

Curriculum Vitae

Personal information

Last names: *Corral Cano* First name: *Álvaro*
Birth: *18 April 1968, Barcelona, Spain* Gender: *Male*
Nationality: *Spanish*
ID number: *33 963203 T* Marital status: *Married, 3 children*
Current position: *Senior researcher* Starting date: *31 Dec. 2007*

Institution: *Centre de Recerca Matemàtica*
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Education

- **Degree in Physics**, *Universitat de Barcelona, Facultat de Física, July 1991.*
- **PhD in Physics**, *Universitat de Barcelona, Facultat de Física, September 1997.*
Mark: *Cum laude unanimously.* Advisors: *Alberto Díaz Guilera and Conrado Juan Pérez Vicente.* Title: *Complex Behavior in Slowly Driven Dynamical Systems: Sandpiles, Earthquakes, Biological Oscillators...*

Academic Trajectory

Position	Center	Institution	Starting	Ending
Assistant lecturer PT	Fac. Ciències	Univ. Autònoma de Barcelona	Feb 2011	
Senior researcher		C. Recerca Matemàtica	Jan 2008	
Visiting professor	Fac. Ciències	Univ. Autònoma de Barcelona	Nov 2006	Dec 2007
Ramón y Cajal researcher	Fac. Ciències	Univ. Autònoma de Barcelona	Nov 2001	Nov 2006
Assistant lecturer FT	Fac. Ciències	Univ. Autònoma de Barcelona	Sep 2001	Nov 2001
Assistant lecturer FT	ETSECCPB (Caminos)	Univ. Politècnica de Catalunya	Sep 2000	Ago 2001
Assistant lecturer FT	EUETIB (Industriales)	Escola Industrial de Barcelona	Sep 1999	Ago 2000
Assistant research professor	Niels Bohr Institute	Univ. of Copenhagen	Oct 1997	Sep 1999
Research scholar MEC	Fac. Física	Univ. de Barcelona	Jan 1994	Sep 1997
Research scholar UAB	Fac. Ciències	Univ. Autònoma de Barcelona	Jan 1992	Dec 1993
Assistant lecturer PT	Fac. Ciències	Univ. Autònoma de Barcelona	Sep 1991	Dec 1991

FT = full time, PT = part time

ETSECCPB = Escola Tècnica Superior d'Enginyeria de Camins, Canals i Ports de Barcelona

EUETIB = Escola Universitària d'Enginyeria Tècnica Industrial de Barcelona

Publications¹

29 articles published in journals indexed at the *Web of Science*. The most relevant ones follow:

1. A. Corral, C.J. Pérez, A. Díaz-Guilera and A. Arenas
Physical Review Letters 74, 118-121 (1995). Impact factor: 6.297 Number of citations: 66
2. A. Corral, C.J. Pérez, A. Díaz-Guilera and A. Arenas
Physical Review Letters 75, 3697-3700 (1995). Impact factor: 6.297 Number of citations: 20
3. K. Christensen, A. Corral, V. Frette, J. Feder and T. Jøssang
Physical Review Letters 77, 107-110 (1996). Impact factor: 6.477 Number of citations: 131
4. C.J. Pérez, A. Corral, A. Díaz-Guilera, K. Christensen and A. Arenas,
Int. Journal of Modern Physics B 10, 1111-1151 (1996). Impact factor: 1.108 Citations: 27
5. A. Corral and A. Díaz-Guilera,
Physical Review E 55, 2434-2445 (1997). Impact factor: 2.233 Number of citations: 17
6. A. Corral, C.J. Pérez and A. Díaz-Guilera,
Physical Review Letters 78, 1492-1495 (1997). Impact factor: 6.140 Number of citations: 17
7. M. Boguñá and A. Corral,
Physical Review Letters 78, 4950-4953 (1997). Impact factor: 6.140 Number of citations: 31
8. A. Corral and M. Paczuski,
Physical Review Letters 83, 572-575 (1999). Impact factor: 6.095 Number of citations: 32
9. M. Paczuski, K. E. Bassler and A. Corral
Physical Review Letters 84, 3185-3188 (2000). Impact factor: 6.462 Number of citations: 57
Reprinted in: D. Challet, M. Marsili and Y.-C. Zhang,
Minority Games: Interacting Agents in Financial Markets (Oxford University Press, Oxford, 2005)
10. A. Corral
Physical Review E 68, 035102 (2003). Impact factor: 2.202 Number of citations: 80
11. A. Corral
Physical Review Letters 92, 108501 (2004). Impact factor: 7.218 Number of citations: 169
12. A. Corral
Physica A 340, 590-597 (2004). Impact factor: 1.369 Number of citations: 33
13. A. Corral
Nonlinear Processes in Geophysics 12, 89-100 (2005). Impact factor: 1.464 Number of citations: 17
14. A. Corral
Physical Review E 71, 017101 (2005). Impact factor: 2.418 Number of citations: 26
15. A. Corral
Physical Review Letters 95, 028501 (2005). Impact factor: 7.489 Number of citations: 28
16. A. Corral
Physical Review Letters 95, 159801 (2005) Impact factor: 7.489 Number of citations: 20
17. A. Corral
Physical Review Letters 97, 178501 (2006). Impact factor: 7.072. Number of citations: 22
18. A. Corral and K. Christensen
Physical Review Letters 96, 109801 (2006). Impact factor: 7.072. Number of citations: 16
19. A. Corral, A. Ossó and J. E. Llebot
Nature Physics 6, 693-696 (2010). Impact factor: 15.491. Number of citations: 0

In addition, 2 more articles in non-indexed journals, 4 book chapters (ISBN's: 978-3-540-35373-7, 978-84-95166-68-5, 978-0-415-45082-9, and 978-90-481-9509-1), and 5 preprints .

¹Available at <https://www.crm.cat/acorral/Publicacions.htm>

Impact factors and citations (following the *Web of Science*)

- Accumulated impact factor of the papers according to *Journal of Citation Reports*: **124.5**.
- Mean impact factor per paper: **4.4**.
- Total number of citations: **869**.
- Average number of citations per paper: **29.4**.
- *H* parameter: **17** (17 papers with 17 or more citations).
- Cited in at least **11** textbooks and monographs (not in *Web of Science*).

Participation in research projects²

Title of the project: *Desarrollo de tecnologías avanzadas para la obtención de nuevos materiales, MAT92-0501*.
Funding agency: CICYT (MEC), from: 1992 up to: 1994 Leading researcher: María Teresa Mora Aznar

Title of the project: *Propiedades dinámicas de redes de osciladores neuronales y de modelos con criticalidad auto-organizada, PB92-0863*.
Funding agency: SEUI (MEC), from: 1993 up to: 1995 Leading researcher: Alberto Díaz Guilera

Title of the project: *Propiedades dinámicas de modelos reticulares de osciladores acoplados PB94-0897*.
Funding agency: SEUI (MEC), from: 1995 up to: 1997 Leading researcher: Conrado Juan Pérez Vicente

Title of the project: *Fractal Structures and Self-Organization, FMRXCT980183*.
Funding agency: U.E., from: 1997 up to: 1999 Leading researcher: Luciano Pietronero

Title of the project: *Grup de Recerca Consolidat de Física Estadística, 2001SGR-00186*
Funding agency: SGR (DURSI), from: 2001 up to: 2005 Leading researcher: José Casas Vázquez

Termodinámica, Dinámica y Mecánica Estadística de Sistemas Complejos, BFM2003-06033.
Funding agency: DGI (MEC), from: 2004 up to: 2006 Leading researcher: David Jou i Mirabent

Title of the project: *Grup de Recerca Consolidat de Física Estadística, 2005SGR-0087*
Funding agency: SGR (DURSI), from: 2005 up to: 2009 Leading researcher: José Casas Vázquez

Title of the project: *Ecuaciones de estado y de transporte en sistemas complejos, FIS2006-12296-C02-01*
Funding agency: DGI (MEC), from: 2007 up to: 2009 Leading researcher: David Jou i Mirabent

Title of the project: *Consolider Ingenio Mathematica (i-MATH)*
Funding agency: MEC (Ingenio 2010), from: 2006 up to: 2011 Leading researcher: M. A. López-Cerdá

Title of the project: *Complejidad, criticalidad y leyes de escala en la ocurrencia de huracanes, FIS2007-29088-E*.
Funding agency: MEC (Ingenio 2010), from: 2008 up to: 2008 Leading researcher: Josep Enric Llebot

Title of the project: *Grup de Recerca Consolidat de Física Estadística, 2009SGR-164*
Funding agency: SGR (DURSI), from: 2009 up to: 2011 Leading researcher: David Jou i Mirabent

²MEC = Ministerio de Educación y Ciencia, Spain, DURSI=Departament d'Universitats, Recerca i Societat de la Informació, Catalonia, Spain

Leadership of research projects³

Title of the project: *Complejidad y leyes de escala en fenómenos meteorológicos, desastres naturales y lenguaje humano, FIS2009-09508*

Funding agency: DGI (MEC), from: 2010 up to: 2012

Leading researcher: Álvaro Corral Cano

Budget: 43 560 euros.

Invited seminars³

- Title: *Synchronization and Routes to Self-Organized Criticality in Biological Oscillators and Earthquakes.*
Department of Physics, Jožef Stefan Institute, Ljubljana, Slovenia Date: September 1996
- Title: *Lévy Flights and Long-Tailed Trapping Times in Self-Organized Critical Granular Piles.*
Department of Physics, Jožef Stefan Institute, Ljubljana, Slovenia Date: August 1997
- Title: *Terratrèmols i Tsunamis: Fenomenologia i Riscos (together with J. E. Llebot)*
Museu de la Ciència i de la Tècnica de Catalunya, Terrassa, Barcelona, Spain Date: 24 February 2005
For the series: *Física per a Tothom al mNACTEC*
- Title: *Scaling Laws and Correlations in Seismicity.*
Department of Environmental Sciences, 2nd University of Naples, Caserta, Italy Date: 15 March 2005
- Title: *La Física d'un Terratrèmol i la Física de Molts Terratrèmols.*
Facultat de Ciències, Universitat Autònoma de Barcelona, Spain Date: 18 February 2006
For the series: *Els Dissabtes de la Física 2005.06 (sexta edició)*
- Title: *La física i els desastres naturals.*
Sala de Conferències de Caixa Sabadell, Barcelona, Spain Date: 7 March 2006
For the series: *Física de cada dia (obra social Caixa Sabadell)*

³MEC = Ministerio de Educación y Ciencia, Spain

Invited talks at conferences⁴

- Title: **Scaling, universality, clustering and paradoxical behavior in the spatio-temporal structure of seismicity**
Conference: *European Geosciences Union, 1st General Assembly*. Nice, France. Date: April 2004
- Title: **Scaling Laws, Renormalization-Group Transformations, and Correlations in the Recurrence Times of Earthquakes**
Conference: *Models of Earthquakes: Physics Approaches*. Calcutta, India. Date: December 2005
- Title: **Scaling law for earthquake waiting times and invariance under renormalization-group transformations**
Conference: *ESF exploratory workshop on crackling noise*. Torino, Italy. Date: May 2006
- Title: **Universal Earthquake-Occurrence Jumps, Correlations with Time, and Anomalous Diffusion**
Conference: *Workshop on complex systems*. Barcelona, Spain. Date: October 2006
- Title: **Scaling in the Temporal Occurrence of Earthquakes and Relations with Fracture Phenomena**
Conference: *Acoustic Emission and Critical Phenomena: From Structural Mechanics to Geophysics*. Catania, Italy. Date: June 2007
- Title: **Scale invariant clustering in avalanche-evolving systems and in human language**
Conference: *Computational Philosophy: Lessons from Simple Models*. Copenhagen, Denmark. Date: October 2007
- Title: **Scaling of clustered space-time-magnitude structure of seismicity**
Conference: *American Geophysical Union Fall Meeting*. San Francisco, USA. Date: December 2007
- Title: **Clustering and self-similarity in the dynamics of earthquakes, forest fires, and other avalanche-evolving processes**
Conference: *Modelling Geophysical Systems by Statistical Mechanics Methods*
Erice, Italia Date: April 2008
- Title: **Extreme-event recurrence as ordinary events in natural hazards and word usage**
Conference: *Extreme Events: Theory, Observations, Modeling, and Prediction (EXEV08)*
Mallorca, Spain Date: November 2008
- Title: **Power Laws and Scaling Laws in Earthquake Occurrence**
Conference: *Grains, Friction and Faults, XI Course, International School on Complexity*
Erice, Italia Date: July 2009
- Title: **Hurricanes: Earthquakes in the Ocean-Atmosphere Interface?**
Conference: *Workshop on Fluctuations in Materials Properties: Physics, Geoscience and Environment*
Courmayeur, Aosta, Italia Date: January 2010
- Title: **Power Law and Scaling in the Energy of Tropical Cyclones**⁵
Conference: *American Geophysical Union Fall Meeting*
San Francisco, USA Date: December 2010
- Title: **Power Law and Scaling in the Energy of Tropical Cyclones**
Conference: *European Geosciences Union General Assembly*
Vienna, Austria Date: April 2011

⁴Most recent presentations available at <https://www.crm.cat/acorral/Comunicacio.htm>

⁵Selected as "favorite talk in the regular sessions" (out of more than 5000 talks (!)) in the blog *Climate Etc.*, by Judith Curry, <http://judithcurry.com/2010/12/17/agu-fall-meeting-part-ii/>

Other achievements

Committees

- Chairman of the scientific committee of the *Catalan Network of Complex Systems*, complexitat.cat, since 2010.
- Member of the scientific committee of the workshop *Modelling Geophysical Systems by Statistical Mechanics Methods*, Erice, Italy, April-May 2008.
- Member of the scientific committee of the international course *Mathematical Models in Seismology*, *SeismMath IP* since 2011.

Referee of scientific journals

- Referee of the journals: *Physical Review Letters*, *Physical Review E*, *Nature Physics*, *Journal of Physics A*, *Physics Letters A*, *Nonlinear Processes in Geophysics*, *Geophysical Research Letters*, *Geophysical Journal International*, *Tectonophysics*, *Physics of Earth and Planetary Interiors*, *Europhysics Letters*, *Computers and Geoscience*, *Pure and Applied Geophysics*, *European Physical Journal B*, *Arabian Journal of Science and Engineering*, *Journal of Seismology*, *Journal of Geophysical Research*, *Journal of Applied Statistics*, *Computational Statistics and Data Analysis*, *Journal of Physics D: Applied Physics*, *Atmospheric Chemistry and Physics*, *Journal of Earth System Science*.

Impact of the research in the media⁶:

- Physical Review Focus:
D. Castelvichi, *Magnet Theory Meets Earthquakes*, 15 Jul 2005,
<http://focus.aps.org/story/v16/st2>
- Popular science journal:
A. Conti, *Le Scienze*, April 2004, p. 20-21 (Italian edition of Scientific American);
The simple law of hurricanes decrees a stormy future, *New Scientist*, 17 July 2010, p. 14.
- Press: ABC (Cataluña) 3 Mar 2004, p. 36; *El Periódico* 3 Mar 2004, p. 40; *El Punt* 3 Mar 2004, p. 23; p. 23, ABC (national) 5 Mar 2004, p. 53; *Avui* 6 Mar 2004, p. 42; several local newspapers (Córdoba, Girona, Sabadell, etc.); *Gaceta Universitaria* 29 Mar 2004, p. 14; *El Punt*, 9 Jul 2005, p. 14; *Metro Directe*, 11 Jul 2005, p. 5; *El País*, 29 Nov 2006, p. 55.
- Magazines: *El Temps* 23 Mar 2004, p. 69; *El Temps* 19 Jul 2005, p. 45; *El Temps* 23 Ago 2005, p. 30-32; *Quo*, 1 Sep 2005, p. 26; *Época* 15 Aug 2010, p. 58.
- This has lead to 18 appearances of the Universitat Autònoma de Barcelona in the press, 7 of them in the headlines.
- Pages on the *Internet* (international):
http://gcmd.nasa.gov/Resources/pointers/weblights_archive/weblights_July2005.html
<http://earthobservatory.nasa.gov/Newsroom/MediaAlerts/2005/2005070819484.html>
<http://www.eccenet.org/News/BrusselBriefs/BB7-July05.htm>
and at least 20 more pages.
- Radio (interviews or participation in programs): *A Bona Hora*, *Ràdio Sabadell* (3 Mar 2004); *Catalunya en Plural*, *COM Ràdio* (3 Mar 2004); *La Lletre Petita*, *Ona Catalana* (16 Mar 2004); *El Busca-Raons*, *SER Catalunya* (8 Apr 2004); *L'Observatori*, *Ràdio 4 - RNE Catalunya* (21 Apr 2004); *A Bona Hora*, *Ràdio Sabadell* (15 Jul 2005); *El Rincón Verde*, *Ràdio Barberà* (4 Jan 2006); *A Bona Hora*, *Ràdio Sabadell* (15 Feb 2007).
- Television: *Catalunya Avui*, *TVE-2 Catalunya* (2 Mar 2004), *Punt Omega*, *Canal 33* (26 Apr 2004), *Mossega la Poma*, *Comtal TV*.
- Article for *UAB Divulg@* (popular science web page of the Universitat Autònoma de Barcelona):
<http://www.uab.es/uabdivulga/afons/2004/terratremols0304.htm>

⁶Some of these articles and programs are available at <http://www.crm.es/acorral/desfasadas/prensa.html>