

Josué Corujo Rodríguez

Contact Information

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ArXiv arxiv.org/a/corujo_j_2.html

📄 scholar scholar.google.com/citations?user=3QdTmnoAAAAJ

Research Interests

Stochastic Processes: Markov processes, interacting particle systems, branching processes, long time convergence and mean-field limit, cutoff phenomenon

Quasi-stationary distributions : Moran (or Fleming – Viot) particle systems, convergence to the quasi-stationary distribution (QSD)

Population genetics : coalescent processes, structured populations

Random graphs : random graphs, multiplicative coalescent, random forests

Reliability theory : stochastic orders, aging classes, maintenance processes

Education

- 2018-2021 **Ph.D. in Mathematics.**
CEREMADE, Université Paris Dauphine, Paris, France
Title: *Multi-allelic Moran models and quasi stationary distributions*
Advisors: Djalil Chafaï (CEREMADE) and Simona Grusea (INSA-T)
- 2015-2017 **MSc in Mathematics – Probability and Statistics.**
Universidad de La Habana, Havana, Cuba
MSc Thesis: *Stochastic Comparisons between Two-Units Repairable Systems*
Advisor: José E. Valdés
- 2011-2015 **BSc in Mathematics.**
Universidad de La Habana, Havana, Cuba
BSc Thesis: *Analysis of Repairable Systems using Stochastic Orders and Aging Classes*
Advisor: José E. Valdés

Academic Appointments

- 2021– **Postdoc with Vlada Limic**
IRMA, Université de Strasbourg, Strasbourg, France

- 2018-2021 **Graduate Teaching Assistant**
Génie Mathématique et Modélisation, INSA-T, Toulouse, France
- 2017–2018 **Assistant Professor**
Universidad de La Habana, Havana, Cuba
- 2015–2017 **Junior Professor**
Universidad de La Habana, Havana, Cuba

Articles and preprints

Preprints

- 2021 **Corujo, J.**
On the spectrum of a neutral multi-allelic Moran model
(under minor revision in ALEA)
arXiv: 2010.08809 | HAL-02969874

Publications in peer reviewed journals

- 2022 Cloez, B. and **Corujo, J.**
Uniform in time propagation of chaos for a Moran model
Stochastic Process. Appl.
arXiv: 2107.10794 | HAL-03345583 | DOI: 10.1016/j.spa.2022.09.006
- 2021 **Corujo, J.**
Dynamics of a Fleming–Viot type particle system on the cycle graph
Stochastic Process. Appl. **136** (2021), 57–91.
arXiv: 2001.08000 | HAL-02447747 | DOI: 10.1016/j.spa.2021.02.001
- Corujo, J.** and Valdés, J. E.
Further results on stochastic orderings and aging classes in systems with age replacement
Probab. Eng. Inf. Sci. (2021), 1–30.
HAL | DOI: 10.1017/S0269964821000036
- 2018 **Corujo, J.**, Valdés, J. E. and Laria, J. C.
Stochastic Comparisons of Two-Units Markovian Repairable Systems
Commun. Stat. - Theory Methods **48** (2019), no. 23, 5820–5838.
arXiv: 1804.03098 | DOI: 10.1080/03610926.2018.1522349
- Rodríguez, W., Mazet, O., Grusea, S., Arredondo, A., **Corujo, J.**, Boitard, S. and Chikhi, L.
The IICR and the non-stationary structured coalescent: towards demographic inference with arbitrary changes in population structure
Heredity **116** (2016), 362–371.
HAL-02347366 | DOI: 10.1038/s41437-018-0148-0

Publications in peer reviewed conferences

- 2020 **Corujo, J.**, Flores-Peñaloza, D., Huemer, C., Pérez-Lantero, P. and Seara, C.
Matching Random Colored Points with Rectangles, In: Rahman M., Sadakane K.,

Sung WK. (eds) WALCOM: Algorithms and Computation. WALCOM 2020. Lecture Notes in Computer Science, vol 12049. Springer, Cham. DOI:10/gzm6

Scientific Presentations

- Oct. 2022 Séminaire de Probabilités y Statistique, IECL, Nancy, France
Talk: *A dynamical approach to spanning and surplus edges of random graphs*
- Oct. 2022 ITI IRMIA++ Day, Strasbourg, France
Talk: *Some recent advances in the multiplicative coalescent and near-critical random graphs*
- Oct. 2022 Journées Math Bio Santé 2022, Besançon, France
Poster: *IICR of structured populations with size change: strong and weak migration*
- Mar. 2022 Worskshop ANR QuAMProcs, Inria Paris, France
Talk: *Speed of convergence to the mean-field limit for a mutation-selection particle system*
- Dec. 2021 GDR MAMOMVI 2021, École polytechnique, France
Talk: *Propagation of chaos for a multi-allelic Moran model*
- Jun. 2021 Seminario de Probabilità, Analisi Stocastica e Statistica, Università di Pisa, Italy
Talk: *Spectrum and ergodicity of a neutral Moran model*
- Feb. 2021 Journée de doctorants en Probabilités, Institut de Mathématiques de Toulouse, France
Talk: *Spectrum of the neutral Moran model and its long time behaviour*
- Dec. 2020 Séminaire de Probabilité, Institut de Mathématiques de Toulouse, France
Talk: *On the spectrum of a neutral multi-allelic Moran model.*
- Nov. 2020 Séminaire de Probabilité et Statistique, Montpellier, France
Talk: *Spectral properties of a neutral multi-allelic Moran model*
- Mar. 2020 14th International Conference on Operations Research, Havana, Cuba
Talk: *Convergence of a Fleming–Viot type particle system on the cycle graph.*
- Feb. 2020 Séminaire “Mathématiques pour la Biologie”, Institut de Mathématiques de Toulouse, France
Talk: *On a multi-allelic Moran type model with mutation matrix corresponding to a cycle graph*
- Feb. 2020 Research school “EDP et probabilité pour la biologie” CIRM, Marseille, France
Poster: *Quantitative results on a multi-allelic Moran type model with mutation*
- Dec. 2019 Workshop on Models and Inference in Population Genetics, Warwick, UK.
Poster: *Quantitative results on a multi-allelic Moran type model with mutation*
- Nov. 2019 Journée des doctorant.e.s et post-doc, Institut de Mathématiques de Toulouse, France

- Talk: *Quantitative results on a multi-allelic Moran type model with mutation*
- Sep. 2019 GDR MAMOVI 2019, Université de Tours, France
Talk: *Quantitative results for a Moran type particle process in the cycle graph*
- Sep. 2019 Journée de rentrée, INSA de Toulouse, France
Talk: *Quantitative results for a Fleming-Viot type particle process in the cycle graph*
- Jul. 2019 Summer school "Data and Models in Ecology and Evolution", Institut Pascal, Université Paris-Saclay, France
Talk: *Quantitative results for a Moran type particle process in the cycle graph*
- Feb. 2019 Master Course from Cooperation project in Mathematics France – Cuba (lectures by Miraine Dávila Felipe) *Universidad de La Habana, Cuba*
Title : "Stochastic processes applied to Biology"
- Jul. 2017 10th International Conference on Mathematical Methods in Reliability, Grenoble, France
Talk: *Stochastic Comparisons of Two-Units Markovian Repairable Systems*

Honor and Awards

- 2022 *Prix solennels de thèse, from La Chancellerie des Universités de Paris (10 000 €)*
- 2021 *Postdoctoral Fellowship funded the Labex IRMIA, Strasbourg, France*
- 2015 *Scientific Merit Award from the Rector of the Universidad de La Habana*
- 2015 *Graduated Summa Cum Laude in Mathematics from Universidad de La Habana*

Computational Skills

MATLAB, , Python , Wolfram Mathematica, Maple , L^AT_EX, git

Languages

- Spanish Native Language
- English Professional Proficiency
- French Professional Proficiency