

**CURRICULUM VITAE (CVA)****Part A. PERSONAL INFORMATION**

CV date

30/01/2022

First name	Virginia		
Family name	Domínguez García	Sign: Virginia Domínguez-García	
Gender (*)	Female	Date of birth	30/04/1984
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Open Researcher and Contributor ID (ORCID) (*)	0000-0002-4591-4186		

(*) Mandatory

A.1. Current position

Position	Postdoctoral Fellow in theoretical ecology		
Initial date	04/10/2021		
Institution	Spanish National Research Council (CSIC)		
Department/Centre	Integrative ecology	Estación biológica de Doñana (EBD)	
Country	Spain	Phone	610651878
Keywords	Ecological interactions; Ecological networks; Complex systems; Complex dynamics; Stability;		

A.2. Previous positions

06/10/2021 - now	Postdoctoral researcher at EBD-CSIC. Seville, Spain.
01/10/2019 - 31/05/2021	Postdoctoral researcher (UM & CNRS). Institut des Sciences de l'Evolution de Montpellier. (Group: Biodicee, Dr. Sonia Kéfi). Montpellier. France.
15/03/2017 - 20/09/2019	Postdoctoral researcher (UM). Institut des Sciences de l'Evolution de Montpellier. (Group: Biodicee, Dr. Sonia Kéfi). Montpellier. France.
04/02/2016 – 03/02/2017	Postdoctoral fellow and teaching assistant . University of Granada. (Group: Statistical physics and complex systems group, Prof. Miguel. A. Muñoz). Granada. Spain.
01/09/2010 – 23/01/2015	PhD fellow and teaching assistant. Grant: Proyectos de Excelencia de la Junta de Andalucía, from Junta de Andalucía. Code:P09-FQM-4682. (Group: Statistical physics and complex systems group, Advisor: prof. Miguel. A. Muñoz). University of Granada. Spain

A.3. Education

PhD, Graduate Degree	University/Country	Year
PhD Doctora (programa oficial de doctorado en Física y Matemáticas)	University of Granada / Spain	2015
MSc Máster Universitario en Física y Matemáticas FisMat	University of Granada / Spain	2012
BSc Physics, Licenciada en Física	University of Seville / Spain	2010

Part B. CV SUMMARY

I'm a postdoctoral researcher **interested in** studying the dynamics of complex systems of interacting agents, and how these dynamics are affected by the topology of the interactions (how the agents connect to each other) and by changes in the external environment (perturbations), focussing on ecological systems. Starting with a BsC in physics, I continued

with an MsC in mathematics and physics, specializing in biomathematics. I obtained my PhD (Suma Cum Laude and International Doctor mention) in 2015 at Granada University, advised by Prof. Miguel Ángel Muñoz (project P09-FQM-4682), in the statistical physics group. My PhD investigates different topological features of biological and, specially, ecological networks. In mutualistic communities I found that degree distribution heterogeneity and the consequent negative degree-degree correlations can explain the nested structure of empirical networks (**PlosOne 2013**; 44 citations WOS) and proposed a method to maximally pack mutualistic matrices of ecological interactions and generate a ranking of the vulnerability of species (**SciRep 2015**; 35 c. WOS). Regarding foodwebs, I investigated how trophic coherence (the existence of well defined trophic levels) could explain the increased “lineal stability” of more complex communities, contributing to the diversity-stability debate (**PNAS 2014**; 66 c. WOS) and I also showed that it is not necessary to invoke stability in order to explain the lack of closed loops in foodwebs, it can be parsimoniously explained by considering that these networks are organized to transport biomass (**SciRep 2014**; 11 c. WOS). In 2016 (after almost a year delay in the definitive concession of the grant by the administration) I did a short postdoctoral fellowship in the same group (PIF-III FASE), where I was the main responsible for my research, showing that trophic coherence and phylogeny (shared partners between related species) could explain the intervality of foodwebs without the need to use a hidden niche dimension (**Chaos 2016**; 5 c. WOS).

In 2017 I moved to Montpellier, where I worked as a postdoctoral researcher (project ARSENIC) to study how complex ecological networks respond to antropogenic stress, under the supervision of Dr. Sonia Kéfi, in the Biodicee Team, inside the "Institut des Sciences de L'evolución de Montpellier". In particular, I explored in what different manners ecological stability has been quantified and identified the main challenges to do so (**Eco Lett 2019**; 54 c. WOS) and I quantified the ecological stability of complex foodwebs in multiple ways simultaneously, showing the redundancy of some stability metrics (**PNAS 2019**; 25 c. WOS) and published the code to do so. Still in the same team but inside a different research project (ECONET) I studied how considering multiple types of interactions simultaneously is crucial to correctly determine the importance of animals for the survival of empirical ecological communities formed by plants and animals (in preparation, **publication C.1.10**). Currently I am a modeling researcher within a world-class group in ecological interactions, at the Doñana Biological Station (EBD-CSIC) in Seville, inside project OBSERV, where under the supervision of Dr. Bartomeus I develop scenarios of pollinators biodiversity and ecosystem services provision. As a result of my research trajectory I have a solid mathematical and computational background and a sound experience in modeling complex natural behavior, developing new models, programming them and contrasting the results against empirical data. In addition, I always contributed to the development of the projects with calculations, discussions, and writing. My publication record is in Section C.1 of the CVA, and some of my participations in conferences appear in section C.2. As for **research projects**, I have participated in 9 project/fellowships (1 international). The **funding** I have obtained through competitive grants for recruitment (for myself) and for stays abroad amounts to ~ €136,000. Regarding my **contributions to society**, it has been mainly to research end-users by publishing my codes (github.com/ domgarvir). I have also contributed recently in **science outreach** events, such as the 11F activities (women and girls in science). My **mentoring activities** involve the supervision of a MsC thesis (2021). Regarding **institutional responsibilities**, I was a member of the Student Delegation, and Junta de Facultad during my BsC, and member of the Consejo de departamento during my PhD. As for **scientific responsibilities** I regularly contribute by reviewing articles (9) and recently I'm currently co-editing a special issue on “Stability Across Spatial and Temporal Scales” in *Frontiers in ecology and evolution*.

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

C.1. Publications

9 JCR papers in high-impact journals (Q1), **5 JCR in first decile** (D1): 4 in multidisciplinary sciences and 1 in ecology. **H-index=7**. 7 papers as leading author, 1 as corresponding author. Accumulating 270 JCR citations (431 in Google Scholar) and including different

topics but focusses on the use of complex networks to understand ecological systems. In particular, my most fruitful area of study has been ecological stability (2 PNAS and 1 Ecology Letters, accumulating 145 citations), the core of my research. (*) indicates equal contributions as first authors. (CA) indicates corresponding author.

1. P. Villa Martín, **V. Domínguez-García** and MA. Muñoz. Intermittent percolation and the scale-free distribution of vegetation clusters. *New Journal of Physics* 22, 083014. 2020. doi: 10.1088/1367-2630/ab9f6e. Times cited:(WOS=1, Google Scholar=2)
2. **V. Domínguez-García (CA)**, V. Dakos and S. Kéfi. Unveiling dimensions of stability in complex ecological networks. *PNAS* 116(51), 25714–25720. 2019. doi:10.1073/pnas.1904470116. Times cited: (WOS=25, GS=35).
3. **V. Domínguez-García***, S. Kéfi*, I. Donohue, C. Fontaine, E. Thébault and V. Dakos. Advancing our understanding of ecological stability. *Ecology Letters* 22(9),1349–1356. 2019 doi:10.1111/ele.13340. Times cited: (WOS=54, GS=83).
4. **V. Domínguez-García**, S. Jonhson and MA. Muñoz. Interspecificity and Coherence in Complex Networks. *Chaos* 26(6):065308. 2016. doi:10.1063/1.4953163. Times cited: (WOS=5, GS=8).
5. S.R.G. Balestra, Said Hamad, A.R. Ruíz-Salvador, **V. Domínguez-García**, P.J. Merkling, D. Dubbledam, and S. Calero. Understanding Nanopore Window Distortions in the Reversible Molecular Valve Zeolite RHO. *Chemistry of Materials* 27(16), 5657–5667, 2015. doi: 10.1021/acs.chemmater.5b02103. Times cited: (WOS=29, GS=33).
6. **V. Domínguez-García** and M.A. Muñoz. Ranking Species in Mutualistic Networks. *Scientific Reports* 5, 8182. 2015. doi:10.1038/srep08182. Times cited:(WOS=35, GS=50).
7. **V. Domínguez-García**, S. Pigolotti and M.A. Inherent Directionality Explains the Lack of Feedback Loops in Empirical Networks. Muñoz. *Scientific Reports* 5, 8182. 2014. doi:10.1038/srep07497. Times cited:(WOS=11, GS=16).
8. **V. Domínguez-García***, S. Jonhson*, L. Donneti and M.A. Muñoz. Trophic Coherence Determines Foodweb Stability. *PNAS* 111(50), 17923–17928. 2014. doi:10.1073/pnas.1409077111. Times cited: (WOS=66, GS=114).
9. **V. Domínguez-García** and M.A. Muñoz. Factors Determining Nestedness in Complex Networks. S. Jonhson, *PLoS ONE* 8(9):e74025. 2013. doi:10.1371/journal.pone.0074025. Times cited:(WOS=44, GS=95).
10. (preprint) **V. Domínguez-García (CA)** and Sonia Kéfi. The structure and robustness of tripartite ecological networks. *BioRxiv*. 2021. doi:10.1101/2021.10.05.463170. Times cited: (WOS=0, GS=0).

C.2. Congresses

I have presented 12 oral and 4 poster contributions in international/European congresses and meetings. Below, I list those concerning the most relevant oral contributions.

1. **V. Domínguez-García** and Sonia Kéfi. “*The structure and robustness of tripartite ecological networks*”. *Complex Networks 2021*, Madrid, Spain, 2021.
2. **V. Domínguez-García**, Vasilis Dakos and Sonia Kéfi. “*Dimensions of stability in complex ecological networks*”. *Complex networks 2019*, Lisbon, Portugal, 2019.
3. **V. Domínguez-García**, Vasilis Dakos and Sonia Kéfi. “*Measuring the stability of ecological networks*”. *GFÖ Annual Meeting*, Münster, Germany, 2019.
4. **V. Domínguez-García**, Vasilis Dakos and Sonia Kéfi. “*How complex is the stability of complex ecological communities?*”. *SFE International conference on ecological sciences*, Rennes, France. 2018.
5. **V. Domínguez-García** and Miguel A. Muñoz. “*Ranking Species in Mutualistic Networks*”. *Lake Como School on Quantitative Laws II*, Como, Italy. 2016.
6. **V. Domínguez-García** et al. “*The Role of Trophic Coherence in Foodweb stability*”. *XX Congreso de Física Estadística FisEs*, Badajoz. 2015.

7. **V. Domínguez-García** and Miguel A. Muñoz. “*MusRank, Ranking Species in Mutualistic Networks*”. Net-Works 2015 International Conference, Granada. 2015.
8. **V. Domínguez-García** et al . “*Trophic Coherence determines Foodweb Stability*”. 10th AIMS Conference on Dynamical Systems, Differential Equations and Application, Madrid. 2014.

C.3. Research projects

I have participated in 1 European, 4 national and 2 regional (Andalusia) projects. I also add here some competitive concurrence research contracts in which I am the Principal Investigator (PI).

1. Research project: OBServ: (850.000€) Open library of pollinator Biodiversity and ecosystem Services scenarios. EBD-CSIC. (PI: I. Bartomeus). Contracted researcher and team member. Funded by: Biodiversa Belmont Forum
2. Research project: EcoNet ANR-18-CE02-0010-01 - Advanced statistical modelling of ecological networks (578.300€). University of Montpellier. (PI: C. Matias). Contracted researcher and team member. Funded by ANR -The French National Research Agency (France).
3. Research project: FIS2017-84256-P (157.300 €): Frontiers in statistical physics and complex systems: from basic principles to the last developments in condensed matter, neuroscience, and system biology. (PI: MA Muñoz). Funded by Ministerio de Economía, Industria y Competitividad (Spain).
4. Research project: ARSENIC ANR-14-CE02-0012 - Adaptation and Resilience of Spatial Ecological Networks to human-Induced Changes (498.681€). University of Montpellier. (PI:F. Massol and N. Loeuille). Contracted researcher and team member. Funded by ANR – The French National Research Agency (France).
5. Research fellowship: PIF-III FASE Contratación de doctores vinculado a PI de excelencia 2009. (43.140€). University of Granada. (PI: V. Domínguez-García). Contracted researcher and team member. Funded by Junta de Andalucía (Spain). **(PI)**.
6. Research project: FIS2013-43201-P (175.450 €): Statistical physics of complex systems: from basic principles to the frontiers of condensed matter physics, ecology and neuroscience. Universidad de Granada (PI: J. Marro and MA. Muñoz). Team member. Funded by Ministerio de Economía, Industria y Competitividad (Spain).
7. Research fellowship: P09-FQM-4682 (90.000€) Incentivos para la formación del personal investigador adscrito a proyectos de investigación de excelencia 2009. Funded by Junta de Andalucía (Spain). 2010-2014. 4-year predoctoral fellowship (competitive concurrence) at University of Granada **(PI)**
8. Research project: P09-FQM-4682 (266.414 €): Complex networks and self-organization in ecology, biodiversity and neuro-science. Universidad de Granada (PI: MÁ. Muñoz). Contracted researcher and team member. Funded by Junta de Andalucía (Spain).
9. Mobility fellowship: CEI BioTic Grant for international research stays. (3.000€) 3 months at Bristol University. Funded by University of Granada. (competitive). **(PI)**

C.4. Contrats, technological or transfer merits

a) Open access published software.

Currently I publish all the code used in my publications in public repositories in accordance with the FAIR guidelines (github.com/domgarvir)

b) Supervision of MSc thesis: Student: Ismaël Lajaaiti, **Title**: The Effects of Non-Trophic Interactions on Ecological Stability. **Master**: master 2 internship of the Ecole Normale Supérieure de Lyon. **Institution**: University of Montpellier. **Year**: 2021.

c) Reviewing activities

External reviewer for 10 journals: Journal of Animal Ecology(2), Journal of Ecology(2), Environmental Modeling and Assessment(1), PeerJ(1), ICES Journal of Marine Science(1), Scientific Reports(3).

d) Knowledge transfer:

I have contributed in science outreach events, such as the **Feria de la Ciencia**, **International day of women and girls in science** and **Science Talks** in pubs.

