




Jacopo Borga

Szego Assistant Professor of Mathematics

 Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Szego Asst Professor, Mathematics

HONORS AND AWARDS

- Bernoulli Society New Researcher Award, Bernoulli Society (2021)
- PhD thesis distinction, Faculty of Science, University of Zurich (2021)
- Certificate of merit, Municipality of Ponzano Veneto (2018)
- Major de la promotion 2017, Université Paris 13 (2017)
- MIEM USPC Scholarships for International Students in France, University Sorbonne Paris Cité (USPC) (2016)
- Math competitions of Cesenatico (Gold medal), Italian Team Maths Competition (2012)
- INdAM fellowship, Istituto Nazionale di Alta Matematica Francesco Severi (2012)

PROFESSIONAL EDUCATION

- Ph.D in Mathematics (distinction), Institut für Mathematik, Universität Zürich, Zürich , Mathematics (2021)
- M.Sc in Mathematics, Università degli Studi di Padova , Mathematics (2018)
- M.Sc in Mathematics (M2), Université Sorbonne Paris Cité (USPC) , Mathematics (2017)
- B.Sc in Mathematics, Università degli Studi di Padova , Mathematics (2015)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research area is probability theory with connections to combinatorics. I mainly focus on the study of various random discrete structures such as random permutations, walks, trees and planar maps. I am interested in their continuous and discrete limits and I look at universality phenomena. I introduced a universal family of limiting permutons, called "skew Brownian permuton", and explored its connections with Liouville quantum gravity. I also studied some polytopes arising from permutations.

Teaching

COURSES

2023-24

- Discrete Probabilistic Methods: MATH 159 (Aut)

- Introduction to Probability Theory: MATH 151 (Win)
- Stochastic Processes: MATH 136, STATS 219 (Win)

2022-23

- Discrete Probabilistic Methods: MATH 159 (Win)
- Functions of a Complex Variable: MATH 106 (Aut)
- Introduction to Probability Theory: MATH 151 (Win)
- Stochastic Processes: MATH 136, STATS 219 (Aut)

2021-22

- Discrete Probabilistic Methods: MATH 159 (Spr)
- Introduction to Probability Theory: MATH 151 (Win)
- Stochastic Processes: MATH 136, STATS 219 (Win)

Publications

PUBLICATIONS

- **On the Geometry of Uniform Meandric Systems** *COMMUNICATIONS IN MATHEMATICAL PHYSICS*
Borga, J., Gwynne, E., Park, M.
2023; 404 (1): 439-494
- **Large Deviation Principle for Random Permutations (May, 2023)** *INTERNATIONAL MATHEMATICS RESEARCH NOTICES*
Borga, J., Das, S., Mukherjee, S., Winkler, P.
2023
- **Large Deviation Principle for Random Permutations** *INTERNATIONAL MATHEMATICS RESEARCH NOTICES*
Borga, J., Das, S., Mukherjee, S., Winkler, P.
2023
- **The skew Brownian permuton: A new universality class for random constrained permutations** *PROCEEDINGS OF THE LONDON MATHEMATICAL SOCIETY*
Borga, J.
2023
- **The feasible regions for consecutive patterns of pattern-avoiding permutations** *DISCRETE MATHEMATICS*
Borga, J., Penaguiao, R.
2023; 346 (2)
- **Baxter permuton and Liouville quantum gravity** *PROBABILITY THEORY AND RELATED FIELDS*
Borga, J., Holden, N., Sun, X., Yu, P.
2023
- **The permuton limit of strong-Baxter and semi-Baxter permutations is the skew Brownian permuton** *ELECTRONIC JOURNAL OF PROBABILITY*
Borga, J.
2022; 27