

Saraí Hernández-Torres

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RESEARCH INTERESTS

Discrete Probability: uniform spanning forests, loop-erased random walks, growth processes, random walks, random trees, percolation models with long-range correlations, and their scaling limits.

ACADEMIC POSITIONS

Oct. 2020 POSTDOCTORAL FELLOW
–present **Technion – Israel Institute of Technology**, Haifa, Israel
Hosts: [Prof. Eviatar Procaccia](#) and [Prof. Ron Rosenthal](#)

EDUCATION

- 2020 Ph.D. in MATHEMATICS
University of British Columbia, Vancouver, Canada
Thesis: “A Macroscopic View on Two Discrete Random Processes”
Supervisors: [Prof. Omer Angel](#) and [Prof. Martin Barlow](#)
- 2016 M.Sc. in MATHEMATICS
University of British Columbia, Vancouver, Canada
Essay: “Collisions of Trajectories and Random Walks”
Supervisor: [Prof. Martin Barlow](#)
- 2014 B.Sc. in MATHEMATICS
**Universidad de Guanajuato -
Centro de Investigación en Matemáticas (CIMAT)**, Guanajuato, Mexico
Thesis: “Introducción a los Espacios de Bergman”
Supervisor: [Prof. Fernando Galaz Fuentes](#)

PUBLICATIONS & PREPRINTS

4. *The chemical distance in random interlacements in the low-intensity regime*, with E. B. Procaccia and R. Rosenthal. Preprint. arXiv e-prints: [2112.13390](https://arxiv.org/abs/2112.13390).
3. *Scaling limit of the three-dimensional dimensional uniform spanning tree and the associated random walk*, with O. Angel, D. A. Croydon and D. Shiraishi. **Annals of Probability**, Volume 49, Number 6 (November 2021), 3032–3105. DOI: [10.1214/21-AOP1523](https://doi.org/10.1214/21-AOP1523). arXiv e-prints: [2003.09055](https://arxiv.org/abs/2003.09055).
2. *The number of spanning clusters of the uniform spanning tree in three dimensions*, with O. Angel, D. A. Croydon and D. Shiraishi. **Advanced Studies in Pure Mathematics**. Proceedings of “The 12th Mathematical Society of Japan, Seasonal Institute (MSJ-SI) Stochastic Analysis, Random Fields and Integrable Probability.”, to appear. arXiv e-prints: [2003.04548](https://arxiv.org/abs/2003.04548).
1. *Chase-escape with death on trees*, with E. Beckman, K. Cook, N. Eikmeier and M. Junge. **Annals of Probability**, Volume 49, Number 5 (September 2021), 2530–2547. DOI: [10.1214/21-AOP1514](https://doi.org/10.1214/21-AOP1514). arXiv e-prints: [1909.01722](https://arxiv.org/abs/1909.01722).

TALKS

Research talks

- Dec. 2021 GFAP Seminar, Weizmann Institute of Science, Israel
- Dec. 2021 Technion Probability Seminar, Technion – IIT, Israel
- Dec. 2021 Matemáticos Mexicanos en el Mundo, Casa Matemática Oaxaca, Mexico ◇*
- Oct. 2021 Seminario de Probabilidad Hispanohablante ◇
- Oct. 2021 Purdue Probability Seminar, Purdue University, USA ◇
- Sep. 2021 LXX Reunión de Comunicaciones Científicas,
Reunión Anual de la Unión Matemática Argentina, Argentina ◇*
- July 2021 Special Session on Interacting Stochastic Systems, MCA, Argentina ◇*
- June 2021 Probability Seminar Essen, Universität Duisburg-Essen, Germany ◇
- May 2021 8th Students Probability Day, Weizmann Institute of Science, Israel
- May 2021 Probability Seminar, Cornell University, USA ◇
- April 2021 Probability and Combinatorics Seminar, Uppsala universitet, Sweden ◇
- Mar. 2021 Probability Seminar of Americas ◇
- Feb. 2021 Coloquio de Exalumnos de CIMAT/DEMAT, CIMAT, Mexico ◇
- Jan. 2021 Joint Israeli Probability Seminar, Israel ◇
- Nov. 2020 Coloquio Oaxaqueño de Matemáticas, IM-UNAM Oaxaca, Mexico ◇
- Oct. 2020 Probability and Related Fields Seminar, Indiana University, USA ◇
- Sep. 2020 UBC Probability Seminar, University of British Columbia, Canada ◇
- Sep. 2020 Probability and Related Fields Seminar, Indiana University, USA ◇
- May 2020 Seminario de Probabilidad y Estadística, CIMAT, Mexico ◇
- April 2020 Seminario de Probabilidad y Procesos Estocásticos, UNAM, Mexico ◇
- Jan. 2020 TAMU Probability Seminar, Texas A&M University, USA
- Jan. 2020 AMS Special Session on Stochastic Spatial Models, JMM, Denver, USA *
- Dec. 2019 Latin American Congress of Probability and Mathematical Statistics,
Merida, Mexico
- Nov. 2019 UBC Probability Seminar, University of British Columbia, Canada
- Oct. 2019 Dynamics Seminar, University of Victoria, Canada
- July 2019 49th Saint-Flour Probability Summer School, Saint-Flour, France
- June 2019 11th Cornell Probability Summer School, Cornell University, USA
- June 2019 CMS Summer Meeting, University of Regina, Canada *
- Oct. 2018 Retreat for Young Researchers in Stochastics, BIRS, Canada *

Expository talks

- April 2021 XIX Escuela de Probabilidad y Estadística, CIMAT, Mexico ◇ *
- Dec. 2020 Fest 2020, Independently Organized Conference ◇
- Sep. 2020 Seminario Junior de Estudiantes, Universidad de Guanajuato, Mexico ◇
- Sep. 2020 Lunch & Learn, Trinity Western University, Canada ◇
- Mar. 2019 Graduate Student Seminar, University of British Columbia, Canada

Miscellaneous

- June 2021 Workshop discussion, SPDEs & friends (15 min. talk) ◇ *

An asterisk (*) indicates an invited talk.

A diamond (◇) indicates a talk online.

The supplemental information shows a comprehensive list of [events attended](#).

SELECTED DISTINCTIONS, SCHOLARSHIPS AND AWARDS

- 2022–present Candidate Member of the Mexican National System of Researchers,
(Sistema Nacional de Investigadores, SNI)
Consejo Nacional de Ciencia y Tecnología (CONACyT)
- 2015–2020 Scholarship for Graduate Studies
Consejo Nacional de Ciencia y Tecnología (CONACyT)
- 2014 Faculty of Science Graduate Award
Scholarship for Graduate Studies, University of British Columbia
- 2009–2014 Scholarship for Undergraduate Studies
Centro de Investigación en Matemáticas (CIMAT)
- 2012, 2014 Academic Excellence Scholarship
Secretaría de Educación Pública (SEP)
- 2012 Academic Excellence Scholarship
Universidad de Guanajuato
- 2008 Bronze Medal
XXII Olimpiada Mexicana de Matemáticas (Mexican Mathematical Olympiad)

TEACHING

Teaching Experience

University of British Columbia,
Vancouver, Canada

- 2019 | *Workshop facilitator*
Math 100: Differential Calculus with Applications to Physical Sciences and Engineering (Vantage College)
Workshop sessions for international students, 2 hours per week.
- 2018 | *Recitation instructor*
Math 180: Differential Calculus with Physical Applications
Workshop sessions with theory and exercises, 2 hours per week.
- 2017 | *Course instructor*
Math 100: Differential Calculus with Applications to Physical Sciences and Engineering
Course with 60 students, 3 hours per week.
- 2014–2020 | *Teaching assistant*
Marked assignments and conducted tutorial sessions. Undergraduate course assisted: Mathematical Game Theory (Math 344), Real Variables I (Math 320), Probability with Physical Applications (Math 318), Introduction to Probability (Math 302), Introduction to Complex Variables (Math 300), Differential Equations (Math 256), Multivariable Calculus (Math 253), Mathematical Proof (Math 220), Differential Calculus with Applications to Life Sciences (Math 102).
- Tutor at the Math Learning Centre
Drop-in tutorials offered to undergraduate students.

Universidad de Guanajuato / Centro de Investigación en Matemáticas (CIMAT),
Guanajuato, Mexico

- 2012–2014 | *Teaching assistant*
Marker
Conducted tutorial sessions for Modern Algebra I, Complex Variables and Integral and Differential Calculus I & II.

2013 | *Workshop Instructor*
X Calculus Problem Solving Workshop
Led a group of undergraduates for a week-long problem-solving workshop on calculus.

Teaching Accreditation

2018 Instructional Skills Workshop (24 hours workshop), UBC
2016 Math 599: Mathematics Teaching Techniques (33 hours course), UBC

ACADEMIC SERVICE

July-Aug. 2021 **Co-organizer**, Open Online Probability School
Organizational work for 10 mini-courses.
May 2021 **Teaching assistant**, Mathematics Sin Fronteras
Supported the mini-course “An introduction to error correcting codes”.
Dec. 2020 **Co-organizer**, Fest 2020
Organizational work for 10 talks and 1 mini-course.
May-Aug. 2020 **Co-organizer**, Open Online Probability School
Conception of the event and organizational work. 13 mini-courses and 13 talks.
June 2017 **Short talks organizer**, PIMS-CRM Summer School in Probability
Scheduled 29 short talks for a one-month summer school, assisted in
communication with the participants and organization of social activities.
2016 – 2018 **Organizer**, UBC Probability Reading Group
Organized schedule and suggested topics.
Journal reviewer. Stochastic Processes and their Applications (1)
Random Structures and Algorithms (1)
Electronic Communications in Probability (1)
Electronic Journal of Probability (1)

LANGUAGES

SPANISH: Native
ENGLISH: Fluent

PROFESSIONAL AFFILIATIONS

Sociedad Matemática Mexicana (SMM)
Sociedad Latinoamericana de Probabilidad y Estadística Matemática (SLAPEM)
Bernoulli Society (BS)

Supplemental information

EVENTS

Workshops and Summer Schools

- May-June 2021 [CRM-PIMS Summer School in Probability](#)
Online summer school organized in Canada
- June 2021 [SPDEs & friends](#)
3-day online workshop organized in Berlin, Germany
- July 2019 [49th Saint-Flour Probability Summer School](#)
Saint-Flour, France
- June 2019 [11th Cornell Probability Summer School](#)
Cornell University, Ithaca, USA
- June 2019 [Mathematical Research Communities: Stochastic Spatial Models](#)
Rhode Island, USA
- June 2018 [Challenges in Probability and Mathematical Physics](#)
Centre de Recherches Mathématiques (CRM), Montreal, Canada
- Aug. 2017 [Summer School in Graph Limits, Groups and Stochastic Processes](#)
MTA Alfréd Rényi Institute of Mathematics, Budapest, Hungary
- June 2017 [PIMS-CRM Summer School in Probability](#)
University of British Columbia, Vancouver, Canada
- June-July 2015 [CRM-PIMS Summer School in Probability](#)
McGill University, Montreal, Canada
- Mar. 2014 [XII School in Probability and Statistics](#)
Centro de Investigación en Matemáticas (CIMAT), Guanajuato, Mexico
- July 2011 [IV Summer Program in Probability and Statistics](#)
Centro de Investigación en Matemáticas (CIMAT), Guanajuato, Mexico
Research internship with Prof. José Alfredo López-Mimbela

Conferences and Meetings

- Dec. 2021 [Matemáticos Mexicanos en el Mundo](#)
Hybrid event hosted at Casa Matemática Oaxaca in Mexico
- July 2021 [Mathematical Congress of the Americas](#)
Online conference organized in Argentina
- May 2021 [Students Probability Day VIII. In memory of Oded Schramm](#)
Weizmann Institute of Science, Rehovot, Israel
- Jan. 2020 [Joint Mathematics Meetings](#)
Denver, USA
- Dec. 2019 [Latin American Congress of Probability and Mathematical Statistics](#)
Merida, Mexico
- June 2019 [CMS Summer Meeting](#)
University of Regina, Regina, Canada
- Oct. 2018 [Retreat for Young Researchers in Stochastics](#)
Banff International Research Station (BIRS), Banff, Canada
- July 2018 [XIX International Congress on Mathematical Physics](#)
Centre Mont-Royal, Montreal, Canada
- July 2018 [Young Researchers Symposium](#)
McGill University, Montreal, Canada
- July 2017 [Mathematical Congress of the Americas](#)
Centre Mont-Royal and McGill University, Montreal, Canada
- Aug. 2013 [Mathematical Congress of the Americas](#)
Guanajuato, Mexico
- Oct. 2012 [XLV National Congress of the Mexican Mathematical Society](#)
Universidad Autónoma de Querétaro, Queretaro, Mexico