CV: Samuel Johnson

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Current address: Department of Mathematics
Imperial College London
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Interests: Nonequilibrium Physics, Complex Systems and Networks, Neuroscience, Ecology

Research positions

May 2012-2014	Marie Curie Research Fellow, Department of Mathematics, Imperial College London, UK.
May 2011-2012	Postdoctoral Researcher, Department of Physics, University of Oxford, UK. Supported by the Oxford Centre for Integrative Systems Biology.
May 2007-2011	FPDI pre-doc research contract, University of Granada, Spain. Teaching: Statistical Physics (2009-10) and Nonlinear Physics (2011).
Overseas visits:	Autonomous University of Mexico (*UNAM*), November-December 2007; University of La Plata, Argentina, June-July 2010; University of Oxford, UK, July-August 2010.
Summer 2005:	Austrian Academy of Sciences research contract, Space Research Institute (*IWF*), Graz, Austria.

Qualifications and skills

PhD in Physics:	"Interplay between Topology and Dynamics in Neural Systems." U. Granada, 2011. Supervisors: Joaquín J. Torres and Joaquín Marro.
MSc in Biomathematics:	(*FisyMat: Máster en Biomatemáticas;* 2-year course) U. Granada, 2008. Master's Thesis: "Neural Network Topology and Dynamical Task Performance."
Teaching diploma:	(*Certificado de Aptitud Pedagógica;* 6-month practical course) U. Granada, 2007.
Degree in Physics:	(*Licenciado en Física;* 5-year degree) University of Granada, 2006.
Languages:	English (mother tongue), Spanish (native proficiency), French (fluent), some German and Italian.
Computers:	C/C++, FORTRAN, IDL. Large clusters: *Nix* and *Proteus* (University of Granada) and *GFC* (University of La Plata).

Other work experience

Summer 2006:	Centre Director for Ardmore Language Schools at Ellesmere College, Ellesmere, UK.
Summers 2002-04:	Teacher of English as a Foreign Language for Ardmore Language Schools at various centres in the UK.
2000-06:	Freelance translator, interpreter and subtitler.

Submitted work

1. The meaning of niche: Cause or consequence of food-web structure?, S. Johnson, V. Domínguez-García and Miguel A. Muñoz

Peer-reviewed journals

2. Robust short-term memory without synaptic learning, S. Johnson, J. Marro, and J.J. Torres, *PLoS ONE* 8(1): e50276 (2013)
3. Enhancing neural network performance via assortativity, S. de Franciscis, S. Johnson, and J.J. Torres, *Physical Review E,* **83**, 036114 (2011)
4. Entropic origin of disassortativity in complex networks, S. Johnson, J.J. Torres, J. Marro, and M.A. Muñoz, *Physical Review Letters* **104**, 108702 (2010)
5. Evolving networks and the development of neural systems, S. Johnson, J. Marro, and J.J. Torres, *Journal of Statistical Mechanics* (2010) P03003
6. Excitable networks: Nonequilibrium criticality and optimum topology, J.J. Torres, S. de Franciscis, S. Johnson, and J. Marro, *International Journal of Bifurcation and Chaos* **20**, 869-75 (2010)
7. Nonlinear preferential rewiring in fixed-size networks as a diffusion process, S. Johnson, J.J. Torres, and J. Marro, *Physical Review E* **79**, 050104(R) (2009)
8. Functional optimization in complex excitable networks, S. Johnson., J. Marro, and J.J. Torres, *Europhysics Letters* **83,** 46006 (2008)

Peer-reviewed conference proceedings

9. Nonequilibrium behavior in neural networks: criticality and optimal performance, J. J. Torres, S. Johnson, J. F. Mejias, S. de Franciscis, and J. Marro, in "Advances in Cognitive Neurodynamics (II)", p. 597-603, Springer, 2011.
10. Shannon entropy and degree correlations in complex networks, S. Johnson, J.J. Torres, J. Marro, and M.A. Muñoz, "Nonlinear Systems and Wavelet Analysis", p. 31-5, WSEAS Press, 2010.
11. Development of neural network structure with biological mechanisms, S. Johnson, J. Marro, J.F. Mejias, and J.J. Torres, *Lecture Notes in Computer Science* **5517**, 228 (2009)
12. Switching dynamics of neural systems in the presence of multiplicative colored noise, J.F. Mejias, J.J. Torres, S. Johnson, and H.J. Kappen, *Lecture Notes in Computer Science* **5517**, 17 (2009)

Other scientific publications

13. Why are so many networks disassortative? S. Johnson, J.J. Torres, J. Marro, and M.A. Muñoz, in 11th Granada Seminar: Foundations of Nonequilibrium Statistical Physics, *AIP Conf. Proc.*, in press (2011)
14. Network topology and dynamical task performance, S. Johnson, J. Marro, and J.J. Torres, *AIP Conf. Proc.* **1091,** 280 (2009)
15. Excitable networks: non-equilibrium criticality and optimum topology, J.J. Torres, S. de Franciscis, S. Johnson, and J. Marro, in Modelling and Computation on Complex Networks and Related Topics, "Net-Works 2008", 185-92 (2008)
16. Topology induced instabilities in neural nets with activity-dependent synapses, S. Johnson, J. Marro, and J. J. Torres, in New Trends and Tools in Complex Networks, "Net-Works 2007", 59-71 (2007)
17. The effect of topology on neural networks with unstable memories, S. Johnson, J. Marro, and J.J. Torres, *AIP Conf. Proc.* **887,** 261 (2007)

Honours, awards and other things

Maths:	First Prize *I Premio Euler de Matemáticas*, University of Granada, 2008.
Essays:	Occasional contributor to the magazines *American Atheist* and *Trazos Turbios*.
Referee for:	*Phys. Rev. Lett., Phys. Rev. E, Physica A, Phil. Trans. R. Soc. A, PLoS One, Scientific Reports, Neurocomputing, IEEE T. Neural Networ., IJPEDS, Geoderma.*