

Dr. Laura ESLAVA

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RESEARCH INTERESTS

Random combinatorial structures, Probabilistic combinatorics, Analysis of algorithms, Stochastic combinatorial processes. Evolution of random graphs, Random trees and networks, Extreme values in combinatorial structures, Hitting time theorems.

ACADEMIC POSITIONS

MAY 2019-	Profesor Asociado C IIMAS , Universidad Nacional Autónoma de México , Mexico City, Mexico
AUGUST 2017- MAY 2019	Visiting Assistant Professor Georgia Institute of Technology , Atlanta, USA Mentor: Dr. Lutz WARNKE

EDUCATION

2013-2017	PhD in MATHEMATICS, McGill University , Montreal, Canada Thesis: "Properties for extreme-valued degrees in recursive trees" Advisor: Prof. Louigi ADDARIO-BERRY
2011-2012	MA in MATHEMATICS McGill University , Montreal, Canada Thesis: "The rank of symmetric random matrices via a graph process" Advisor: Prof. Louigi ADDARIO-BERRY
2005-2010	Bachelor in MATHEMATICS, Universidad Nacional Autónoma de México , Mexico City Mexico Thesis: "El Teorema de Kesten sobre percolación de aristas en el plano" Advisor: Prof. Gerónimo URIBE BRAVO

GRANTS AND PROYECTS

October 2019	PAPIIT-DGAPA, Project on "Evolución de procesos estocásticos en estructuras discretas"
July 2018	AMS-Simons Travel Fund, AMS (USA) (\$4,000)
Feb. 2018	Mathematics Travel Grants for Women Researchers, AWM (USA) (\$1,500)

SCHOLARSHIPS AND AWARDS

- 2020-2022 Member of SNI (CoNaCyT), Candidate level
- 2015-2016 (Graduate) Schulich Scholarship, McGill University
- 2013-2016 Programme de Bourses d'Excellence pour Étudiants Étrangers, FQRNT (Qc, Canada)
- 2010-2012 Graduate Scholarship, CONACYT (Mexico)
- 2005-2006 Women high-performance Bachelor's scholarship (Mexico)
 - 2005 Silver Medal, National Mathematical Olympiad (Mexico)
 - 2004 Silver Medal, National Mathematical Olympiad (Mexico)
 - 2001 National First Prize Olimpiada de Primavera, level II (Mexico)
 - 2001 First Prize in Olimpiada de Mayo, level II (Iberoamerica)

PUBLICATIONS

- 4. L. Addario-Berry, **L. Eslava**, Hitting time theorems for random matrices, *Combinatorics, Probability and Computing*, 23:635-669 (2014). doi:[10.1017/S0963548314000285](https://doi.org/10.1017/S0963548314000285)
- 3. L. Addario-Berry, **L. Eslava**, High degrees in recursive trees *Electronic Notes in Discrete Mathematics*, 50:451-456 (2015). doi:[10.1016/j.endm.2015.07.075](https://doi.org/10.1016/j.endm.2015.07.075)
- 2. L. Addario-Berry, **L. Eslava**, High degree vertices in recursive trees, *Random Structures and Algorithms*, 52:560-575 (2018). doi:[10.1002/rsa.20753](https://doi.org/10.1002/rsa.20753)
- 1. **L. Eslava**, A non-increasing tree growth process for recursive trees and applications. *Combinatorics, Probability, Computing*, 30:79-104 (2021). doi:[10.1017/S0963548320000073](https://doi.org/10.1017/S0963548320000073)

Work in Progress:

- 4. A. Dailly, A. Hansberg, **L. Eslava**, D. Ventura. The balancing number and list balancing number of some graph classes. *Submitted* Available at [arxiv:2011.11119](https://arxiv.org/abs/2011.11119)
- 3. **L. Eslava**, Depth of high degree vertices in recursive trees. *Submitted* Available at [arXiv:1611.07466](https://arxiv.org/abs/1611.07466)
- 2. **L. Eslava**, L. Warnke, The size of the giant component in the d -process. *In preparation*.
- 1. **L. Eslava**, S. Penington, F. Skerman, A branching process with cousin merges. *In preparation*.

SELECTED TALKS (SUBJECT SEMINARS)

A branching process with cousin merges

- Online, Nov. 2020 Seminario de Probabilidad Hispanohablante, Chile-Mexico
- Mexico, March 2020 XXXV Coloquio VNL de Teoría de las Gráficas, Comb. y sus aplicaciones, CECEQ
- France, Jan. 2020 Workshop on Spectra, Algorithms and Random Walks on Random Networks, CIRM *
- Mexico, Dec 2019 CLAPEM, UADY. *

The size of the giant component in the random d -process

- Online, Sept. 2020 VirtUMA, Argentina (online conference)
- USA, May 2018 Southeastern Probability Conference, Duke U.
- USA, May 2018 Probability and Statistical Physics Seminar, UChicago
- Germany, Dec. 2017 Oberwolfach Workshop *Network Models: Structure and Function*
- Mexico, Dec. 2017 XIII Symposium of Probability and Stochastic Processes

Properties of Extreme-values degrees in recursive trees

- USA, June 2017 Analysis of Algorithms workshop, Princeton

Depth of high degree vertices in recursive trees

USA, Sept. 2016 AMS Fall Eastern Sectional Meeting, Bowdoin College
 Canada, Dec. 2015 Canadian Mathematical Society, Winter Meeting
High degree vertices in recursive trees
 USA, July 2015 17 th International Conference on Random Structures and Algorithms *
 Brazil, May 2015 Latinamerican Graph and Optimization Symposium *
Singularity of random matrices
 USA, May 2014 IAS Women and Mathematics program, USA *

A star (*) indicates a contributed talk.

[| Complete list of talks](#)

SELECTED TALKS (GENERAL MATHEMATICS)

Tiempos de paro en matrices aleatorias

Mexico, Nov. 2020 Escuela de probabilidad y estadística, CIMAT (online).

A branching process with cousin merges

Mexico, Nov. 2019 2nd National Workshop on Biology and Probability, CCG-UNAM.

Hubs in networks, fluke or fate?

USA, Sep. 2018 Women in Mathematics in Northern Georgia Seminar, Georgia Tech

Imperios en las redes, Suerte o destino?

Mexico, Apr. 2017 Coloquio del Instituto de Matemáticas, UNAM

Blind men and a recursive tree

France, Mar. 2015 Séminaire Bourbaket, Université Paris-Diderot

Modelos primitivos de redes sociales: Árboles aleatorios

Mexico, Dec. 2014 II Reunión de Matemáticos Mexicanos en el Mundo (CIMAT)

A star (*) indicates a contributed talk.

[| Complete list of talks](#)

SELECTED COURSES

The differential equation method and applications

Mexico, Nov. 2019 XVII Bath-UNAM-CIMAT Workshop.

Introducción al método probabilista

Mexico, Oct. 2019 52nd National Congress of the SMM, UANL.

RESEARCH VISITS

JULY 2019 | Visiting Researcher, **Department of Probability, Bath University**, Bath, UK

Project: *Branching processes with cousin mergers*

with Dr. Arno SIRI-JÉGOUSSE

JULY 2017 | Visiting Researcher, **IIMAS, Universidad Nacional Autónoma de México**, Mexico City, Mexico

Project: *Tails of Site Frequency Spectrum in Bolthausen-Sznitman coalescent*

with Dr. Arno SIRI-JÉGOUSSE

JUNE 2017 | Visiting Researcher, **IRIF, Université Paris Diderot**, Paris, France

Project: *Scaling limit for Tamari intervals*

with Dr. Guillaume CHAPUY and Dr. Marie ALBENQUE

SELECTED CONFERENCE PARTICIPATION

- Jan. 2020 Workshop on Spectra, Algorithms and Random Walks on Random Networks (CIRM), France
Dec. 2019 XV CLAPEM, Mexico
June 2019 MRC: Stochastic Spatial Models (Whispering Pines), USA
Apr. 2019 14th Annual Workshop on Probabilistic Combinatorics, Barbados
June 2018 SIAM Discrete Math, *Minisymp. on Random Discrete Processes*, (U. Colorado), USA
Jan.-Apr. 2017 Combinatorics and Interactions (IHP), France
June 2015 CRM-PIMS Summer School in Probability, Canada
Jan.-Apr. 2015 Spin Glasses, Random Graphs and Percolation (IHP), France
May 2013 Spring School on Threshold phenomena and random graphs (IHP), France
Jun-Jul. 2012 Second Montreal Spring School in Graph Theory, Canada

| [Complete conference participation](#)

TEACHING EXPERIENCE

Courses as Instructor

- 2020 Probabilidad Aplicada y Simulación Estocástica, IIMAS, UNAM.
2019-2020 Taller de Modelación I (FC-758) Proyectos II (FC-924), Facultad de Ciencias, UNAM.
2019 Introduction to probability and statistics (MATH 3670), at Georgia Inst. of Tech.
2017-2018 Linear algebra (MATH 1553, MATH 1554, MATH 2802), at Georgia Inst. of Tech.
Winter 2016 Discrete mathematics (MATH363), at McGill University

Courses as Teaching Assistant *Classes with 10-40 students*

- 2012-2013 Discrete mathematics (MATH 240, MATH363), at McGill University
2006-2011 Measure theory, Probability I, Modern algebra, Number theory, at FC, UNAM.
Spring 2006 XIX Mexican Mathematics Olympiad, Mexico City Team

DEVELOPMENT WORKSHOPS AND AWARDS

- Awards Receptient of: Thank a teacher Note. (Fall 2017 and Fall 2018)
Allows students to show appreciation to faculty members
- 2020 (20 hrs) Capacitación: Personas Orientadoras, Oficina de la Abogacía General, UNAM
2020 (30 hrs) Formación en género para docentes, CIEG, UNAM
2019 (2 hrs) QPR Training: Suicide Prevention Gatekeeper Training
2018 (2.5-hrs) Transformative Listening: Community storytelling, Georgia Inst. of Technology
Faculty can support students/colleagues and create inclusive environments
- 2018 (2-day) Directed Reading Program (DRP) Network Workshop, MIT
Setting up one-on-one mentoring programs for students in mathematics
- 2018 (5-hr) LGBTQIA Resource Center, Georgia Institute of Technology
Safe Space Training
- 2018 (5-hr) Georgia Tech Retreat Exploring Effective Teaching, Georgia Inst. of Technology
Inspiring 'Grit' in Georgia Tech students through our personal stories
- 2016 (3-hr) Social Equity and Diversity Education Office, McGill University
Safer spaces: Understanding discrimination
- 2016 (7-hr) Tomlinson Project in University-Level Science Education, McGill University
Graduate Teaching Workshop

OTHER ACTIVITIES

- Referee service Annals of Applied Probability, SIAM Journal on Discrete Mathematics,
Random Structures & Algorithms, IEEE Trans. on Network Science and Engineering
Latin American Journal of Probability and Mathematical Statistics
- Outreach service 2010, Volunteer Exhibitor at Math Festival, Mexico City
2016, Volunteer Invigilator at Math Kangaroo Contest (K-12 level)
2019, Volunteer Exhibitor at Mathpalooza, Atlanta

Supplemental Information

COMPLETE LIST OF TALKS

Tiempos de paro en matrices aleatorias

Nov. 2020 Escuela de probabilidad y estadística, CIMAT (online), Mexico

Tiempos de paro en detección de comunidades

Nov. 2019 Seminario de Matrices Aleatorias y Probabilidad Libre CIMAT, Mexico*

A branching process with cousin merges

Nov. 2020 Seminario de Probabilidad Hispanohablante, Chile-Mexico*

March 2020 XXXV Coloquio VNL de Teoría de las Gráficas, Comb. y sus aplicaciones, CECEQ, Mexico

Jan. 2020 University of Bath Probability Seminar, UK *

Jan. 2020 Bristol University Combinatorics Seminar, UK *

Jan. 2020 Workshop on Spectra, Algorithms and Random Walks on Random Networks, CIRM France **

Jan. 2020 University of Uppsala Probability Seminar, CIRM Sweden *

Dec 2019 CLAPEM, UADY, Mexico**

Nov. 2019 2nd National Workshop on Biology and Probability, CCG-UNAM, Mexico.

Top-down or bottom-up: A tale of correspondances

March 2019 AMS Sectional Meeting, *Session on Random Discrete Structures* (Auburn), USA

Jan. 2019 *JMM Special Session on Enumerative combinatorics*, Baltimore, USA

The size of the giant component in the random d-process

Online, Sept. 2020 VirtUMA, Argentina (online conference)

June 2018 SIAM Discrete Math, *Minisym. on Random Discrete Processes*, (U. Colorado), USA

May 2018 Southeastern Probability Conference (Duke), USA

May 2018 Probability and Statistical Physics Seminar, Chicago, USA*

Apr. 2018 Atlanta Lectures Series in Combinatorics and Graph Theory XXI, (Emory), USA

Apr. 2018 AMS Sectional Meeting, *Session on Random Discrete Structures* (Vanderbilt), USA

Mar. 2018 Women in Probability, Early Career Peer Group, USA*

Dec. 2017 Oberwolfach Workshop *Network Models: Structure and Function*, Germany

Dec. 2017 XIII Symposium of Probability and Stochastic Processes (UNAM), Mexico

Teoremas de tiempos de paro: Ejemplos y una propuesta

May 2017 Seminario de Probabilidad y Procesos y estocásticos UNAM, Mexico*

Hubs in networks, Fate or fluke?

Oct. 2018 - Undergraduate Seminar at School of Math, Georgia Institute of Technology, USA

Sep. 2018 - Women in Mathematics in Northern Georgia Seminar, Georgia Institute of Technology, USA

Apr. 2017 - Coloquio del Instituto de Matemáticas UNAM, Mexico

High degree vertices in recursive trees

June 2017 27th Analysis of Algorithms conference (Princeton), USA

Depth of high degree vertices in recursive trees

Sep. 2016 AMS Sectional Meeting *Session on New Developments in Graphs and Hypergraphs* (Bowdoin), USA

May 2016 XIXe Colloque panquébécois des étudiants de l'ISM, Canada **

Dec. 2015 CMS Winter Meeting, *Session on Probability and Statistical Mechanics*, Canada

Arboles recursivos aleatorios, precedente de los modelos de conexión preferencial

Sep. 2015 Seminario de Probabilidad y Procesos Estocásticos UNAM, Mexico*

Blind men and a recursive tree

Mar. 2015 Séminaire Bourbackette (Université Paris-Diderot), France

High degree vertices in recursive trees

July 2015 17th International Conference on Random Structures and Algorithms, USA **

June 2015 CRM-PIMS Summer School in Probability (Montreal), Canada**

May 2015 Latinamerican Graph and Optimization Symposium, Brazil **

Dec. 2014 Probability Seminar, CIMAT, Mexico *

Modelos primitivos de redes sociales: Árboles aleatorios

Dec. 2014 II Reunión de Matemáticos Mexicanos en el Mundo (CIMAT), Mexico

Singularity of random matrices.

May 2014 IAS Women and Mathematics program (Princeton), USA **

Hitting time theorems for random matrices

Nov. 2014 XI Symposium of Probability and Stochastic Processes (CIMAT), Mexico

Matrices aleatorias discretas y su relación con las desigualdades de Littlewood y Offord

Aug. 2012 Stochastic Processes Seminar in IMATE, Mexico *

El teorema de Kesten sobre percolación de aristas en el plano

Aug. 2011 Probability Seminar, CIMAT, Mexico *

Nov. 2010 XLIII National Congress of SMM (Chiapas), Mexico **

(*) indicates a seminar talk, (**) indicates a contributed talk.

COMPLETE LIST OF MEETINGS AND CONFERENCES

- Sept. 2020 VirtUMA, Argentina (online conference) *
- Mar. 2020 XXV Coloquio VNL de Teoría de las Gráficas, Comb. y sus aplicaciones, CECEQ, Mexico *
- Jan. 2020 Workshop on Spectra, Algorithms and Random Walks on Random Networks, CIRM *
- Dec. 2019 XV CLAPEM, Mexico *
- Nov. 2019 XVII Bath-UNAM-CIMAT Workshop, Mexico
- Nov. 2019 2nd National Workshop on Biology and Probability, Mexico *
- Oct. 2019 52nd National Congress of the SMM, Mexico
- July 2019 LMS Probability Research School (Bath University), UK
- June 2019 MRC: Stochastic Spatial Models (Whispering Pines), USA
- Apr. 2019 14th Annual Workshop on Probabilistic Combinatorics, Barbados
- March 2019 AMS Sectional Meeting, *Session on Random Discrete Structures* (Auburn), USA
- Jan. 2019 Joint Mathematics Meeting, *Special Session on Enumerative Combinatorics*, Baltimore, USA*
- June 2018 SIAM Discrete Math, *Minisym. on Random Discrete Processes*, (U. Colorado), USA*
- May 2018 Southeastern Probability Conference (Duke), USA*
- Apr. 2018 Atlanta Lectures Series in Combinatorics and Graph Theory XXI, (Emory), USA*
- Apr. 2018 AMS Sectional Meeting, *Session on Random Discrete Structures* (Vanderbilt), USA*
- Apr. 2018 13th Annual Workshop on Probabilistic Combinatorics, Barbados
- Dec. 2017 Oberwolfach Workshop *Network Models: Structure and Function*, Germany*
- Dec. 2017 XIII Symposium of Probability and Stochastic Processes (UNAM), Mexico*
- June 2017 27th Analysis of Algorithms conference (Princeton), USA*
- Oct. 2016 Workshop in Analytic and Probabilistic Combinatorics (BIRS), Canada
- Sep. 2016 AMS Sectional Meeting, *Session on New Developments in Graphs and Hypergraphs* (Bowdoin), USA*
- May 2016 XIXe Colloque panquébécois des étudiants de l'ISM, Canada*
- Apr. 2016 11th Annual Workshop on Probabilistic Combinatorics, Barbados
- Dec. 2015 CMS Winter Meeting *Session on Probability and Statistical Mechanics*, Canada*

July 2015 17th International Conference on Random Structures and Algorithms, USA*
 June 2015 CRM-PIMS Summer School in Probability (Montreal), Canada*
 May 2015 Latinamerican Graph and Optimization Symposium, Brazil*
 Mar. 2015 Random Graphs Random Trees and Applications. Issac Newton Institute
 Feb. 2015 Spin Glasses, Random Graphs and Percolation (IHP), France
 Dec. 2014 II Reunión de Matemáticos Mexicanos en el Mundo (CIMAT), Mexico*
 Nov. 2014 XI Symposium of Probability and Stochastic Processes (CIMAT) Mexico*
 May 2014 IAS Women and Mathematics (Princeton), USA*
 Apr. 2014 9th Annual Workshop on Probabilistic Combinatorics, Barbados
 Jan. 2014 Workshop in Probability and Graphs. TU/e, Netherlands
 May 2013 Oberwolfach Seminar: Random Networks, Germany
 May 2013 Spring School on Threshold phenomena and random graphs (IHP), France
 Apr. 2013 8th Annual Workshop on Probabilistic Combinatorics, Barbados
 Apr. 2012 Extremal Graph Theory Workshop, Barbados
 Mar. 2012 7th Annual Workshop on Probabilistic Combinatorics, Barbados
 Jan. 2012 Summer School in Applied Mathematics (Valparaiso), Chile
 June 2011 35th Stochastic Processes and their Applications (Oaxaca), Mexico
 July 2011 3rd CANADAM, Canada
 Mar. 2011 Extremal Graph Theory Workshop, Barbados
 Nov. 2010 XLIII National Congress of SMM (Chiapas), Mexico*
 Nov. 2008 X Symposium of Probability and Stochastic Processes (CIMAT), Mexico

(*) indicates participation with a talk.