MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name *	Javier		
Family name *	Jarillo Díaz		
Sex *	Male	Date of Birth (dd/mm/yyyy) *	09/09/1989
Social Security, Passport, ID number	02293081G	Phone number	91 394 4431
URL Web	https://www.researchgate.net/profile/Javier-Jarillo		
Email Address	jjarillo@ucm.es		
Researcher's identification number	Open Researcher and Contributor ID (ORCID)	0000-0003-2337-0170	
	Researcher ID	Q-4591-2018	
	Scopus Author ID	56530555400	

* Mandatory

A.1. Current position

Job Title	Assistant Professor (Profesor Ayudante Doctor)		
Starting date	2022		
Institution	Universidad Complutense de Madrid		
Department/Center	Departamento de Estadística e Investigación Operativa / Facultad de Ciencias Matemáticas		
Country	Spain	Phone. number	91 394 4431
Key words	Stochastic Dynamics, Theoretical Ecology, Statistical Physics		

A.2. Previous positions

Period	Job Title / Name of Employer / Country / Interruption cause
2019-2022	Postdoctoral researcher / Université de Namur (UNamur) / Belgium / Start of new position
2014 - 2018	FPU predoctoral contract / Universidad Complutense de Madrid / Spain / End of contract and PhD Thesis defense

A.3. Education

Degree/Master/PhD	University/Country	Year
PhD in Physics (Programa Oficial de Doctorado en Física)	Universidad Complutense de Madrid (Spain)	2018
Master's degree in Fundamental Physics (Master en Física Fundamental)	Universidad Complutense de Madrid (Spain)	2013
Bachelor's degree in Physics, specialised in Fundamental Physics (Licenciado en Física Especialidad Física Fundamental)	Universidad Complutense de Madrid (Spain)	2012

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

Javier Jarillo Díaz (JJD) is an Associate Professor at Complutense University of Madrid (Spain) since 2022, at the Department of Statistics and Operational Research (Faculty of Mathematics). Previously, also at the Complutense University, JJD became Doctor in Physics in 2018, with a thesis entitled "Stochastic Dynamics in Physics and Biology" supervised by Prof. Francisco J. Cao-García.

During his current position as Associate Professor, JJD organizes courses on topics such as Stochastic Processes, Numerical Simulation Techniques, and Statistics. Furthermore, JJD's current research is mostly focused on the analysis of the spatially-extended stochastic

dynamics of ecological communities, following the research line that started during his PhD and continued during his postdoc; and further the dynamics of other biological systems.

His PhD thesis, funded throughout an FPU program, was focused on the dynamics of three systems for which the presence of stochastic fluctuations plays a major role. First, Brownian ratchet systems, small devices able to rectify the thermal stochastic fluctuations to produce a net motion. Second, small ligand proteins, which bind to larger biopolymers to regulate their biological function. And third, ecological systems of two species with synchronous population fluctuations. For completing this thesis, JJD collaborated with the group of Dr. Borja Ibarra at IMDEA Nanoscience (Madrid), and realized two international stays of 3 months at the Centre for Biodiversity Dynamics from the Norwegian University of Science and Technology (Trondheim, Norway), and at the BIOTEC Center from the Technische Universität Dresden (Dresden, Germany).

After completing his PhD, JJD started working as a postdoctoral researcher at the University of Namur, within the group of Prof. Frederik de Laender, with a contract funded by a project of the European Chemical Industry Council. This postdoc was focused on how multiple stressors can affect ecological community assemblages, and the influence of communities' composition and species interactions. During this postdoc, JJD also studied the stability of spatially extended communities, proposed some biomass-intensive indices for commonly studied stability components, and studied their scaling with the ecological and spatial scale.

Finally, in 2022 JJD became an Assistant Professor (Profesor Ayudante Doctor) at the Department of Statistics and Operational Research, at the Complutense University of Madrid. And from December 2022, alongside with Prof. Frederik de Laender (from the University of Namur), JJD co-supervises the PhD thesis of Arunima Sikder (defense expected in 2026). Her thesis aims to understand community response, resilience, and acclimation to global environmental change. JJD has also co-supervised 1 Master thesis (Aarón César del Rio Carhuachagua, "Dynamics in Ecology", Master in Theoretical Physics, UCM, 2022), an is currently supervising 3 Final Degree Projects in the Bachelor's Degrees of Mathematics, and of Mathematics and Statistics, UCM, defense expected in 2023.

During his research career, JJD have participated in some of the national meetings of Statistical Physics of the Spanish Royal Physics Society (FisEs Congresses), and of Biophysics of the Spanish Biophysical Society (SBE Congresses). Moreover, JJD have also assisted to different meetings of the SUSTAIN project of The Research Council of Norway, which aims to understand how ecosystems can be harvested sustainably; and the GETREAL project of the European Chemical Industry Council, which aims to understand how assemblages' composition influences the species sensitivity towards chemicals.

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications

AC: corresponding author. (nº x / nº y): position / total authors. If applicable, indicate the number of citations

1. Scientific paper. L. Buche; J. Spaak; **J. Jarillo**; F. De Laender. **(3/4)**. 2022. Niche differences, not fitness differences, explain predicted coexistence across ecological groups. Journal of Ecology. Wiley-Blackwell. 110-11, pp.2785-2796. ISSN 0022-0477. IF 9.9 (Scopus) (Q1).
2. Scientific paper. **J. Jarillo (AC)**; F.J. Cao; F. De Laender. **(1/3)**. 2022. Spatial and Ecological Scaling of Stability in Spatial Community Networks. Frontiers in Ecology and Evolution. Frontiers Media S.A.. 10, pp.861537. ISSN 2296-701X. Impact Factor:
3. Scientific paper. R. Crespo-Miguel; **J. Jarillo**; F.J. Cao-García. **(2/3)**. 2022. Scaling of population resilience with dispersal length and habitat size. Journal of Statistical Mechanics: Theory and Experiment. IOP Publishing. 2022-2, pp.023501.
4. Scientific paper. R. Crespo-Miguel; **J. Jarillo**; F.J. Cao-García. **(2/3)**. 2022. Dispersal-induced resilience to stochastic environmental fluctuations in populations with Allee effect. Physical Review E. American Physical Society. 105-1, pp.014413.

5. Scientific paper. A. Lee; **J. Jarillo**; B. Peeters; B. Hansen; F.J. Cao-García; B.-E. Saether; S. Engen. **(2/7)**. 2021. Population responses to harvesting in fluctuating environments Climate Research. Inter-Research Science Publisher. 86, pp.79-91.
6. Scientific paper. **J. Jarillo**; B.-E. Sæther; S. Engen; F. J. Cao-García. **(1/4)**. 2020. Spatial Scales of Population Synchrony in Predator-Prey Systems The American Naturalist. University of Chicago Press on behalf of the American Society of Naturalists. (United States). 195-2, pp.216-230. WOS (1), SCOPUS (2), Google Scholar (5)
7. Scientific paper. **Jarillo, J**; Villaluenga, JPG; Cao, FJ. **(1/3)**. 2018. Reliability of rectified transport: Coherence and reproducibility of transport by open-loop and feedback-controlled Brownian ratchets. Physical Review E. American Physical Society. 98-3, pp.032101. WOS (3), SCOPUS (3), Google Scholar (3)
8. Scientific paper. **Jarillo, J**; Sæther, B-E; Engen, S; Cao, FJ. **(1/4)**. 2018. Spatial scales of population synchrony of two competing species: effects of harvesting and strength of competition OIKOS. Blackwell Publishing Ltd. 127-10, pp.1459-1470. WOS (6), SCOPUS (6), Google Scholar (13)
9. Scientific paper. Morín, JA; Cerrón, F; **Jarillo, J**; et al; Ibarra, B. **(3/9)**. 2017. DNA synthesis determines the binding mode of the human mitochondrial single-stranded DNA-binding protein. Nucleic Acids Research. Oxford University Press. 45-12, pp.7237-7248. WOS (21), SCOPUS (21), Google Scholar (29)
10. Scientific paper. **Jarillo, J**; Morín, JA; Beltrán-Heredia, E; Villaluenga, JPG; Ibarra, B; Cao, FJ. **(1/6)**. 2017. Mechanics, thermodynamics, and kinetics of ligand binding to biopolymers. PLOS ONE. Public Library of Science. 12-4, pp.e0174830. WOS (7), SCOPUS (7), Google Scholar (7)
11. Scientific paper. **Jarillo, J**; Tangarife, T; Cao, FJ. **(1/3)**. 2016. Efficiency at maximum power of a discrete feedback ratchet Physical Review E. American Physical Society. 93-1, pp.012142. WOS (7), SCOPUS (6), Google Scholar (8)
12. Scientific paper. Cembranos, JAR; de la Cruz-Dombriz, A; **Jarillo, J**. **(3/3)**. 2015. Thermodynamic Analysis of Non-Linear Reissner-Nordström Black Holes. Universe. MDPI. 1-3, pp.412-421. WOS (5), SCOPUS (7), Google Scholar (8)
13. Scientific paper. Cembranos, JAR; de la Cruz-Dombriz, A; **Jarillo, J**. **(3/3)**. 2015. Reissner-Nordström Black Holes in the Inverse Electrodynamics Model. Journal of Cosmology and Astroparticle Physics. IOP Publishing. 2015-2, pp.042. WOS (12), SCOPUS (13), Google Scholar (15)
14. Scientific paper. R. Crespo-Miguel; **J. Jarillo**; F.J. Cao-García. **(2/3)**. Scaling of population resilience with dispersal length and habitat size Journal of Statistical Mechanics: Theory and Experiment. IOP Publishing. Accepted.
15. Review. **J. Jarillo**; B. Ibarra; F.J. Cao-García. **(1/3)**. 2021. DNA replication: In vitro single-molecule manipulation data analysis and models. Computational and Structural Biotechnology Journal. Elsevier. 19, pp.3765-3778.

C.2. Conferences and meetings

1. **J Jarillo**; F.J. Cao García; F. De Laender. Regional and community stability of ecological spatial networks. ECONET2021: V Symposium on ecological networks. Institut Mediterrani d´Estudis Avançats. 2021. Spain.
2. **J. Jarillo**; B.-E. Sæther; S. Engen; F.J. Cao García. Spatial scales of population synchrony in predator-prey systems. Vital Connections in Ecology 2021 (Virtual Annual Metting of the Ecological Society of America). Ecological Society of America. 2021.
3. **J. Jarillo**; J.A. Morín; E. Beltrán de Heredia; J.P.G Villaluenga; B. Ibarra; F.J. Cao-García. Mechanics, Thermodynamics, and Kinetics of Ligand Binding to Biopolymers. XVI Congreso de la Sociedad de Biofísica de España. Universidad de Sevilla. 2017. Spain.
4. **J. Jarillo**; B.-E. Saether; S. Engen; F.J. Cao García. Spatial scales of population synchrony in a two-competitors ecosystem. XXI Congreso de Física Estadística (FisEs'17). Universidad de Sevilla. 2017. Spain.
5. **J. Jarillo**; J.P.G. Villaluenga; E. Beltrán de Heredia; J.A: Morín; B. Ibarra; F.J. Cao García. Binding of small ligands to long polymers. Physics Meets Biology 2016. institute of Physics. 2016. United Kingdom.

6. **J. Jarillo**; B.-E. Sæther; S. Engen; F.J. Cao García. Effects of competition and harvesting on the population synchrony scale. V Simposio Internacional de Ciencias del Mar. Universidad de Alicante. 2016. Spain.
7. **J. Jarillo**; B.-E. Sæther; S. Engen; F.J. Cao García. Effects of harvesting and strength of competition on the spatial scales of population fluctuations of two competing species. Mathematical Perspectives in Biology. INSTITUTO DE CIENCIAS MATEMATICAS. 2016. Spain.
8. **J. Jarillo**; J.A. Morín; E. Beltrán de Heredia; J.P.G. Villaluenga; G.L. Ciesielski; L.S. Kaguni; B. Ibarra; F.J. Cao García. Modeling the binding of SSB proteins to ssDNA. XX Congreso de Física Estadística (FISES'15). Universidad de Extremadura. 2015. Spain.
9. **J. Jarillo**; J.A. Morín; E. Beltrán de Heredia; J.P.G. Villaluenga; B. Ibarra; F.J. Cao García. Modelization of binding of SSB proteins to ssDNA. XV Congreso de la Sociedad de Biofísica de España. Universidad de Granada. 2015. Spain.
10. **J. Jarillo**. Efficiency of feedback flashing ratchets. Jornadas de Doctorandos UCM. Universidad Complutense de Madrid. 2014. Spain.
11. J.A.R. Cembranos; Á. de la Cruz Dombriz; **J. Jarillo**. Reissner-Nordström Black Hole thermodynamics in extended U(1) theories. Modified Gravity Theories: Beyond Einstein's Legacy. Universidade de Lisboa. 2013. Portugal.

C.3. Research projects and contracts, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. Project. ECO50 – INCORPORATING SPATIAL AND SEASONAL VARIABILITY IN COMMUNITY SENSITIVITY INTO CHEMICAL RISK ASSESSMENT (GETREAL). R.B. Schäfer. (University of Koblenz-Landau). 01/04/2019-31/03/2022. 499.404 €.
   Personal Contribution: Development of Ecological Models to study the influence of Community Dynamics in the sensitivity to chemicals of species within macroinvertebrate assemblages.
2. Project. Mecánica, energética y dinámica de fluctuaciones de la replicación del ADN mitocondrial. FIS2015-67745-R. Ministerio de Economía y Competitividad (Plan Nacional de Investigación). F.J. Cao García. (Universidad Complutense de Madrid). 01/01/2016-31/12/2018. 30.000 €.
   Personal Contribution: Development of mathematical models to analyze the binding of small ligans to long biopolimers. Application of such models to analyze the binding of SSB proteins.
3. Project. Stochastic Dynamics in Ecology. Mecanismo Financiero del Espacio Económico Europeo (EEA Grants). F.J. Cao García. (Universidad Complutense de Madrid). 01/09/2014-30/11/2015. 59.620 €.
   Personal Contribution: Analysis of population synchrony of the population dynamics of two interacting species. Such a contribution was obtained thanks to the stay of J. Jarillo at the Centre for Biodiversity Dynamics (Trondheim, Norway).
4. Project. Física de los procesos fuera del equilibrio: retroalimentación, entropía e información. FIS2010-17440. Ministerio de Ciencia e Innovación. F.J. Cao García. (Universidad Complutense de Madrid). 01/01/2011-31/12/2014. 15.000 €.
   Personal Contribution: Analysis of the dynamics of feedback-controlled Brownian ratchets.

C.5. Stays in public or private R&D centres

1. Université de Namur (Belgium). 2019-2022. 2.5 years. Postdoc.
2. Technische Universität Dresden (TU Dresden). Biotechnology Center (BIOTEC). Germany. Dresden. 03/06/2016-06/09/2016. 95 days. Doctorate.
3. Norwegian University of Science and Technology. Centre for Biodiversity Dynamics. Norway. Trondheim. 30/01/2015-07/05/2015. 97 days. Doctorate.