months for military service)
- 2001–2002 Forschungsinstitut für Mathematik, ETH Zentrum, Zürich.  
Research Fellow.

### RESEARCH INTERESTS

Probability Theory, Stochastic Analysis. In particular, Interacting particle systems and Large Deviations.

### AWARDS & GRANTS

- 2018-2020 Biometric analysis of retinal photoabsorption (scientific co-ordinator for NTUA), Research programme *Competitiveness, Entrepreneurship, Innovation*, funded by the EDRF and national funds.
- 2012-2015 Analysis Modeling and Simulation of Complex and Stochastic Systems (member of the research team), Research programme *Thales*, funded by the ESF and national funds.
- 2012-2015 Optimal management of dynamic systems of the economy and the environment (member of the research team), Research programme *Thales*, funded by the ESF and Greek national funds.
- 2013-2015 Analytical and probabilistic methods in Banach spaces and their operators (member of the research team), Research programme *Excellence*, funded by the ESF and national funds.
- 2012-2013 Basic research grant (scientific co-ordinator), awarded by TU Athens but not funded.
- 2012-2013 Stochastic Methods in Finance and Physics (scientific co-ordinator for greek team), Research programme *IKYDA*, funded by the Greek and German academic exchange services.
- 2010-2013 Heraclitus II scholarship to support a PhD student (scientific co-ordinator), funded by the ESF and national funds.
- 2008-2009 Basic Research Grant (scientific co-ordinator), funded by the University of Crete.
- 2005-2007 Marie Curie European Reintegration Grant, funded by the European Commission.
- 2002-2005 Marie Curie Post-doctoral Fellowship, funded by the European Commission.
- 1998-2001 Postgraduate Fellowship by Alexander Onassis Foundation.
- 1996-2001 McCracken Fellowship by New York University.

## PUBLICATIONS

### a. In Journals

- The Deterministic and Stochastic Shallow Lake Problem (with G.T. Kossioris and P.E. Souganidis), in: Friz P., König W., Mukherjee C., Olla S. (eds) *Probability and Analysis in Interacting Physical Systems*, VAR75 2016. Springer Proceedings in Mathematics & Statistics, vol 283 (2019), pp 49–74.
- Metastable Markov Chains: from the convergence of the trace to the convergence of finite-dimensional distributions, (with C. Landim and M. Mourragui), *Electron. J. Probab.* **23** (2018), no. 95, 1–34.
- Quantum Biometrics with Retinal Photon Counting, (with G. Blatsios, I.K. Kominis & C.S. Vrettou), *Phys. Rev. Applied* **8** (2017), 044012.
- Metastability in a Condensing Zero Range Process in the Thermodynamic Limit, (with Inés Armendáriz and S.W. Grosskinsky), *Probab. Th. Rel. Fields* **169** (2017), no. 1-2, 105–175.
- Cross-Layer Design of Wireless Multihop Networks over Stochastic Channels with Time-Varying Statistics (with E. Stai and S. Papavassiliou), *IEEE Trans. Wireless Commun.* **14** (2015), no. 12, 6967–6980
- Spin-noise correlations and spin-noise exchange driven by low-field spin-exchange collisions (with A.T. Dellis and I.K. Kominis), *Phys Rev A*, **90** (3), 032905
- Zero Range Condensation at Criticality, (with Inés Armendáriz & Stefan Grosskinsky), *Stoch. Proc. and Appl.* **123** (2013), no. 9, 3466–3496
- Conditional Distribution of Heavy Tailed Random Variables on Large Deviations of their Sum. (with Inés Armendáriz), *Stoch. Proc. and Appl.* **121** (2011), no. 5, 1138–1147.
- Thermodynamic Limit for the Invariant Measures in Supercritical Zero Range Processes, (with Inés Armendáriz), *Probab. Th. Rel. Fields.* **145** (2009), no. 1-2, 175–188.
- On the Symmetry of the Diffusion Coefficient in Asymmetric Simple Exclusion, *J. Stat. Phys.* **119** (2005), no. 3-4, 853–860.
- Mobility and Einstein Relation for a Tagged Particle in Asymmetric Mean Zero Random Walk with Simple Exclusion, *Ann. Inst. H. Poincaré, Probab. & Statist.* **41** (2005), no. 2, 237–254.
- Einstein Relation for a Tagged Particle in Simple Exclusion Processes, *Comm. Math. Phys.* **229** (2002), no. 2, 347–367.

### b. Preprints/under preparation

- A simple network of nodes moving on the circle (with D. Cheliotis, I. Kontoyannis and S. Toumpis) arXiv cs.IT 1808.03830.
- Generalized Young measures and the Hydrodynamic limit of condensing Zero Range Processes (with Marios-Georgios Stamatakis).
- Shot Noise in Spin Noise Spectroscopy (with I.K. Kominis).

### c. In conference proceedings

- Analysis of a One-Dimensional Continuous Delay-Tolerant Network Model (with D. Cheliotis, I. Kontoyiannis and S. Toumpis), *IEEE SPAWC 2018*
- Exact Speed and Transmission Cost in a Simple One-Dimensional Wireless Delay-Tolerant Network (with D. Cheliotis, I. Kontoyiannis and S. Toumpis), *IEEE ISIT 2017*, pp 476–480.
- Congestion & Power Control of Wireless Multihop Networks over Stochastic LTF Channels (with E. Stai and S. Papavassiliou), *IEEE WCNC 2015*, pp 1769–1774.
- Thermodynamic Limit for the Invariant Measures of Zero Range Processes at the Critical Density. *Mathematische Forschungsinstitut Oberwolfach Report 50/2010*, pp 61–64.
- Thermodynamic Limit of the Equilibrium Measures for Supercritical Zero Range Processes, *Mathematische Forschungsinstitut Oberwolfach Report 42/2007*, pp 2469–2472.

#### *d. Books*

- Stochastic Processes (2016), Hellenic Academic Libraries  
available at <http://hdl.handle.net/11419/6003>
- Introduction to Mathematical Finance (2016), Hellenic Academic Libraries  
available at <http://hdl.handle.net/11419/3481>

#### **TALKS IN CONFERENCES**

- 2-6/7/2018 IMS Annual Meeting on Probability and Statistics, Vilnius  
10-11/5/2018 Numerical Analysis of PDE, in Honor of Vassilios Dougalis, NKU Athens.  
11-17/2/2018 Interplay of Analysis and Probability in Applied Maths, Math. Forschungsinstitut Oberwolfach.  
15-19/8/2016 Probability and Analysis in Interacting Physical Systems, in Honor of S.R.S. Varadhan 75th  
birthday, Weierstrass Inst. Berlin  
4-6/7/2016 Condensation Phenomena in Stochastic systems, U. of Bath  
4-8/1/2016 Mathematics of Kinetically Constrained Dynamics and Metastability, U. of Warwick  
3-9/8/2014 18<sup>th</sup> Brazilian Probability School, Mambucaba.  
28/7-1/8/14 37<sup>th</sup> Conference in Stochastic Processes and their Applications, Buenos Aires.  
22-23/1/2013 Inhomogeneous Random Systems, Institut Henri Poincaré, Paris.  
28/9/2012 Optimal Management of Dynamical Systems of the Economy and the Environment.  
Economic University of Athens.  
24-25/5/2012 Rencontres de Probabilités 2012, Université de Rouen.  
7-13/11/2010 Large Scale Stochastic Dynamics, Mathematisches Forschungsinstitut Oberwolfach.  
3-9/8/2008 12<sup>th</sup> Brazilian Probability School, Minas Gerais.  
15-17/5/2008 12<sup>th</sup> Hellenic Conference in Analysis, University of Athens.  
26-31/8/2007 Large Scale Stochastic Dynamics, Mathematisches Forschungsinstitut Oberwolfach.  
5-11/8/2007 11<sup>th</sup> Brazilian Probability School, Maresias.  
25-27/6/2007 Mathematical and Computational Methods for Accelerated Molecular and Stochastic Simulations,  
Foundation for Research and Technology at Heraklion (FORTH).  
24-26/4/2006 Coarse-Grained Multiscale Models, University of Warwick.  
22-26/8/2005 Large Scale Behavior of Interacting Particle Systems, Alfred Renyi Institute, Budapest.  
6-7/6/2002 IX Mathematical Physics Days, Katholieke Universiteit Leuven.  
8-12/10/2001 Trimester in Hydrodynamic Limits, Institut Henri Poincaré, Paris.  
8-9/8/2001 Analysis Workshop for young researchers, University of Crete.  
9-13/7/2001 27<sup>th</sup> Conference in Stochastic Processes and their Applications, Cambridge, UK.

#### **TALKS IN SEMINARS/COLLOQUIA**

- 12/2/2019 Probability Seminar, University of Cambridge, UK  
18/6/2018 Seminaire en Probabilités, Théorie Ergodique et Systèmes Dynamiques, Université de Rouen  
20/6/2018 Probability Seminar, University of Warwick, UK  
18/6/2018 Control Seminar, University of Oxford, UK  
9/2/2017 Applied Mathematics Seminar, University of Leicester, UK  
2/2/2017 MASS Seminar, University of Sussex, UK  
12/5/2016 Groupe de travail Probabilités, Institut Henri Poincaré, Paris  
25-29/4/2016 Minicourse on Metastability, Université de Rouen  
4/12/2013 Probability Colloquium, TU Berlin  
17/1/2013 Statistical Mechanics Seminar, University of Warwick  
30/7/2012 Seminário de Probabilidade e Combinatória, IMPA, Rio de Janeiro.  
2-6/7/2012 9<sup>th</sup> Summer School in Stochastic Finance, Economic University of Athens, Greece.  
2/5/2012 Analysis Seminar, University of Crete.  
17-24/8/2011 Minicourse on Large Deviations, Universidad san Andrés, Buenos Aires.  
5/11/2010 Analysis Seminar, University of Athens.  
16/10/2010 Analysis Seminar, University of Crete.

21/1/2010 Statistical Mechanics Seminar, University of Warwick.  
 20/1/2010 Probability Forum, University of Warwick.  
 28/5/2009 Statistics & Operational Research Seminar, University of Athens.  
 14-24/7/2008 5<sup>th</sup> Summer School in Mathematics, University of Crete.  
 5/3/2008 Analysis & PDE Seminar, University of Crete.  
 15/1/2008 Division of Mathematics Seminar, Technical University of Athens.  
 11/7/2007 Seminario de departamento de Matemática y Ciencias, Universidad san Andrés, Buenos Aires.  
 18-29/7/2005 4<sup>th</sup> Summer School in Mathematics, University of Crete.  
 13/1/2005 Institute of Mathematics, Maria Curie Sklodowska University, Lublin.  
 16/11/2004 Sminaire du Ceremade Analyse-Probabilits, Université de Paris IX Dauphine.  
 12/3/2002 Probability Seminar, Statslab, University of Cambridge.  
 24/10/2001 Seminar on Stochastic Processes, ETH Zentrum, Zürich.

## PhD STUDENTS SUPERVISED

M.G. Stamatakis Interacting Particle models for condensation [2014].  
 Angeliki Koutsibela Stochastic environmental models: modelling, analysis, management [2019–]

## ORGANISING EXPERIENCE

8–12 July 2019 Summer School in Lévy Processes, TU Athens  
 6 April 2019 7th Athens Probability Colloquium,  
 University of Athens, TU Athens & Economic University of Athens.  
 23–27 July 2018 Stochastic methods in Finance & Physics III, TU Athens &  
 Institute of Applied and Computational Maths, FORTH, Heraklion Crete.  
 25-30 June 2018 Probability & Statistics Session in First Congress of Greek Mathematicians, Hellenic  
 Mathematical Society, Athens.  
 17 March 2018 6th Athens Probability Colloquium,  
 University of Athens, TU Athens & Economic University of Athens.  
 19-23 June 2017 Summer School in Nonlinear PDEs, TU Athens  
 20 May 2017 5th Athens Probability Colloquium,  
 University of Athens, TU Athens & Economic University of Athens.  
 28 May 2016 4th Athens Probability Colloquium,  
 University of Athens, TU Athens & Economic University of Athens.  
 20-24 July 2015 Stochastic methods in Finance & Physics II,  
 DAAD & Centre for Quantum Complexity and Nanotechnology, Heraklion Crete.  
 9 May 2015 3rd Athens Probability Colloquium,  
 University of Athens, TU Athens & Economic University of Athens.  
 22 December 2014 Christos Papakyriakopoulos Fest, TU Athens.  
 28-31 July 2014 Contributed Session *Phase transitions in Interacting Particle Systems* in 37<sup>th</sup> Stochastic  
 Processes and their Applications, Buenos Aires.  
 31 May 2014 2nd Athens Probability Colloquium,  
 University of Athens, TU Athens & Economic University of Athens.  
 15-19 July 2013 Stochastic methods in Finance & Physics,  
 Archimedes Centre for Modeling Analysis and Computations (ACMAC), Crete.  
 1 December 2012 Athens Probability Colloquium,  
 University of Athens, TU Athens & Economic University of Athens.  
 March 2012-to date Division of Mathematics Seminar, Technical University of Athens.  
 9-10 May 2008 Career Opportunities in Finance Open House,  
 Foundation for Research and Technology at Heraklion (FORTH).  
 11-16 June 2006 Large Scale Stochastic Dynamics and Interactions with Kinetic Theory,  
 Foundation for Research and Technology at Heraklion (FORTH).

**Programming skills** R, Python

## **SERVICE TO THE COMMUNITY**

Associate Editor for the Bulletin of the Hellenic Mathematical Society since 2016.

Referee for EPSRC-UK, HFRI-GR, the Journal of Functional Analysis, Annals of Probability, Annals of Applied Probability, Probability Theory and Related Fields, Stochastic Processes and their Applications, Electronic Journal of Probability, Annales de l' Institut Henri Poincaré B, Journal of Mathematical Analysis and Applications, Journal of Statistical Physics, Statistics & Probability Letters, European Journal of Control, European Journal of Operational Research, Brazilian Journal of Probability & Statistics, reviewer for Zentralblatt, Math Reviews.