February 2020

EYAL NEUMAN

WORK ADDRESS:
802 Weeks Hall
Department of Mathematics
Imperial College London
London, SW7 1NE
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ACADEMIC APPOINTMENTS

2018- present Lecturer (Assistant Professor) at the Department of Mathematics, Imperial College London.

2016-2018 CFM-Imperial Research Fellow in Quantitative Finance at Imperial College London.

2015-2016 Visiting Assistant Professor of Mathematics at the University of Rochester, NY.

2014-2015 IAS Postdoctoral Fellow at the Hong Kong University of Science and Technology.

ACADEMIC DEGREES

2010-2014 PhD in Operations Research,
Technion- Israel Institute of Technology, Haifa, Israel,
PhD thesis: *Pathwise uniqueness of the stochastic heat equation with spatially inhomogeneous white noise*.
Supervisor: Professor Leonid Mytnik.

2008-2010 Master of Science in Operations Research,
Technion- Israel Institute of Technology, Haifa, Israel, (Graduated with honors).
MSc thesis: *Sample path properties of Volterra processes.*
Supervisor: Professor Leonid Mytnik.

2005-2008 Bachelor of Science in Industrial Engineering,
Tel Aviv University, Tel Aviv, Israel.

RESEARCH INTERESTS

Mathematical Finance

- Market microstructure
- Optimal trading

Probability and Stochastic Processes

- Interacting particle systems
- Stochastic partial differential equations (SPDEs).

PUBLICATIONS

Preprints

17. Neuman E. and Zheng X., Phase transitions for discrete SIR epidemic processes (*in preparation).*
16. Neuman E. and Moritz Voß, Optimal signal-adaptive trading with temporary and transient price impact*, arXiv:2002.09549 [q-fin.TR] (submitted).*
15. Neuman E. and Zheng X., On the maximal displacement of near-critical branching random walks, *arXiv:1907.02344 [math.PR] (submitted).*
14. Bellani C., Brigo D., Done A., Neuman E., Static vs adaptive strategies for optimal execution with signals, *arXiv:1811.11265 [q-fin.TR] (submitted).*
13. Neuman E. and Schied A., A control problem for a speculative investor in a target zone model, *arXiv:1801.07784 [q-fin.MF] (submitted).*

Refereed papers in professional journals

12. Mueller C., Neuman E., Salins M. and Truong G., An improved uniqueness result for a system of stochastic differential equations related to the stochastic wave equation, *arXiv:1909.05944 [math.PR] to appear in the Journal of Stochastic Analysis.*
11. Lee J. J., Mueller C., Neuman E., Hitting probabilities of a Brownian flow with radial drift*, arXiv:1802.06010[math.PR], to appear in the Annals of Probability.*
10. Lehalle C. A. and Neuman E., Incorporating signals into optimal trading, *Finance and Stochastics 23:275–311, (2019).*
9. Neuman E. and Rosenbaum M., Fractional Brownian motion with zero Hurst parameter: a rough volatility point of view*, Electronic Communications in Probability, 23(61), (2018).*
8. Neuman E., Pathwise uniqueness of the stochastic heat equation with spatially inhomogeneous white noise, *Annals of Probability, 46(6), (2018).*
7. Gomez A., Lee J. J., Mueller C., Neuman E. and Salins M., On uniqueness and blowup properties for a class of second order SDEs, *Electronic Journal of Probability, 22(72), (2017).*
6. Neuman E. and Zheng X., On the maximal displacement of subcritical branching walks, *Probability Theory and Related Fields, 167(3), 1137-1164, (2017).*
5. Neuman E. and Schied A., Optimal Portfolio Liquidation in target zone models and catalytic superprocesses, *Finance and Stochastics, 20, 495–509, (2016).*
4. Mytnik L. and Neuman E., Pathwise uniqueness of the stochastic heat equations with Hölder continuous noise and drift coefficients, *Stochastic Processes and their Applications, 125(9), 3355–3372, (2015).*
3. Gertsbakh I., Neuman E. and Vaisman R., Monte Carlo for estimating exponential convolution*, Communications in Statistics - Simulation and Computation, 44(10): 2696-2704 (2015).*
2. Neuman E., The multifractal nature of Volterra-Lévy processes, *Stochastic Processes and their Applications, 124(9): 3121-3145, (2014)*

1. Mytnik, L. and Neuman E., Sample path properties of Volterra processes, *Communications on Stochastic Analysis, 6(3): 359-377, (2012).*

Theses

MSc thesis

Sample path properties of Volterra processes, Technion, August 2010.

PhD thesis

Pathwise uniqueness of the stochastic heat equations with spatially inhomogeneous white noise, Technion, May 2014.

CONFERENCES ORGANIZATION

- CFM-Imperial Workshop on Market Microstructure, London, December 12-13, 2019.
- CFM-Imperial researchers meeting, Paris, October 1, 2019.
- The 2nd Imperial - CUHK Workshop on Quantitative Finance, Hong Kong, May 21-22, 2019.
- CFM-Imperial Workshop on Market Microstructure, London, December 11-12, 2017.

PHD STUDENTS

- Francesco Capponi from Imperial College, PhD. in Mathematical Finance, expected graduation in December 2019.
- Federico Graceffa from Imperial College, PhD. in Mathematical Finance, expected graduation in January 2021.
- Alessandro Micheli, from Imperial College, PhD. in Mathematical Finance, expected graduation in January 2023.

MSC STUDENTS

- Alex Done from Imperial College, MSc. in Mathematics and Finance.
  MSc. thesis: Static and Dynamic Execution Strategies in the Presence of Liquidity Signals, graduated in September 2018.
- Paul Faure from ENSTA ParisTech, MSc. in Mathematics and Finance.
  MSc. thesis: Data analysis of predictive trading signals, graduated in September 2017.
- Hu Yi from Imperial College, MSc. in Mathematics and Finance.
  MSc. thesis: Incorporating signals into optimal trading with non-linear temporary market impact, graduated in September 2017.

INVITED TALKS – CONFERENCES

- The 3rd Haifa probability school, Technion, Israel, February 23-28, 2020.
- The 12th Berlin-Oxford meeting, Mathematical Institute, Oxford, December 4-6, 2019.
- Vienna Congress on Mathematical Finance, WU Vienna, Austria, September 9-11, 2019.
- The 2nd Imperial - CUHK Workshop on Quantitative Finance, Hong Kong, May 20-21, 2019.
- 9th International workshop on applied probability, Budapest, Hungary, June 18-21, 2018.

- 3rd Bar-Ilan conference on mathematical finance, Bar-Ilan University, Israel, May 30-31, 2018.
- Imperial-ETH Workshop on Mathematical Finance, ETH Zurich, April 4-6, 2018.
- CFM-Imperial Workshop on Market Microstructure, London, December 11-12, 2017.
- Imperial-ETH Workshop on Mathematical Finance, Imperial College London, March 27-29, 2017.
- Mathematics of Quantitative Finance, Mathematisches Forschungsinstitut Oberwolfach, Germany, February 26 – March 4, 2017.
- Finance & Stochastics Day, Imperial College London, October 13, 2016.
- London-Paris Bachelier Workshop on Mathematical Finance, Féderation Bancaire Française, Paris, September 29-30, 2016.
- Imperial-ETH Workshop on Mathematical Finance, ETH Zurich, September 26-28, 2016.
- The Canadian Mathematical Society Winter Meeting, Montreal, Canada, December 4-7, 2015.
- The Third Asian Quantitative Finance Conference, Chinese University of Hong Kong, Hong Kong, July 6-8, 2015.
- The Mathematics of High Frequency Financial Markets: Limit Order Books, Frictions, Optimal Execution and Program Trading, University of California, Los Angeles, USA, April 13 - 17, 2015.

INVITED TALKS - SEMINARS

- Bristol Probability Seminar, University of Bristol, March 13, 2020.
- Finance & Modeling Seminar, Université Paris 1, Paris, February 12, 2020.
- TU Berlin, Rough paths and stochastic partial differential equations seminar, May 2, 2019.
- Technion, Faculty of IE&M colloquium talk, Haifa, Israel, April 17, 2019.
- University of Oxford, Mathematical & Computational Finance Seminar, February 14, 2019.
- Imperial College London, Stochastic Control Seminar, January 30, 2019.
- University of Cambridge, The Isaac Newton Institute for Mathematical Sciences, November 2, 2018.
- University of Bath, Probability Seminar, October 1, 2018.
- Imperial College London, Finance and Stochastics Seminar, March 21, 2018.
- UC Santa Barbara, Department of Statistics and Applied Probability, January 18, 2018.
- Carnegie Mellon University, Department of Mathematical Sciences, January 16, 2018.
- London Mathematical Finance Seminar, King's College London, November 16, 2017.
- École nationale de la statistique et de l'administration économique, Paris, France, November 6, 2017.
- University of Strathclyde, Glasgow, UK, October 18, 2017.
- Oxford University, stochastic analysis seminar, UK, October 16, 2017.

- Tel Aviv University, Industrial Engineering seminar, Tel Aviv, Israel, November 17, 2016.
- Worcester Polytechnic Institute, Stochastic Analysis and Financial Mathematics seminar, Worcester, MA, USA, January 16, 2016.
- Department of Mathematics seminar, University of Macau, Macau, November 3, 2014.
- Post/Doctoral seminar in Mathematical Finance ETH Zurich, Switzerland May 6, 2014.
- Research Seminar, Tel Aviv University - Faculty of engineering, Israel, November 19, 2013.
- Probability seminar, University of Duisburg-Essen, Germany, September 18, 2013.
- Research Seminar in Mathematical Econometrics, Stochastics and Finance, University of Mannheim, Germany, September 3, 2013.

CONTRIBUTED TALKS

- Bachelier Finance Society – 10th World Congress, Trinity College, Dublin, July 16-20, 2018
- Conference on Stochastic Control, Ambiguity and Games, University of Leeds, UK, September 4-5, 2017.
- International Workshop on BSDEs, SPDEs and their Applications, University of Edinburgh, July 3-7, 2017.
- Interacting Systems and SPDEs, University of Sheffield, June 13-15, 2017.
- Young Finance Scholars' Conference, University of Sussex, June 12-13, 2017.
- Technion Seminar in Probability and Stochastic Processes, November 15, 2016.
- Technion Quant Seminar, November 14, 2016.
- *Probability Seminar, University of Rochester, May 29, 2016.*
- *The 38th Conference on Stochastic Processes and their Applications, Oxford, UK, July 13-17, 2015.*
- *Stochastic Processes and Random Fields: Geometry and Fine properties, Technion, Israel, June 29- July 3, 2015.*
- Technion Seminar in Probability and Stochastic Processes, January 4, 2014.
- NSF/CBMS Conference - Analysis of Stochastic Partial Differential Equations, Michigan State University, August 19-23, 2013.
- 36th Conference on Stochastic Processes and Their Applications, University of Colorado Boulder, July 29 - August 2, 2013.
- École d'été de Probabilités de Saint-Flour, Saint-Flour, France, July 8-21, 2012.
- Students Probability Day III, Weizmann Institute of Science, Israel, May 12, 2011.
- École d'été de Probabilités de Saint-Flour, Saint-Flour, France, July 17-24, 2010.
- Technion Probability and Stochastic Processes Seminar, January 26, 2010.

TEACHING EXPERIENCE

2017-Current Lecturer at Imperial College in the following courses:

- Numerical Methods in Finance (graduate).
- Stochastic Calculus (graduate)

2015-2015 Lecturer at the University of Rochester, NY, in the following courses:

- Nonlinear ODEs and Dynamical Systems (undergraduate)
- Calculus 2 (undergraduate)
- Introduction to Probability (undergraduate)

2012-2014 Lecturer at the Technion in the following courses:

- Mathematical Finance (graduate)
- Introduction to Probability (undergraduate)

2008-2012 Teaching assistant at the Technion in the following courses:

- Stochastic Processes (graduate)
- Introduction to Probability (undergraduate)
- Stochastic Models (undergraduate)
- Digital Simulation (undergraduate)

REFEREE/REVIEWER

- *Electronic Journal of Probability*
- *Stochastic Processes and their Applications*
- *Finance and Stochastics*
- *SIAM Journal on Financial Mathematics*
- *Stochastic Analysis and Applications*
- *Statistics and Probability Letters*
- *Journal of Applied Probability/Advances in Applied Probability*
- *Market Microstructure and Liquidity*
- *Applied Mathematical Finance*
- *Operational Research*
- *Frontiers in Artificial Intelligence*

HONORS

2017 Best paper in quantitative finance award, at the 4th Young Finance Scholars' Conference, University of Sussex, June 12-13, 2017.

2016 CFM-Imperial Research Fellowship in Quantitative Finance at Imperial College London.

2011-2013 Various awards for excellence in teaching at the Technion.

2010 Rubinstein-Kaiden award for excellence in research at the Technion.