

KONSTANTINOS SPILIOPOULOS

Boston University
Department of Mathematics and Statistics
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ACADEMIC POSITIONS

- Boston University, Department of Mathematics & Statistics
Director of Statistics July 2023-present
- Boston University, Department of Mathematics & Statistics
Professor February 2023-present
- Boston University, Department of Mathematics & Statistics
Associate Professor May 2018-February 2023
- Boston University, Department of Mathematics & Statistics
Director of Undergraduate Studies July 2021-July 2023
- Boston University, Department of Mathematics & Statistics
Assistant Professor July 2012-May 2018
- Brown University, Division of Applied Mathematics
Prager Assistant Professor July 2009-June 2012

ACADEMIC AFFILIATIONS

- Member of the Center for Information and Systems Engineering (CISE), BU July 2013-present
- Hariri Institute for Computing, BU July 2013-present

EDUCATION

- Ph.D in Mathematical Statistics May 2009
University of Maryland (UMD), College Park, MD, USA
Thesis: Asymptotic Problems for Stochastic Processes with Reflection and Related PDE's
Advisor: Dr. Mark Freidlin
Cumulative G.P.A.: 4.00/4.00
- MA in Mathematical Statistics Sep 2004-May 2006
University of Maryland, College Park, MD, USA
Advisor: Dr. Mark Freidlin
Cumulative G.P.A.: 4.00/4.00
- BSc (5 years Diploma with Thesis) in Applied Mathematics Sep 1999-June 2004
National Technical University of Athens, Greece
School of Applied Mathematics and Physical Sciences
Thesis: Extension of Itô Formulae to Sobolev Spaces and some Applications
Advisor: Dr. Ioannis Spiliotis
Cumulative G.P.A.: 9.36/10, *Rank in class*: 1st

RESEARCH INTERESTS

- Mathematical and computational methods for machine learning
- Stochastic optimal control and optimization
- Analysis and design of stochastic algorithms and deep learning for partial differential equations
- Monte Carlo methods and development of rare event simulation methods
- Asymptotic problems for stochastic processes and PDE's including multiple scale problems and large deviations
- Metastability analysis of dynamical systems

- Interacting particle systems, agent based modeling and applications to biological systems, opinion and social dynamics
- Financial Mathematics, systemic risk and risk management, large portfolio asymptotics, stochastic volatility models and large deviations
- Network modeling and statistical inference for stochastic processes

BOOK CHAPTERS

- (1) K. Spiliopoulos, “Importance sampling for metastable and multiscale dynamical systems”, *Stochastic Processes, Multiscale Modeling, and Numerical Methods for Computational Cellular Biology*, (Editors: D. Holcman) ,Springer, 2017, pp 29-53.
- (2) K. Spiliopoulos, “Systemic risk and default clustering for large financial systems”, *Large Deviations and Asymptotic Methods in Finance*, (Editors: P. Friz, J. Gatheral, A. Gulisashvili, A. Jacquier, J. Teichmann) , Springer Proceedings in Mathematics and Statistics, Vol. 110 2015.

PUBLICATIONS

- (1) Ioannis Gasteratos, Mickey Salins and K. Spiliopoulos, “Importance sampling for stochastic reaction-diffusion equations in the moderate deviation regime”, *Stochastics and Partial Differential Equations: Analysis and Computations*, (2023), to appear.
- (2) Max Heldman, Samuel A. Isaacson, Jingwei Ma and K. Spiliopoulos, “Fluctuation analysis for particle-based stochastic reaction-diffusion models”, *Stochastic Processed and their Applications*, 2023, to appear.
- (3) Zachary Bezemek and K. Spiliopoulos, “Moderate deviations for fully-coupled multiscale weakly interacting particle systems”, *Stochastics and Partial Differential Equations: Analysis and Computations*, (2023), to appear.
- (4) K. Spiliopoulos and Jiahui Yu, “Normalization effects on deep neural networks”, 2023, *AIMS Journal on Foundations of Data Science*, 2023, Volume 5, Issue 3: pp. 389-465.
- (5) Justin Sirignano, Jonathan MacArt and K. Spiliopoulos, “PDE-constrained Models with Neural Network Terms: Optimization and Global Convergence”, 2023, *Journal of Computational Physics*, Volume 481, 15 May 2023, 112016.
- (6) Solesne Bourguin, Thanh Dang and K. Spiliopoulos, “Moderate deviation principle for multiscale systems driven by fractional Brownian motion”, *Journal of Theoretical Probability*, 36, Article number: 1 (2023).
- (7) Xiaojing Zhu, Cantay Caliskan, Dino P. Christenson, K. Spiliopoulos Dylan Walker, Eric D. Kolaczyk, “Disentangling positive and negative partisanship in affective polarization using a coevolving latent space network with attractors model”, 2023, *Journal of the Royal Statistical Society: Series A*, to appear.
- (8) Zachary Bezemek and K. Spiliopoulos, “Large deviations for interacting multiscale particle systems”, *Stochastic Processed and their Applications*, Volume 155, January 2023, Pages 27-108.
- (9) Benjamin J. Zhang, Youssef M. Marzouk and K. Spiliopoulos, “Geometry-informed irreversible perturbations for accelerated convergence of Langevin dynamics”, *Statistics and Computing*, 32, Article number: 78 (2022).
- (10) Zachary Bezemek and K. Spiliopoulos, “Rate of homogenization for fully-coupled McKean-Vlasov SDEs”, 2022, *Stochastics and Dynamics*, Vol. 23, No. 02, 2350013 (2023).
- (11) Justin Sirignano and K. Spiliopoulos, “Online Adjoint Methods for Optimization of PDEs”, 2022, *Applied Mathematics and Optimization*, 85, Article number: 18 (2022).
- (12) Ioannis Gasteratos, Mickey Salins and K. Spiliopoulos, “Moderate deviations for systems of slow-fast stochastic reaction-diffusion equations”, *Stochastics and Partial Differential Equations: Analysis and Computations*, (2023), Vol.11, pp. 503–598.
- (13) Samuel A. Isaacson, Jingwei Ma and K. Spiliopoulos, “Mean Field Limits of Particle-Based Stochastic Reaction-Diffusion Models”, *SIAM Mathematical Analysis*, Vol. 54, No. 1, (2022), pp. 453–511.
- (14) S. Bourguin, S. Gailus and K. Spiliopoulos, “Discrete-time inference for slow-fast systems driven by fractional Brownian motion”, *SIAM Multiscale Modeling and Simulation*, Vol. 19, No. 3, (2021), pp. 1333–1366.
- (15) Samuel A. Isaacson, Jingwei Ma and K. Spiliopoulos, “How reaction-diffusion PDEs approximate the large-population limit of stochastic particle models”, *SIAM Applied Mathematics*, Vol. 81, No. 6, (2021), pp. 2622–2657.

- (16) Jiahui Yu and K. Spiliopoulos, “Normalization effects on shallow neural networks and related asymptotic expansions”, *Foundations of Data Science*, 3(2), (2021), pp. 151-200.
- (17) J. Sirignano and K. Spiliopoulos, “Asymptotics of reinforcement learning with neural networks”, *Stochastic Systems*, Vol. 12, No. 1, March 2022, pp. 229.
- (18) M. Salins and K. Spiliopoulos, “Metastability and exit problems for systems of stochastic reaction-diffusion equations”, *Annals of Probability*, Vol. 49, No. 5, (2021), pp. 2317–2370.
- (19) J. Sirignano and K. Spiliopoulos, “Mean field analysis of deep neural networks”, *Mathematics of Operations Research*, Vol. 47, No. 1, (2021), pp. 120-152.
- (20) S. Bourguin, S. Gailus and K. Spiliopoulos, “Typical dynamics and fluctuation analysis of slow-fast systems driven by fractional Brownian motion”, *Stochastic and Dynamics*, Vol. 21, No. 07, (2021), 2150030.
- (21) M. Anthropelos, S. Robertson and K. Spiliopoulos, “Optimal investment, derivative demand, and arbitrage under price impact”, *Mathematical Finance*, Vol. 31, (2021), pp. 3-35.
- (22) M. Beck, E. Cooper, G. Lord and K. Spiliopoulos, “Selection of quasi-stationary states in the stochastically forced Navier-Stokes equation on the torus”, *Journal of Nonlinear Science*, Volume 30, (2020), pp. 1677-1702.
- (23) K. Spiliopoulos and Jia Yang “Network effects and default clustering for large systems”, *Journal of Applied Mathematical Finance*, Volume 26, Issue 6, (2020), pp. 523-582.
- (24) M. Morse and K. Spiliopoulos, “Importance sampling for slow-fast diffusions based on moderate deviations”, *SIAM Journal on Multiscale Modeling and Simulation*, Vol. 18, No. 1, (2020), pp. 315–350.
- (25) K. Spiliopoulos, “Information geometry for approximate Bayesian computation”, *SIAM/ASA Journal on Uncertainty Quantification*, Vol. 8, Issue 1, (2020), pp. 229–260.
- (26) J. Sirignano and K. Spiliopoulos, “Mean field analysis of neural networks: a law of large numbers”, *SIAM Journal on Applied Mathematics*, Vol. 80, Issue 2, (2020), pp. 725–752.
- (27) M. Ottobre, N.S. Pillai and K. Spiliopoulos, “Optimal Scaling of the MALA algorithm with Irreversible Proposals for Gaussian targets”, *Stochastics and Partial Differential Equations: Analysis and Computations*, Vol. 8, (2020), pp. 311–361.
- (28) J. Sirignano and K. Spiliopoulos, “Stochastic gradient descent in continuous time: a central limit theorem”, *Stochastic Systems*, Volume 10, Issue 2, (2020), pp. 99-191.
- (29) J. Sirignano and K. Spiliopoulos, “Mean field analysis of neural networks: A central limit theorem”, *Stochastic Processes and their Applications*, Volume 130, Issue 3, (March 2020), pp. 1820-1852.
- (30) A. Jacquier and K. Spiliopoulos, “Pathwise moderate deviations for option pricing”, *Mathematical Finance*, Vol. 30, Issue 2, (2020), pp. 426–463.
- (31) W. Hu, M. Salins and K. Spiliopoulos, “Large deviations and averaging for systems of slow-fast stochastic reaction–diffusion equations”, *Stochastics and Partial Differential Equations: Analysis and Computations*, Vol. 7, Issue 4, (2019), pp. 808–874.
- (32) M. Beck, E. Cooper and K. Spiliopoulos, “Selection of quasi-stationary states in the Navier-Stokes equation on the torus”, 2019, *Nonlinearity*, Vol. 32, pp. 209–237.
- (33) J. Lu and K. Spiliopoulos, “Analysis of multiscale integrators for multiple attractors and irreversible Langevin samplers”, *SIAM Multiscale Modeling and simulation*, Vol. 16, Issue 4, (2018), pp. 1859-1883.
- (34) J. Sirignano and K. Spiliopoulos, “DGM: A deep learning algorithm for solving partial differential equations”, *Journal of Computational Physics*, Vol. 375, (December 2018), pp. 1339-1364.
- (35) S. Gailus and K. Spiliopoulos, “Discrete-time statistical inference for multiscale diffusions”, *SIAM Multiscale Modeling and simulation*, Vol. 16, Issue 4, (November 2018), pp. 1824–1858.
- (36) A. Chronopoulou and K. Spiliopoulos, “Sequential Monte Carlo for fractional stochastic volatility models”, *Quantitative Finance*, (2017), Vol. 18, Issue 3, pp. 507-517.
- (37) S. Robertson and K. Spiliopoulos, “Indifference pricing for contingent claims: Large deviations effects”, *Mathematical Finance*, Vol. 28, Issue 1, (2018), pp. 335-371.
- (38) J. Sirignano and K. Spiliopoulos, “Stochastic gradient descent in continuous time”, *SIAM Journal on Financial Mathematics*, Vol. 8, Issue 1, (2017), pp. 933-961.
- (39) A. Papanicolaou and K. Spiliopoulos, “Dimension reduction in statistical estimation of partially observed multiscale processes”, *SIAM Journal on Uncertainty Quantification*, Vol. 5, (2017), pp. 1220–1247.

- (40) W. Hu and K. Spiliopoulos, “Hypoelliptic multiscale Langevin diffusions: Large deviations, invariant measures and small mass asymptotics”, *Electronic Journal of Probability*, Vol. 22, paper no. 55, (2017), pp. 1–38.
- (41) M. Salins and K. Spiliopoulos, “Rare event simulation via importance sampling for linear SPDE’s”, *Stochastic Partial Differential Equations: Analysis and Computations*, Vol. 5, Issue 4, (2017), pp. 652–690.
- (42) F. Fang, Y. Sun and K. Spiliopoulos, “The effect of heterogeneity on flocking behavior and systemic risk”, *Statistics and Risk Modelling*, Vol. 34, No. 34, (2017), pp. 141-155.
- (43) M. Morse and K. Spiliopoulos, “Moderate deviations principle for systems of slow-fast diffusions”, *Asymptotic Analysis*, Vol. 105, No. 3-4, (2017), pp. 97–135.
- (44) M. Anthropelos, S. Robertson and K. Spiliopoulos, “The pricing of contingent claims and optimal positions in asymptotically complete markets”, *Annals of Applied Probability*, Vol. 27, No. 3, (2017), pp. 1778-1830
- (45) M. Salins and K. Spiliopoulos, “Markov processes with spatial delay: path space characterization, occupation time and properties”, *Stochastics and Dynamics*, Vol. 17, No. 6, (2017), 1750042.
- (46) S. Gailus and K. Spiliopoulos, “Statistical inference for perturbed multiscale dynamical systems”, *Stochastic Processes and their applications*, Volume 127, Issue 2, (2017), pp. 419–448.
- (47) L. Rey-Bellet and K. Spiliopoulos, “Improving the convergence of reversible samplers”, *Journal of Statistical Physics*, Vol. 164, Issue 3, (2016) , pp. 472-494.
- (48) K. Spiliopoulos, “Rare event simulation for multiscale diffusions in random environments”, *SIAM Multiscale Modeling and Simulation*, Vol. 13, No. 4, (2015), pp. 1290–1311
- (49) P. Dupuis, K. Spiliopoulos and X. Zhou “Escaping from an attractor: importance sampling and rest points I”, *Annals of Applied Probability*, Vol. 25, No. 5, (2015), pp. 2909-2958
- (50) Luc Rey-Bellet and K. Spiliopoulos, “Irreversible Langevin samplers and variance reduction: a large deviations approach”, *Nonlinearity*, Vol. 28, (2015), pp. 2081–2103.
- (51) K. Spiliopoulos and Richard Sowers, “Default clustering in large pools: Large deviations”, *SIAM Journal on Financial Mathematics*, Vol. 6, (2015), pp. 86-116.
- (52) K. Spiliopoulos, “Quenched large deviations for multiscale diffusion processes in random environments”, *Electronic Journal of Probability*, Vol. 20, (2015), no. 15, pp. 1-29.
- (53) Luc Rey-Bellet and K. Spiliopoulos, “Variance reduction for irreversible Langevin samplers and diffusion on graphs”, *Electronic Communications in Probability*, Vol. 20, no. 15, (2015), pp. 1-16.
- (54) K. Spiliopoulos, “Non-asymptotic performance analysis of importance sampling schemes for small noise diffusions”, *Journal of Applied Probability*, Vol. 52, (2015), pp. 1–14.
- (55) K. Giesecke, K. Spiliopoulos, R. Sowers and J. A. Sirignano, “Large portfolio asymptotics for losses from default”, *Mathematical Finance*, Vol. 25, No. 1, (2015), pp. 77–114.
- (56) P. Dupuis and K. Spiliopoulos, “Rare event simulation in the neighborhood of a rest point”, 2014, Winter Simulation Conference, (IEEE, 2014), pp. 564–573.
- (57) A. Papanicolaou and K. Spiliopoulos, “Filtering the maximum likelihood for multiscale problems”, *SIAM Multiscale Modeling and Simulation* , Vol. 12, No. 3, (2014) pp. 1193–1229.
- (58) K. Spiliopoulos, Kay Giesecke and Justin A. Sirignano “Fluctuations analysis for loss from default”, *Stochastic Processes and their Applications*, Volume 124, Issue 7, (2014), pp. 2322–2362.
- (59) Sergio A. Almada and K. Spiliopoulos, “Scaling limits and exit law for multiscale diffusions”, *Asymptotic Analysis*, Volume 87, (2014), pp. 65–90.
- (60) K. Spiliopoulos, “Fluctuation analysis and short time asymptotics for multiple scales diffusion processes”, *Stochastics and Dynamics*, Vol. 14, No.3, (2014), 1350026.
- (61) K. Spiliopoulos and A. Chronopoulou, “Maximum likelihood estimation for small noise multiscale diffusions”, *Statistical Inference for Stochastic Processes*, Volume 16, Issue 3, (2013), pp. 237–266.
- (62) K. Giesecke, K. Spiliopoulos and R. Sowers, “Default clustering in large portfolios: Typical events”, *Annals of Applied Probability*, Vol. 23, No. 1, (2013), pp. 348–385.
- (63) K. Spiliopoulos, “Large deviations and importance sampling for systems of slow-fast motion”, *Applied Mathematics and Optimization*, Vol. 67, (2012), pp. 123-161.
- (64) P. Dupuis, K. Spiliopoulos and H. Wang, “Importance sampling for multiscale diffusions”, *SIAM Multiscale Modeling and Simulation*, Vol. 12, No. 1, (2012), pp. 1–27.
- (65) P. Dupuis and K. Spiliopoulos, “Large deviations for multiscale diffusions via weak convergence methods”, *Stochastic Processes and their Applications*, Vol. 122, (2012), pp. 1947–1987.

- (66) K. Spiliopoulos and R. Sowers, “Recovery rates in investment-grade pools of credit assets: A large deviations analysis”, *Stochastic Processes and their Applications*, Volume 121, Issue 12, (2011), pp. 2861–2898.
- (67) P. Dupuis, K. Spiliopoulos and H. Wang, “Rare event simulation in rough energy landscapes”, 2011, Winter Simulation Conference, (IEEE, 2011), pp. 504-515.
- (68) K. Spiliopoulos, “Large deviations principle for a large class of one-dimensional homogeneous strong Markov processes”, *Journal of Theoretical Probability*, Vol. 25, Issue 4, (2012), pp. 925–949.
- (69) K. Spiliopoulos, “Wiener process with reflection in non smooth narrow tubes”, *Electronic Journal of Probability*, Vol. 14, Paper no. 69, (2009), pp. 2011–2037
- (70) K. Spiliopoulos, “Method of moments estimation of Ornstein-Uhlenbeck processes driven by general Lévy process”, *Annales de l’I.S.U.P.*, Volume 53 - Fascicule 2-3, (December 2009), pp. 3–19.
- (71) M. Freidlin and K. Spiliopoulos, “Reaction-diffusion equations with non-linear boundary conditions in narrow domains”, *Asymptotic Analysis*, Vol. 59, No. 3-4, (2008), pp. 227–249.
- (72) K. Spiliopoulos, “A note on the Smoluchowski-Kramers approximation for the Langevin equation with reflection”, *Stochastics and Dynamics*, Vol. 7, No. 2, (2007), pp. 141–153.

SUBMITTED PAPERS

- (1) Max Heldman, Samuel A. Isaacson, Qianhan Liu and K. Spiliopoulos, “Mean field limits of particle-based stochastic reaction-drift-diffusion models”, 2023, submitted.
- (2) Samuel Chun-Hei Lam, Justin Sirignano and K. Spiliopoulos, “Kernel Limit of Recurrent Neural Networks Trained on Ergodic Data Sequences”, 2023, submitted.
- (3) Benjamin J. Zhang, Youssef M. Marzouk and K. Spiliopoulos, “Transport map unadjusted Langevin algorithms: learning and discretizing perturbed samplers”, 2023, submitted.
- (4) Solesne Bourguin and K. Spiliopoulos, “Quantitative fluctuation analysis of multiscale diffusion systems via Malliavin calculus”, 2023, submitted.
- (5) Antoine Jacquier, Alexandre Pannier and K. Spiliopoulos, “On the large-time behaviour of affine Volterra processes”, 2022, submitted.
- (6) J. Sirignano and K. Spiliopoulos, “Scaling Limit of Neural Networks with the Xavier Initialization and Convergence to a Global Minimum”, 2019, unpublished technical note, available on arxiv.

DISTINCTIONS, AWARDS AND GRANTS

- NSF-DMS 2311500. 2023-2026
- NSF-SES 2120115. 2021-2024
- NSF-DMS 2107856. 2021-2024
- Department of Defense/ARO W911NF2010244. 2020-2024
- SIMONS fellow in mathematics award, 672441. 2020-2022
- NSF CARRER AWARD, NSF-DMS 1550918. 2016-2022
- Alfred P. Sloan Foundation support for attending the EVA 2015 conference. 2015
- Hariri Institute Junior Fellow. 2013-2017
- NSF-DMS 1312124. 2013-2017
- SIAM early career travel grant. 2011-2012
- 2012 SIAM Conference on Financial Mathematics & Engineering (FM12)
- IATF travel grant, Brown University. 2011-2012
- Block travel grant for the 16th INFORMS Applied Probability Conference. 2011
- Monroe Martin Talk Award in the presentation competition of the Spotlight on Graduate Research at the University of Maryland 2008-2009
- Awarded Department of Mathematics Dissertation Fellowship, University of Maryland Fall 2008
- Seymour Goldberg Paper Award for paper submitted in Spotlight on Graduate Research at the University of Maryland 2007-2008
- Levermore Foundation Travel Grant, University of Maryland 2007
- Goldhaber Travel Grant, Graduate School, University of Maryland 2006
- Block Grant Fellowship from the Department of Mathematics of the University of Maryland 2004-2006
- Award from Epygenidio Foundation for outstanding Greek students that are pursuing graduate studies 2004-2005

- Three times awarded from the Technical Chamber of Greece for academic excellence at the School of Applied Mathematics and Physical Sciences of the National Technical University of Athens, Greece 2003-2005
- Three times awarded from the Greek State Scholarships Foundation for academic excellence at the School of Applied Mathematics and Physical Sciences of the National Technical University of Athens, Greece 2003-2005

EDITORIAL WORK

- Associate Editor for SIAM Journal on financial mathematics. 2021-2027
- Editor for a special issue on "Machine Learning in Finance" for Applied Mathematical Finance. 2020-2021
- Associate Editor for Applied Mathematical Finance. 2020-present
- Associate Editor for Foundations of Data Science (an AIMS Journal). 2018-present

TEACHING EXPERIENCE

- GRS MA884-Special topics course in probability, Boston University, Fall 2019
- MA783-Advanced stochastic processes, Boston University, Spring 2019, Fall 2021, Fall 2022
- MA782-Hypothesis Testing, Boston University, Spring 2016, Spring 2022, Spring 2023
- MA777-Multiscale Methods for stochastic processes and differential equations, Boston University, Spring 2018, Fall 2023
- MA752-Mathematical Foundations of Deep Learning, Boston University, Spring 2024
- MA583-Stochastic Processes, Boston University, Spring 2013, 2015, 2016, 2018, 2019
- MA581-Introduction to Probability, Boston University, Spring 2015, Fall, 2021
- MA115-Statistics I (undergraduate), Boston University, Fall 2012, 2013, 2014, 2015, 2017, 2018, 2019
- GRS MA884- Topics in Multiscale Analysis: Theory, Computation and Applications (graduate), Boston University, Spring 2014
- Operational Research-Probabilistic Methods (undergraduate), Brown University, Spring 2011,2012
- Topics on Multiscale Methods: Theory and Computation (graduate), Brown University, Fall 2011
- Topics on Averaging and Metastability with Applications (graduate), Brown University, Fall 2010
- Topics on Survival Analysis (graduate-independent study), Brown University, Summer 2010
- Nonparametric Statistics (undergraduate), Brown University, Spring 2010
- Asymptotic Problems for Stochastic Processes and PDE's (graduate), Brown University, Fall 2009
- Calculus I (undergraduate), University of Maryland at College Park, Summer 2008
- *Discussion leader* for Calculus III, Introduction to Differential Equations, College Algebra, University of Maryland at College Park, 2006-2008

MENTORING EXPERIENCE

- Completed:
 - Jiahui Yu: Post-doctoral fellow at Boston University, Fall 2019-Summer 2022
 - Siragan Gailus: Post-doctoral fellow at Boston University, Fall 2018-Spring 2020
First position: Post-doctoral fellow at TU Berlin, Germany
 - Mickey Salins: Post-Doctoral Fellow at Boston University, Fall 2015-Fall 2017
First position: Assistant Professor at Mathematics and Statistics Department at BU, Boston.
 - Zachary Bezemek: PhD graduate student at Boston University, Fall 2019-present
Project: Interacting particle systems in multiscale environments.
First position: Assistant Research Professor at Duke University, North Carolina.
 - Ioannis Gasteratos: PhD graduate student at Boston University, Fall 2017-Spring 2022
(Co-advised with Michael Salins), Boston University
Project: Moderate deviations for multiscale stochastic reaction-diffusion equations and related importance sampling schemes
First position: Post-doctoral fellow at Imperial College, London.

- Jingwei Ma: PhD graduate student at Boston University Spring 2018-Spring 2021
(co-advised with Samuel Isaacson), Boston University
Project: Stochastic reaction-diffusion problems in modelling biological systems
First position: Tik-Tok
- Jia Yang: PhD graduate student at Boston University Spring 2017-Summer 2020
Project: “Clustering, contagion and dynamic network models”
- Eric Cooper: PhD graduate student at Boston University Spring 2014-Spring 2019
(Co-advised with Margaret Beck)
Project: ‘Selection of quasi-stationary states in the Navier-Stokes equation on the torus’
First position: Senior Data Scientist at Sports Betting Innovative Analytics.
- Matthew Morse: PhD graduate student at Boston University Fall 2014-Fall 2018
Project: “Moderate deviations and importance sampling for multiscale diffusions”
First Position: Lecturer at Department of Mathematics and Statistics, University of Maine.
- Siragan Gailus: PhD graduate student at Boston University, Fall 2013-Summer 2018
Thesis: “Statistical Inference for Multiscale Diffusions with Small Noise,” Boston University.
First position: Post-doctoral fellow, Boston University.
- Zixin Ding: Undergraduate student Summer 2019
Boston University
Project: “Irreversibility in stochastic gradient descent methods”
- Weiwei Wu: Master student at Boston University, Summer 2018
Project: “Feedback in dynamic networks”.
First position: PhD Student at University of California at San Diego.
- Quentin Chauleur: Undergraduate student, Summer 2017
Visiting student from France, ENS de Rennes
Project: “Exploration of rare event simulation methods for stochastic dynamical systems.”
- Ting Wang: Undergraduate student, Summer 2017
Boston University.
Project: “Study of irreversible perturbations in estimation.”
- Fei Fang: Master student, Summer 2015
Boston University
Project: “The effect of heterogeneity on flocking behavior and systemic risk”
First position: PhD Student at University of North Carolina at Chapel Hill.
- Yiwei Sun: Undergraduate student, Summer 2015
Boston University
Project: “The effect of heterogeneity on flocking behavior and systemic risk”
- Do Young Yoon: Undergraduate student, Summer 2012-Fall 2012
Brown University continued at Boston University
Independent Study on ”Stochastic Processes”
- Abhay Sagar: MSc student, Summer 2010
Brown University
Independent Study on ”Survival Analysis”
- Current:
 - Ankan Ganguly: Post-doctoral fellow at Boston University Fall 2023-Summer 2026
 - Shivam Singh Dhama: Post-doctoral fellow at Boston University Fall 2023-Summer 2026
 - Lanlan Liu: PhD graduate student at Boston University Fall 2021-present
(Co-advised with Samuel Isaacson)
Project: Analysis and computation of stochastic reaction-diffusion models for biological systems..
 - Hancong Pan: PhD graduate student at Boston University Spring 2022-present
(Co-advised with Eric Kolaczyk)
Project: Analysis and computation for co-evolving latent space network networks with attractors.

ACADEMIC SERVICE AND SEMINAR ORGANIZATION

- *Referee* for Stochastic and Dynamics, Applied Mathematics and Optimization, Annals of Probability, Annals of Applied Probability, SIAM Journal on Mathematical Analysis, External Evaluator for Research Proposals in Greece, Lecture Notes in Mathematics, Asymptotic Analysis, Quarterly Review of Economics and Finance, Physica D, Mathematics of Operations Research, Operations Research Letters, Journal of Theoretical Probability, Annales de l’Institut Henri Poincare (C) -Analyse non lineaire,

Journal of Applied Probability, Journal of Risk, Nonlinearity, Physica A, Communications on Pure and Applied Mathematics, Mathematical Finance, Finance and Stochastics, Stochastic Systems, Operations Research, Journal of Computational Physics, Journal of Statistical Physics, Journal of Chemical Physics, SIAM Journal on Financial Mathematics, Fluctuations and Noise Letters, Bioinformatics, Journal of Computational Physics, Methodology and Computing in Applied Probability, Probability Theory and Related Fields, Communications in Mathematical Sciences, PLOS ONE, ESAIM: Mathematical Modelling and Numerical Analysis, SIAM Multiscale Modeling and Simulation.

- *Co-organizer* of a mini-symposia on mathematics in machine learning in finance during the SIAM on financial mathematics meeting at Toronto, Canada, June 4-7, 2019
- *Co-organizer* of a Special Session on Recent Advances in Stochastic Processes and Stochastic Computation during the Fall 2016 Southeastern AMS Sectional Meeting North Carolina State University, Raleigh, NC, November 12-13, 2016
- *Co-organizer* of the 2016 BU-Keio workshop on Probability and Statistics, 2016
- *Co-organizer* of the 2013 BU-Keio workshop on Probability and Statistics, 2013
- *University Committees*: Graduate admissions committee (2013-2022). Hiring Committees: Assistant Professor search in Probability and Stochastic Processes (2016-2017), Assistant, Associate and Full Professor search in Statistics (2015-2016), Assistant professor in Probability and Statistics (2014-2015), Post-doc position in Probability and Statistics (2014-2015). Tenure review committee (2019), Merit Committee (2019), Revising statistics and probability curriculum (2018-ongoing), Tenure and Promotion committee (2021-2022, 2022-2023), Cluster Hire in AI (2022-2023), Assistant professor in Probability and Statistics committee (2023-2024)
- *Student Committees (excluding my own students)*: Ava J. Mauro(PhD thesis committee, Spring 2014), Zhongkai Cui (PhD Committee Chair, Fall 2012), Nikolas Kim (Undergraduate Honors Committee, Spring 2013), Ali Sanjari(PhD thesis committee, Fall 2015), Shuyang Bau (PhD thesis Committee Chair, Spring 2016), Tao Long (PhD thesis Committee reader, Spring 2018), Karoline Weber (PhD thesis Committee reader, Spring 2018), Tao Long (PhD thesis Committee reader, Spring 2018), Benjamin J. Zhang (MIT Phd student, reader in Phd thesis committee, Spring 2022), Xiaojing Zhu (PhD thesis committee reader Spring 2022), Keer Jiang (PhD thesis committee reader Summer 2022)
- *Previously co-organized* of the Mathematics Colloquium at Boston University
- *Previously co-organized* the Probability and Statistics seminar at Boston University
- *Previously organized* the Stochastic and Probability seminar at Brown
- *Previously organized* the Graduate Student Statistics and Probability seminar at UMD
- *Judge* for the written Spotlight Competition on Graduate Research at UMD during 2006-2007
- *President/Treasurer* of the Hellenic Graduate Student Organization Digenis at UMD for the period from November 2004 till November 2007

INVITED TALKS AND LECTURES

- (1) Invited talk at November 10-15 2024,
Banff workshop on "Modeling, Learning and Understanding: Modern Challenges between Financial Mathematics, Financial Technology and Financial Economics", Canada.
- (2) Invited talk at May 6-10 2024,
workshop on "Interacting Particle Systems: Analysis, Control, Learning and Computation", ICERM, Providence, USA.
- (3) Invited talk at November 14 2023
Data Science Seminar series at the School of Mathematics, University of Minnesota.
- (4) Invited talk at 20-22 October 2023
the Eastern Conference on Mathematics Finance (ECMF7) conference at North Carolina State University.
- (5) Invited talk at July 4-6 2023
the workshop on "Mean field limits for interacting particle systems: uniform propagation of chaos, phase transitions and applications", Imperial College, London, UK.
- (6) Invited talk at June 19-23 2023
Summer school on Mathematics of Machine and Statistical Learning, National Technical University of Athens, Greece.
- (7) Invited talk at May 21-24 2023
AFOSR Workshop on Topics at the Intersection of Deep Learning and Computational Nonlinear Control, Monterey, CA.

- (8) Invited talk at the One World Dynamics seminar (virtual seminar series). March 10, 2023
- (9) Invited talk at the Rare Events: Analysis, Numerics, and Applications to be held at the newly established Brin Math Research Center, University of College Park, Maryland. Feb 27-March 3, 2023
- (10) Invited talk at Los Alamos National Laboratory, Applied Mathematics and Plasma Physics T-5. February 15, 2023,
- (11) Invited talk at the AMS Special Session on Stochastic Analysis and Applications, Joint Mathematical Meeting, Boston . January 4-7, 2023,
- (12) Invited talk at the Emerging Capabilities and Data Science seminar of Discover Financial Services. December 5, 2022,
- (13) Invited talk at the Asymptotic Problems in Probability and PDE: a Conference in Honor of Mark Freidlin, University of Maryland, College Park, USA. October 17-21, 2022
- (14) Invited talk at the AMS Sectional Meeting at University of Massachusetts in Amherst, MA. October 1-2, 2022
- (15) Invited talk at Meta (former Facebook) machine learning seminar. August 16, 2022
- (16) Invited talk at the Second Congress of Greek Mathematicians, Athens, Greece. July 4-8, 2022
- (17) Invited talk at the Conference on the mathematics of complex data at KTH Royal Institute of Technology Stockholm, Sweden. June 13-16, 2022
- (18) Invited talk at the Stochastics, Data and Computing Seminar in Iliniois Institute of Technology (IIT). May 13, 2022
- (19) Invited talk at the 2022 AMS Spring Sectional Meeting (#1177) at Purdue University, West Lafayette. March 26-27, 2022
- (20) Invited talk at Probability and Stochastic Analysis seminar, Ohio state University. March 24, 2022
- (21) Invited talk at the Department of Mathematics, Houston University. November 19, 2021
- (22) Invited talk at the Department of Mathematics, Tulane University. November 12, 2021
- (23) Invited talk at the Department of Mathematics, University of Southern California. October 25, 2021
- (24) Invited talk at the Department of Statistics, Columbia University. October 7, 2021
- (25) Invited talk at the SIAM Financial Mathematics and Engineering (SIAG/FME) Seminar Series. September 16, 2021
- (26) Invited talk at the Mathematics and Computation of Financial Engineering planned in Erice (Sicily, Italy). September 1-7, 2021
- (27) Invited talk at the CRUNCH seminar at Division of Applied Mathematics, Brown University. August 13, 2021
- (28) Participant on the semester long program on Mathematics of Deep Learning at the Isaac Newton Institute for Mathematical Sciences in Cambridge, England. July-December, 2021
- (29) Invited talk at the Emerging Capabilities and Data Science seminar of Discover Financial Services. June 21, 2021
- (30) Invited talk at the session on SIAM conference on Financial Mathematics, Philadelphia, US. June 1-4, 2021
- (31) Invited talk at the session on "the interplay between dynamics and data science" at the SIAM conference on Dynamical Systems, Portland, Oregon, US. May 23-27, 2021
- (32) Invited talk at the special section on stochastic analysis at the AMS Fall Eastern Sectional Meeting. March 20-21, 2021
- (33) Invited talk at the session on Computational statistics meets computational dynamics, SIAM CSE conference. March 1-5, 2021
- (34) Invited talk at the session on Stochastic Analysis seminar at Imperial College, London, UK. February 2, 2021

- (35) Invited talk at the Clarkson Center for Complex Systems Science, Clarkson University. January 22, 2021
- (36) Invited talk at SIAMMINI7 - SIAM Minisymposium on Mathematics of Machine Learning in Finance at the 2021 JMM meeting. January 6-9, 2021
- (37) Invited talk at the workshop on Uncertainty Management and Machine Learning in Engineering Applications. November 16-17 2020
- (38) Invited talk at Probability Seminar of the Department of Mathematics of University of Utah and University of Arizona (joint seminar). November 4 2020
- (39) Invited talk at Scientific Computation Seminar at Nottingham, England, UK. October 7 2020
- (40) Invited talk at special section on turbulence and mixing in fluid dynamics at the AMS Fall Eastern Sectional 1 Meeting. October 3-4 2020
- (41) Invited talk at financial mathematics seminar at Florida State University. September 10 2020
- (42) Invited talk at Thematic day on the mean field training of multi-layer networks-One World Machine Learning Seminar. July 25 2020
- (43) Invited talk at conference on Machine Learning in Finance, Imperial College, London (cancelled due to COVID-19). September 2020
- (44) Invited talk at BIRS Workshop Invitation: Modeling, Learning and Understanding: Modern Challenges between Financial Mathematics, Financial Technology and Financial Economics (cancelled due to COVID-19). June 28-July 3, 2020
- (45) Invited talk at Invited talk at Workshop on Mathematics for Complex Data, Stockholm, Sweden (cancelled due to COVID-19) June 8-11, 2020
- (46) Invited talk at 13th AIMS Conference on dynamical systems, difference equations and applications, Atlanta (cancelled due to COVID-19). June 5-9, 2020
- (47) Invited talk at Department of Mathematics, Tufts University (cancelled due to COVID-19). April 3, 2020
- (48) Invited talk at SIAM conference on Analysis of PDEs, La Quinta, California. December 11-14, 2019
- (49) Invited participant at the AIM workshop on , Deep learning and partial differential equations, San Jose, California. October 14-18, 2019
- (50) Invited talk at SPA 2019 , Stochastic Processes and their applications conference, Chicago July 8-12, 2019
- (51) Invited talk and Mini-symposium organizer at SIAM Conference , on Financial Mathematics and Engineering, Toronto, Canada. June 4-7, 2019
- (52) Invited talk at SIAM Conference , on Applications of Dynamical Systems at Snowbird, Utah. May 19-23, 2019
- (53) Invited talk at Department of Applied Probability and Statistics at Santa Barbara (UCSB), CA. April 15, 2019
- (54) Colloquium talk at Department of Mathematics at the University of Connecticut (Uconn), Connecticut. March 14, 2019
- (55) Invited lecture at the SIAM Conference on Computational Science and Engineering, Spokane, Washington. Feb 25-March 1, 2019
- (56) Invited lecture at Invited talk at Informs Annual Meeting 2018, Phoenix, Arizona. November 4-7, 2018
- (57) Invited lecture at the Advances in Computational Statistical Physics Perspectives en physique statistique computationnelle, CIRM, Marseille, France. September 17-21, 2018
- (58) Visit and lecture at Department of Mathematics, Imperial College, England, Aug 30-31, 2018
- (59) Numerical analysis for deterministic and stochastic differential equations National Technical University of Athens, Greece. July 10-13, 2018
- (60) Invited lecture at the Mathematical Finance and Applied Probability Seminar Department of Mathematics, University of Connecticut. April 25, 2018
- (61) Invited lecture at the Probability and Statistics Seminar, April 23, 2018

- Department of Mathematics and Statistics, UMASS at Amherst.
- (62) Invited lecture at the SIAM Uncertainty Quantification meeting 2018 April 16-19, 2018
Garden Grove, California.
- (63) Invited lecture at the AMS Spring Central Sectional Meeting March 17-18, 2018
Ohio State University, Columbus, Ohio.
- (64) Invited lecture at Scientific Computing Seminar, March 9, 2018
Department of Applied Mathematics, Brown University, Providence.
- (65) Invited lecture at Applied Mathematics Seminar, November 21, 2017
Department of Mathematics, Imperial College, England.
- (66) Invited lecture at McGill University, October 31 2017
Department of Mathematics and Statistics, Canada
- (67) Invited lecture at the SIAM Conference on Mathematical Modelling Aug 31-Sep 2 2017
in Finance at Imperial College, England.
- (68) Invited lecture at Greek Stochastics 2017 conference, July 14-17, 2017
Milos, Greece
- (69) Invited lecture at the Stochastic Analysis Seminar November 25, 2016
Department of Mathematics at Imperial College, England.
- (70) Invited lecture at the Statistics Seminar November 22, 2016
Department of Mathematics at Imperial College, England.
- (71) Invited lecture at 2016 SIAM Conference on Financial Mathematics and Engineering (FM16), No-
vember 17-19, 2016,
2016 conference in Austin, Texas.
- (72) Co-organizing a Special Session on Recent Advances in Stochastic Processes and Stochastic Compu-
tation, November 12-13,
2016,
Southeastern AMS Sectional Meeting North Carolina State University, Raleigh, NC.
- (73) Invited lecture at the Applied Analysis and Computation Seminar October 18, 2016
Department of Mathematics and Statistics at the University of Massachusetts at Amherst.
- (74) Invited lecture at MCMC and particle methods: sampling, inference and stochastic approximation,
September 5-9, 2016
workshop in ICMS Edinburgh, Scotland
- (75) Lecture at the BU-Keio Joint conference in Probability and Statistics, August 15-19, 2016
Department of Mathematics and Statistics, Boston University.
- (76) Invited lecture at Stochastic numerical algorithms, multiscale modeling and high-dimensional data
analytics, July 18-22, 2016
Workshop in ICERM, Providence, USA
- (77) Invited lecture at Greek Stochastics 2016 conference, July 10-13, 2016
Tinos, Greece
- (78) Invited lecture at Spatially Distributed Stochastic Dynamical Systems in Biology June 20-24, 2016
Workshop in Newton Institute at Cambridge, England.
- (79) Invited lecture at the Probability Seminar April 27, 2016
Department of Mathematics at the University of Maryland at College Park.
- (80) Invited lecture at the Colloquium Series on Computational and Applied Mathematics April 18, 2016
Department of Mathematics at Penn State University.
- (81) Invited lecture at the 11th International Workshop on Rare Event Simulation (RESIM) March
29-April 1, 2016
Eindhoven, Netherlands.
- (82) Participant at the Seminar on Stochastic Processes 2016 March 16-19, 2016
University of Maryland, College Park.
- (83) Invited lecture at the 3rd CISE Graduate Student Workshop January 14, 2016
CISE, Boston University.
- (84) Invited lecture at Mathematical Finance, Risk and Uncertainty Seminar December 7, 2015
Department of Industrial and Enterprise Systems Engineering and Mathematics Department at the
University of Illinois, Urbana-Champaign.
- (85) Three Invited lectures at INFORMS Annual Meeting, Philadelphia November 1-4, 2015
Philadelphia
- (86) Invited lecture at Dynamics seminar October 19, 2015
Department of Mathematics and Statistics, Boston University
- (87) Invited lecture at Probability seminar September 24, 2015
Department of Mathematics, Duke University

- (88) Invited lecture at 2015 Joint Statistical Meeting (JSM) August 8-13, 2015
Seattle, Washington
- (89) Invited lecture at Greek stochastics 2015 conference July 11-13, 2015
Crete, Greece
- (90) Invited lecture at the Extreme Value Analysis Conference June 15-19, 2015
University of Michigan, Michigan Ann Arbor.
- (91) Invited lecture at the BU-Brown PDE seminar April 8, 2015
Department of Mathematics and Statistics, Boston University.
- (92) Invited lecture at the Probability seminar March 31, 2015
Department of Mathematics, University of Tennessee.
- (93) Invited lecture at the AMS Eastern Sectional Meeting March 7-8, 2015
George Town University, Washington, DC.
- (94) Invited lecture at Hariri Institute March 4, 2015
Boston University.
- (95) Invited lecture at the Applied Mathematics seminar January 16, 2015
Department of Mathematics, Michigan State University.
- (96) Invited lecture at the Greek stochastics 2014 conference December 20-22, 2014
Athens, Greece.
- (97) Invited paper at the 2014 Winter Simulation Conference December 7-10, 2014
Savannah, Georgia.
- (98) Invited lecture at the SIAM conference on Financial Mathematics November 13-15, 2014
Chicago.
- (99) Invited lecture at the Probability Seminar October 28, 2014
Department of Mathematics, Wayne State University.
- (100) Invited lecture at the Probability and Mathematical Finance Seminar October 20, 2014
Department of Mathematical Sciences, Carnegie Mellon University, Pittsburgh.
- (101) Invited participant at Systemic Risk: Mathematical Modelling and Interdisciplinary Approaches, Sep-
tember 22-26, 2014
Isaac Newton Institute for Mathematical Sciences in England.
- (102) Invited lecture at the 10th International Workshop on Rare Event Simulation (RESIM) August
27-29, 2014
Amsterdam, Netherlands.
- (103) Invited lecture at the Computational methods for statistical mechanics – At the interface between
mathematical statistics and molecular simulation June 2-6, 2014
Edinburgh, Scotland.
- (104) Invited lecture at the Probability Seminar May 6, 2014
CUNY, New York.
- (105) Invited talk at 28th New England Statistical Symposium April 26, 2014
Harvard University, Boston.
- (106) Invited talk at the SIAM conference on Uncertainty Quantification April 1-4, 2014
Savannah, Georgia.
- (107) Invited lecture at the AMS Sectional Meeting on Mathematical Finance March 29-30, 2014
University of Maryland, Baltimore County, Baltimore, MD.
- (108) Invited lecture at the Stochastics Seminar March 13, 2014
Georgia Tech, Atlanta.
- (109) Invited lecture at the Joint Mathematical Meetings January 15-18, 2014
Baltimore, MD.
- (110) Invited lecture at Division of Applied Mathematics December 5, 2013
Brown University, Providence.
- (111) Invited lecture at Hariri Institute November 20, 2013
Boston University.
- (112) Invited Colloquium lecture at Department of Statistics November 13, 2013
University of Connecticut, Connecticut.
- (113) Invited lecture at Math Finance Seminar October 17, 2013
Columbia University, New York.
- (114) Invited lecture at AMS Sectional Meeting Program October 12-13 2013
Temple University, Philadelphia.
- (115) Tutorial lectures on *Monte Carlo Methods for Multiscale Problems* and on *Systemic risk in large
financial networks* September 20-22, 2013
BU-Keio Probability workshop, Boston University, Boston.

- (116) *Escaping from an attractor: importance sampling and rest points* July 8-12, 2013
Session Chair and Speaker at SIAM Annual Meeting, San Diego, California.
- (117) *Monte Carlo Methods for Multiscale Problems* June 9-12, 2013
SIAM Conference on Mathematical Aspects of Material Science, Philadelphia, Pennsylvania
- (118) *Maximum Likelihood for Multiscale Diffusions* April 2013
The 27th New England Statistical Symposium, 27 April 2013
- (119) *Large Deviations and risk in large financial networks* April 2013
Workshop on Large deviations and asymptotic methods in finance, Imperial College London, England
- (120) *Most Likely Path to Systemic Failure* April 2013
AMS Sectional Meeting, Boston College, Boston, 6-7 April 2013
- (121) *Large Deviations and Monte Carlo Methods for Problems with Multiple Scales* March 2013
Stochastics Seminar, Mathematics Department, University of Utah
- (122) *Systemic risk in large financial networks* February 2013
Stochastics Seminar, Mathematics Department, Worcester Polytechnic Institute
- (123) *Systemic risk in large financial networks* November 2012
Mathematics Department, University of Michigan, Ann Arbor
- (124) *Escaping from an attractor: importance sampling and rest points* November 2012
ICERM Workshop "Monte Carlo Methods in the Physical and Biological Sciences",
Brown University, Providence
- (125) Session Chair for "Systemic Risk" at the 2012 Informs Annual meeting October 2012
in Phoenix, Arizona,
- (126) *Systemic risk in large financial networks* October 2012
Department of Mathematics, Rutgers University
- (127) *Large Deviations and Monte Carlo Methods for Problems with Multiple Scales* October 2012
Department of Mathematics, MIT
- (128) *Large Deviations and Monte Carlo Methods for Problems with Multiple Scales* October 2012
Department of Mathematics and Statistics, UMASS at Amherst
- (129) *Escaping from an attractor: importance sampling and rest points* September 2012
2012 Data Assimilation Workshop, Oxford-Man Institute, England
- (130) *Most Likely Path to Systemic Failure* July 2012
SIAM Conference on Financial Mathematics and Engineering, Minnesota, Minneapolis.
- (131) *Large Deviations and Monte Carlo Methods for Problems with Multiple Scales* July 2012
Department of Mathematics, University of California at San Diego.
- (132) *Large Deviations, Metastability and Monte Carlo Methods for Multiscale Problems* February 2012
Department of Mathematics and Statistics, Boston University.
- (133) *Large Deviations, Metastability and Monte Carlo Methods for Multiscale Problems* February 2012
Department of Mathematical Sciences, University of Delaware.
- (134) *Large Deviations, Metastability and Monte Carlo Methods for Multiscale Problems* January 2012
Department of Mathematics, Virginia Tech.
- (135) *Large Deviations, Metastability and Monte Carlo Methods for Multiscale Problems* January 2012
Department of Statistics & Operations Research, University of North Carolina.
- (136) *Systemic Risk in Complex Networks & Asymptotic Problems for Stochastic Processes* January 2012
Department of Mathematical Sciences, Claremont Graduate University.
- (137) *Recent results on systemic risk in large financial networks* January 2012
Department of Statistics & Applied Probability, University of Santa Barbara.
- (138) *Large deviations for multiscale diffusions and fast simulation* December 2011
EPSRC Symposium Workshop - Multiscale Systems: Theory and Applications, Warwick, England.
- (139) *Default clustering in large portfolios and most likely path to failure* October 2011
Department of Operations Research and Financial Engineering, Princeton University.
- (140) *Most likely path to failure* September 2011
ENUMATH Conference 2011, Leicester, England.
- (141) *Large Deviations, Fast Simulation for Multiscale Diffusions and Rough Energy Landscapes* July 2011
Applied Probability Society Conference, KTH, Stockholm, Sweden
- (142) *Large Deviations and Importance Sampling for Multiscale Diffusions* April 2011
Department of Mathematics at Chicago University.
- (143) *Default clustering in large portfolios: typical and atypical events* March 2011
Department of Mathematics at Stanford University.

- (144) *Large Deviations and Importance Sampling for Multiscale Diffusions* March 2011
 Department of Applied Physics and Applied Mathematics at Columbia University.
- (145) *Large Deviations and Importance Sampling for Multiscale Diffusions* February 2011
 Department of Mathematics and Statistics at Boston University.
- (146) *Large Deviations and Importance Sampling for Multiscale Diffusions* October 2010
 Rare Event Simulation Workshop in Bordeaux, France.
- (147) *Reaction-Diffusion Equations with Non-Linear Boundary Conditions in Narrow Domains and Wave Front Propagation* June 2010
 Department of Mathematics at the University of Minnesota
- (148) *Large Deviations for a Large Class of 1-D Markov Processes and Applications to Reaction Diffusion Equations* September 2009
 Division of Applied Mathematics, Brown University
- (149) *Reaction-Diffusion Equations with Non-Linear Boundary Conditions in Narrow Domains and Wave Front Propagation* April 2009
 Department of Mathematics at the University of Illinois at Urbana-Champaign
- (150) *Reaction-Diffusion Equations with Non-Linear Boundary Conditions in Narrow Domains and Wave Front Propagation* April 2009
 Department of Statistics at Warwick University, England
- (151) *Reaction-Diffusion Equations with Non-Linear Boundary Conditions in Narrow Domains and Wave Front Propagation* January 2009
 Department of Statistics and Applied Probability and the Center for Financial Mathematics and Statistics at the University of Santa Barbara
- (152) *Reaction-Diffusion Equations with Non-Linear Boundary Conditions in Narrow Domains and Wave Front Propagation* October 2008
 Applied Partial Differential Equations Research Interaction Team at UMD
- (153) *Reaction-Diffusion Equations with Non-Linear Boundary Conditions in Narrow Domains and Wave Front Propagation* September 2008
 School of Applied Mathematics and Physics, National Technical University of Athens, Greece
- (154) *Lectures in Homogenization with Probabilistic Methods* May 2007-2008
 Invited lectures in Advanced Analytic Methods with Applications
 (Graduate course at UMD)
- (155) *Reaction-Diffusion Equations with Non-Linear Boundary Conditions in Narrow Domains*, Invited talk, Graduation Conference, Dept. Of Math, UMD May 2008
- (156) *Wave Front Propagation In Narrow Domains* April 2008
 Invited talk, Graduate Research Interaction Day, UMD
- (157) *Log Prices following General Lévy Driven Ornstein- Uhlenbeck Processes* November 2007
 Talk, Mathematical Finance Research Interaction Team, UMD
- (158) *Probabilistic Approach in Homogenization: An Introduction* September 2007
 Talk, Graduate Students Statistics and Probability Seminar, UMD
- (159) *Wave Propagation In Narrow Tubes* September 2007
 Talk, Summer School "De Ludo Aleae" on Probability,
 Universita' "La Sapienza" Roma, Italy
- (160) *The Smoluchowski-Kramers Approximation for the Langevin Equation with Reflection* June 2006
 Talk, Large Scale Stochastic Dynamics and Interaction with Kinetic Theory
 Foundation for Research and Technology, Heraklion Crete, Greece

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

- American Mathematical Society September 2004-present
- Institute of Mathematical Statistics February 2007-present
- SIAM: Society of Industrial and Applied Mathematics 2013-present

PROFESSIONAL EXPERIENCE

- *Internship in Risk Management* July-Aug 2003
 Athens Derivative Clearing House, Athens, Greece
 (1) Exchange-traded derivative products

- (2) Development of a C application that reads all investor positions and margin parameters and produces their margin requirements (It is being used for intraday margin calculations and analysis of what-if margin scenarios)
- *Internship in Mathematical Theory of Control and it's Applications to Economics* May 2003
Moscow State Aviation Institute, Moscow, Russia
 - (1) Mathematical Optimal Control
- *Internship in P2P Networks* June-Aug 2002
University of Rostock, Rostock, Germany
 - (1) Software simulations for information search in a P2P community
 - (2) Analysis of the results of two approaches for information search (random search and information related search)
- *Assistant in Computer Laboratories* Sep-Dec 2000
National Technical University of Athens, Athens, Greece
 - (1) Supervision and organization of laboratory exercises

SKILLS

- *Languages:* Greek (native), English (fluent), German (intermediate), French (basic knowledge)
- *Computer languages:* C, C++, Python, Java, R, SAS, Matlab, Mathematica