

## Personal data

Full name: Javier Muñoz García  
Date of birth and place of birth: July 24, 1977. Seville (Spain)  
Address: Departamento de Matemáticas, Universidad Carlos III de Madrid  
Av. de la Universidad 30, 28911 Leganés (Madrid), SPAIN  
Tel.: +34 686450306  
E-mail: [javiermunozgarcia@gmail.com](mailto:javiermunozgarcia@gmail.com)  
Webpage: <http://gisc.uc3m.es/~javier>

## Current position

From 09.2012                      Assistant Professor                      Universidad Carlos III de Madrid

## Education

03.2007	Ph.D. in Physics of Complex Systems	Universidad Carlos III de Madrid
06.2005	M.Sc. degree in Applied Mathematics	Universidad Carlos III de Madrid
10.2002	B.Sc. degree in Fundamental Physics	Universidad de Sevilla

## Previous positions and fellowships

02.2011 - 09.2011	Postdoctoral fellow	Juan de la Cierva Fellowship, Departamento de Matemáticas, Universidad Carlos III de Madrid
01.2009 - 01.2011	Postdoctoral researcher	Systems Biology Ireland, University College of Dublin
12.2007 - 01.2009	Postdoctoral researcher	School of Mathematical Sciences, University College of Dublin
05.2007 - 11.2007	Postdoctoral researcher	Departamento de Matemáticas, Facultad de Ciencias Químicas, Universidad de Castilla-La Mancha
01.2002 - 12.2006	Predocctoral fellow	F.P.U. Fellowship, Departamento de Matemáticas, Universidad Carlos III de Madrid
01.2001 - 06.2001	Undergraduate fellow	Collaboration in research, Facultad de Física, Universidad de Sevilla

## Other awards and fellowships

- Listed among the 9% top researchers of Universidad Carlos III de Madrid, 2012-2013
- Three years postdoctoral research fellowship (JAE-Doc) by the Spanish National Research Council at the Instituto de Ciencia de Materiales de Madrid (ICMM), 2010
- Four years postdoctoral research fellowship by the Spanish National Distance Education University (UNED) at the Sciences Faculty, 2010
- SK-SSW'2005 - UNESCO (ROSTE) FELLOWSHIP (short-term fellowship to attend the 5-th Stranski-Kaishev Surface Science Workshop), 2005

## Research interests

- Statistical and condensed matter physics
- Mathematical and theoretical biology
- Nonlinear dynamics and pattern formation

## Teaching experience

- Lecturer in Numerical Analysis, Calculus, and Linear Algebra in different engineering grades during the years 2004/2005, 2005/2006, 2011/2012, and 2012/2013
- Coordinator of Lineal Algebra for the years 2011/2012 and 2012/2013
- Advisor of 2 master's thesis, 2 supervised works in departments and 2 professional training in companies
- Member of 2 master dissertation committees

## Other research information

- **Total number of citations:** 382 (Scholar Google), 280 (Web of Science)
- **H-index:** 11 (Scholar Google), 10 (Web of Science)
- Participation as a member in 5 national (in Spain and Ireland), 3 regional, and 3 university (one as principal researcher) funded research projects
- Over 31 regular contributions (12 oral, 19 poster) to national and international conferences, workshops, and seminars (4 invited talks)
- Referee for over 10 JCR-indexed journals such as Physical Review Letters, Physical Review B, Physical Review E, Biophysical Journal, and Applied Surface Science
- Member of the Nonlinear and Statistical Physics group of the Spanish Physical Society and the Biochemical Society

## Management experience in R&D

- Organizer and webmaster of the X workshop GISC'13, Madrid (2013) ([http://gisc.uc3m.es/~javier/X\\_GISC\\_workshop/main](http://gisc.uc3m.es/~javier/X_GISC_workshop/main))
- Member of the organizing committee and webmaster of the "International Conference of Nanoscale Pattern Formation at Surfaces" (Spain) 2011 (<http://gisc.uc3m.es/~nanopatterns2011/index.html>)
- Organizer of the weekly meetings for the Interdisciplinary Group of Complex Systems at the Universidad Carlos III de Madrid (Spain) from 2004 to 2007

## List of publications

### I. Books (1)

1. **J. Muñoz-García**, "La Erosión de Superficies: Invariancia de Escala y Formación de Patrones". LAP LAMBERT Academic Publishing GmbH & Co. KG, Germany, 2011, ISBN: 03844337881

### II. Book chapters (1)

1. **J. Muñoz-García**, L. Vázquez, R. Cuerno, J.A. Sánchez-García, M. Castro, and R. Gago, "Self-organized surface nanopatterning by ion beam sputtering". Chapter 10 in "Lecture Notes on Nanoscale Science and Technology 5: Towards Functional Nanomaterials". Ed. Z. Wang (Springer, New York, 2009), ISBN: 0387777164

### III. Articles in JCR-indexed journals (20)

1. J.-H. Kim, J.-S. Kim, **J. Muñoz-García**, and R. Cuerno, "Role of nonlinearities and initial prepatterned surfaces in nanobead formation by ion-beam bombardment of Au(001): Experiments and theory". *Physical Review B* 87, 085438 (2013)
2. M. Castro, R. Gago, L. Vázquez, **J. Muñoz-García**, and R. Cuerno, "Stress-induced solid flow drives surface nanopatterning of silicon by ion-beam irradiation". *Physical Review B* 86, 214107 (2012)
3. **J. Muñoz-García**, R. Gago, R. Cuerno, J. A. Sánchez-García, A. Redondo-Cubero, M. Castro, and L. Vázquez, "Independence of interrupted coarsening on initial system order: Ion-beam nanopatterning of amorphous versus crystalline silicon targets". *Journal of Physics: Condensed Matter* 24, 375302 (2012)
4. L. K. Nguyen<sup>#</sup>, **J. Muñoz-García**<sup>#</sup>, H. Maccaria, A. Ciechanover, W. Kolch, and B. N. Kholodenko, "Switches, Excitable Responses and Oscillations in the Ring1B/Bmi1 Ubiquitination System". *PLoS Computational Biology* 7, e1002317 (2011)  
<sup>#</sup>These authors contributed equally to this work
5. L. Cerone, **J. Muñoz-García**, and Z. Neufeld, "Integrating Multiple Signals into Cell Decisions by Networks of Protein Modification Cycles". *Biophysical Journal* 101, 1590-1596 (2011)
6. R. Cuerno, M. Castro, **J. Muñoz-García**, R. Gago, and L. Vázquez, "Nanoscale pattern formation at surfaces under ion-beam sputtering: A perspective from continuum models". *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* 269, 894-900 (2011)
7. **J. Muñoz-García**, Z. Neufeld, and C. Torney, "Nutrient exposure of chemotactic organisms in small-scale turbulent flows". *New Journal of Physics* 12, 103043 (2010)
8. **J. Muñoz-García** and B. N. Kholodenko, "Signalling over a distance: gradient patterns and phosphorylation waves within single cells". *Biochemical Society Transactions* 38, 1235-1241 (2010)
9. **J. Muñoz-García**, B. N. Kholodenko, and Z. Neufeld, "Formation of intracellular concentration landscapes by multisite protein modification". *Biophysical Journal* 99, 59-66 (2010)
10. **J. Muñoz-García**, R. Gago, L. Vázquez, J.A. Sánchez-García, and R. Cuerno, "Observation and modeling of interrupted pattern coarsening: surface nanostructuring by ion erosion". *Physical Review Letters* 104, 026101 (2010)  
Selected for the Virtual Journal of Nanoscale Science and Technology 21, Issue 4 (2010)
11. **J. Muñoz-García** and Z. Neufeld, "Aggregation of chemotactic organisms in a differential flow". *Physical Review E* 80, 061902 (2009)  
Selected for the Virtual Journal of Biological Physics Research 18, Issue 12 (2009)

12. **J. Muñoz-García**, Z. Neufeld, and B. N. Kholodenko, "Positional information generated by spatially distributed signaling cascades". *PLoS Computational Biology* 5, e1000330 (2009)
13. **J. Muñoz-García**, R. Cuerno, and M. Castro, "Coupling of morphology to surface transport in ion-beam irradiated surfaces: Normal incidence and rotating targets". *Journal of Physics: Condensed Matter* 21, 224020 (2009)
14. **J. Muñoz-García**, R. Cuerno, and M. Castro, "Coupling of morphology to surface transport in ion-beam irradiated surfaces: Oblique incidence". *Physical Review B* 78, 205408 (2008)
15. R. Cuerno, M. Castro, **J. Muñoz-García**, R. Gago, and L. Vázquez, "Universal nonequilibrium phenomena at sub-micrometric surfaces and interfaces". *European Physical Journal: Special Topics* 146, 427 (2007)
16. M. Castro, **J. Muñoz-García**, R. Cuerno, M. García-Hernández, and L. Vázquez, "Generic equations for pattern formation in evolving interfaces". *New Journal of Physics* 9, 102 (2007)  
Selected for the *Virtual Journal of Nanoscale Science and Technology* 16, Issue 2 (2007)
17. R. Gago, L. Vázquez, O. Platevin, T.H. Metzger, **J. Muñoz-García**, R. Cuerno, and M. Castro, "Order enhancement and coarsening of self-organized silicon nanodot patterns induced by ion-beam sputtering". *Applied Physics Letters* 89, 233101 (2006)
18. **J. Muñoz-García**, R. Cuerno, and M. Castro, "Short-range stationary patterns and long-range disorder in an evolution equation for one-dimensional interfaces". *Physical Review E* (Rapid Comm.) 74, 050103(R) (2006)
19. **J. Muñoz-García**, M. Castro, and R. Cuerno, "Nonlinear ripple dynamics on amorphous surfaces patterned by ion beam sputtering". *Physical Review Letters* 96, 086101 (2006)  
Selected for the *Virtual Journal of Nanoscale Science and Technology* 13, Issue 10 (2006)
20. M. Feix, A. K. Hartman, R. Kree, **J. Muñoz-García**, and R. Cuerno, "Influence of collision cascade statistics on pattern formation of ion-sputtered surfaces". *Physical Review B* 71, 125407 (2005)

#### IV. Refereed proceedings (2)

1. M. Castro, R. Gago, L. Vázquez, **J. Muñoz-García**, and R. Cuerno, "Energy dependence of the ripple wavelength for ion-beam sputtering of silicon: Experiments and theory". *AIP Conference Proceedings* 1525, 380-385 (2013)
2. R. Cuerno, **J. Muñoz-García**, M. Castro, R. Gago, and L. Vázquez, "Interplay between morphology and surface transport in nanopatterns produced by ion-beam sputtering". *Material Research Society Symposium Proceedings* 1059-KK01-06 (2008)

#### V. Other publications (1)

1. R. Cuerno, **J. Muñoz-García**, M. Castro, R. Gago, and L. Vázquez, "Models of ripple dynamics on nano-sand (Modelos de dinámica de ondulaciones en nanoarena)". *Journal of the Spanish Physical Society* (Revista Española de Física) 21, Number 1, 65 (2007)