Ioannis Gasteratos

Imperial College London
Department of Mathematics
London SW7 1NE
Office: Weeks Building 703

E-mail: i.gasteratos@ic.ac.uk
Webpage:
www.imperial.ac.uk/people/i.gasteratos

Employment

Imperial College London, Department of Mathematics
Position: Research Associate in Mathematics 08/2022-

Boston University, Department of Mathematics and Statistics
Position: Graduate Teaching Fellow 09/2017-05/2022

Boston University, Department of Mathematics and Statistics
Position: Graduate course grader
- MA779–Probability Theory 08-12/2018
- MA776–Partial Differential Equations 01-05/2020

Research interests

Probability, stochastic processes, infinite dimensional and stochastic analysis, large deviations, rare event simulation, Stochastic Partial Differential Equations, stochastic homogenization theory and multiscale methods, stochastic dynamical systems driven by fractional Brownian motion, metastability analysis of dynamical systems, mathematical finance, rough volatility modeling

Education

Boston University, Department of Mathematics and Statistics 2017–2022
- Ph.D. in Mathematics
- Thesis: *Moderate deviations for multiscale stochastic reaction-diffusion equations and related importance sampling schemes*
- Advisors: Dr. Michael Salins, Dr. Konstantinos Spiliopoulos

National Technical University of Athens, Department of Applied Mathematical & Physical Sciences 2011– 2017
- B.Sc. in Applied Mathematics (5 year diploma and thesis)
- Thesis: *Convex bodies and Dvoretzky's theorem* (in Greek)
- Advisor: Dr. Vassilis Papanicolaou

Research and Publications

- I. Gasteratos and A. Jacquier, *Transportation cost inequalities for rough volatility models* (in preparation)
- S. Gailus and I. Gasteratos, *Large deviations of slow-fast systems driven by fractional Brownian motion* (Submitted for publication, arXiv preprint)
- I. Gasteratos, M. Salins and K. Spiliopoulos, *Importance sampling for stochastic reaction-diffusion equations in the moderate deviation regime* (Submitted for publication, arXiv preprint)
- I. Gasteratos, M. Salins and K. Spiliopoulos, *Moderate deviations for systems of slow-fast stochastic reaction-diffusion equations*, Stochastics and Partial Differential Equations: Analysis and Computations, 2022
- I. Gasteratos, S. Kuruklis and T. Kuruklis, *A Trigonometrical Approach to Morley's Observation*, Cubo (Temuco) 19.2, 73-85, 2017

Awards and Scholarships

- NSF support for participation in the Frontier Probability Days workshop 2021
- Boston University Ralph B. D'Agostino Endowed Research Fellowship 2021
- Boston University Department of Mathematics and Statistics travel grant 2019
- Eleni Gatzoyiannis Scholarship 2018, 2019
- Two-month research support through the NSF grant DMS-1311553 2018
  Principal Investigator: Dr. Clarence Eugene Wayne

Presentations and Talks

- Talk at the SIAM Conference on Financial Mathematics and Engineering, Philadelphia, USA. Title: *Transportation-cost inequalities for rough volatility models* June 2023
- Talk at the 13th AIMS Conference on Dynamical Systems, Differential Equations and Applications (Postponed due to COVID-19), Wilmington, NC, USA. Title: *Large deviations of slow-fast systems driven by fractional Brownian motion* June 2023

- Talk at the Rough Volatility workshop, Isle of Skye, Scotland.
  Title: *Transportation-cost inequalities for rough volatility models* May 2023
- Three-part presentation at the Math Finance Postdoctoral Seminar, ICL.
  Title: *Topics in Large Deviations Theory* February-March 2023
- Talk at the Finance and Stochastics seminar, ICL. Title: *Large deviations of slow-fast systems driven by fractional Brownian motion* December 2022
- Talk at the 16th Oxford-Berlin Young Researchers' Meeting on Applied Stochastic Analysis, University of Oxford, Mathematical institute. Title: *Large deviations of slow-fast systems driven by fractional Brownian motion* December 2022
- Poster presentation at the Greek Stochastics μ', Causal Learning, Corfu, Greece.
  Title: *Importance sampling for stochastic reaction-diffusion equations in the moderate deviation regime* August 2022
- Invited two-part talk at Prof. Xue-Mei Li's working group (online). Title: *Moderate deviations for systems of slow-fast stochastic reaction-diffusion equations and related importance sampling methods* July 2022
- Invited talk at the Union College Mathematics Conference 2022, Union College, Schenectady, New York. Title: *Importance sampling for stochastic reaction-diffusion equations in the moderate deviation regime* June 2022
- Talk at the Frontier Probability Days workshop, University of Las Vegas, Nevada. Title: *Large deviations for slow-fast systems driven by fractional Brownian motion* December 2021
- Talk at the 34th New England Statistical Symposium, Session IS-22, University of Rhode Island.
  Title: *Moderate deviations for systems of slow-fast stochastic reaction-diffusion equations and related importance sampling methods* September 2021
- Invited talk at the online seminar of the Research Unit-Rough paths, stochastic partial differential equations and related topics. Title: *Moderate deviations for systems of slow-fast stochastic reaction-diffusion equations* May 2021
- Invited talk at the Boston University Probability and Statistics Seminar. Title: *Moderate deviations for systems of slow-fast stochastic reaction-diffusion equations* September 2020
- Invited talk at the 13th AIMS Conference on Dynamical Systems and Differential Equations, Atlanta (Postponed due to COVID-19 pandemic) June 2020
- Presentation for MA884–Seminar in probability and statistics (Multiscale Methods for Stochastic Processes and stochastic dynamical systems), Boston University. Topic: *The Averaging Principle for systems of stochastic reaction-diffusion equations* November 2019
- Three-part talk for MA884–Seminar in probability and statistics Topic: *Wiener chaos, Hermite processes and related Non-Central Limit Theorems* May 2019
- Semester-long weekly presentations on topics of Functional Analysis and PDE for MA978–Directed study: Partial Differential Equations, Boston University.
  Supervisor: Dr. Clarence Eugene Wayne Spring 2018
- Six-part presentation and co-organization of an undergraduate student seminar.
  Topic: *The Banach–Tarski Paradox and Amenable Groups*, National Technical University of Athens, Department of Applied Mathematical and Physical Sciences.
  Supervisor and co-organizer: Dr. Yiannis Sakellaridis March – May 2016

Teaching Experience

Imperial College London, Department of Mathematics

- Refresher in Probability, 6-hour mini-course for the MSc in Mathematics and Finance 09/2022

Boston University, Department of Mathematics and Statistics

Teaching Assistant for:

- MA124–Calculus II Spring 2022, Fall 2021, 2018, 2017
- MA583–Introduction to Stochastic Processes Spring 2021
- MA213–Basic Statistics and Probability Fall 2020
- MA581–Probability Spring 2020
- MA123–Calculus I Fall 2019
- MA119–Applied Mathematics for Personal Finance Spring 2019
- MA226–Differential Equations Spring 2018

Mentoring Experience

- Internal supervisor of MSc thesis, ICL. Student: Callum Rough (ICL).
  Thesis title: *Rough volatility.* May-August 2023
- Supervisor of MSc thesis, ICL. Student: Basile Terver (École Polytechnique). Thesis title: *Proving an enhanced Sanov-type large deviation principle on* $(\alpha, \beta)-$*rough paths.* April-August 2023
- Boston University Directed Reading Program. Topic: Group Theory and Harmonic Analysis
  Student: Yat (Augustine) Wong (Boston University), undergraduate student Fall 2021

- Independent study on topics of Real Analysis, Measure Theory and Probability Theory
  Student: Jacob Morris (Boston University), undergraduate student — Summer 2021

Conference and Seminar Organization

- Co-organizer of the 7th London-Paris Bachelier Workshop, ICL — September 18-19 2023
- Co-organizer of the Math Finance Postdoctoral Seminar, ICL — February-April 2023

Academic service

- Co-reviewer with Dr. K. Spiliopoulos for Stochastic Processes and their Applications — 2022
- Co-reviewer with Dr. M. Taqqu for Publicationes Mathematicae Debrecen — 2018

Skills

- Languages: Greek (native), English (fluent), German (basic)
- Computer skills: Latex, R, Matlab, Mathematica, C, Microsoft Office