

# CURRICULUM VITAE

Name: **Miguel Angel Fuentes**

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## Present Work

*Theoretical studies on complex systems, **Santa Fe Institute** , USA.*

*Theory of anomalous fluctuations, **CAB** (Bariloche Atomic Center), Argentina.*

## Degrees

**Master Sc. in Physics, Instituto Balseiro**, Universidad Nacional de Cuyo and Argentine Atomic Energy Commission, San Carlos de Bariloche, Río Negro, Argentina.

**Ph. D. in Physics, Instituto Balseiro**, Argentina and **Institut Non Linéaire de Nice**, France.

## Publications

1- *Stochastic escape processes from a non-symmetric potential normal form II: the marginal case*, Manuel O. Cáceres, Miguel A. Fuentes and Carlos E. Budde. J. Phys. A: Math. Gen. Vol 30, 1997.

2- *Convergence in reaction-diffusion systems: an information theory approach*, Miguel A. Fuentes, Marcelo N. Kuperman and Horacio S. Wio. Phys. A. 272, 1999.

3- *Cellular automata and epidemiological models with spatial dependence*, Miguel A. Fuentes and Marcelo N. Kuperman. Phys. A, 267, 1999.

4- *Stochastic escape processes from a non-symmetric potential normal form III: extended explosive systems*, Miguel A. Fuentes and Manuel O. Cáceres. J. Phys. A: Math. Gen. Vol 32, 1999.

- 5- *Wenckebach Rhythms in a FitzHugh model with defects*, Miguel A. Fuentes and Horacio S. Wio. Phys. A, 286, 2000.
- 6- *Enhancement of Stochastic Resonance: The Role of Non-Gaussian Noises*, Miguel A. Fuentes, Raul Toral and Horacio S. Wio. Phys. A. 295, 2001.
- 7- *Propagation and interaction of cellular fronts in a closed system*, Miguel A. Fuentes, Marcelo N. Kuperman and P. De Kepper. J. Phys. Chem. A, 105, 27, 2001.
- 8- *Experimental evidence of stochastic resonance without tuning due to non Gaussian noises*, F. J. Castro, M. N. Kuperman, M. A. Fuentes and H. S. Wio. Phys. Rev. E, vol. 64, 2001.
- 9- *Interaction of charged particles with surface plasmons in cylindrical channels in solids*, Miguel A. Fuentes and Nestor Arista. Phys. Rev. B, 63, 16, 2001.
- 10- *Effective Markovian approximation for Non Gaussian Noises: a path integral approach*, M. A. Fuentes, Raúl Toral and Horacio S. Wio. Phys. A. 303, 91-104, 2002.
- 11- *Dynamics effects induced by long range activation in a nonequilibrium reaction-diffusion system*, M. A. Fuentes, M. N. Kuperman, J. Boissonade, E. Dulos, F. Gauffre, P. De Kepper. Physical Review E 66 056205, 2002.
- 12- *"Fuzzy" stochastic resonance: robustness against noise tuning due to non gaussian noises*, M. A. Fuentes, Claudio Tessone and Horacio S. Wio and R. Toral. Fluctuation and Noise Letters, L365, 2003.
- 13- *Nonlocal Interaction Effects on Pattern Formation in Population Dynamics*, M. A. Fuentes, M. N. Kuperman and V. M. Kenkre. Physical Review Letters Vol. 91, 15, 1581041, 2003.
- 14- *Analytic Considerations in the Study of Spatial Patterns Arising from Non-local Interaction Effects in Population Dynamics*, M. A. Fuentes, M. N. Kuperman and V. M. Kenkre. J. Phys. Chem. B, 108 (29), 10505 -10508, 2004.
- 15- *Multiple Peaked Polaron in Soft Potentials*, M. A. Fuentes, G. Kalosakas, Ø. Rasmussen, A. R. Bishop, V. M. Kenkre and Y. B. Gaididei. Phys. Rev. E 70, 025601R, 2004.
- 16- *Stochastic Resonance: influence of a  $f^{-k}$  noise spectrum*, Miguel A. Fuentes and Horacio S. Wio. European Physical Journal B, Volume 52, Number 2, 2005.

- 17- *Living in an Irrational society: Wealth Distribution with Correlations between Risk and Expected Profits*, Miguel A. Fuentes, M. Kuperman and J. R. Iglesias. *Physica A*, 371, 2006.
- 18- *Influence of global correlations on central limit theorems*, John A. Marsh, Miguel A. Fuentes, Luis G. Moyano and Constantino Tsallis. *Physica A*, 372, 2006.
- 19- *Noise-induced phase transitions: effects of the noises statistics and spectrum*, Roberto R. Deza, Horacio S. Wio and Miguel A. Fuentes. Accepted for publication AIP, 2007.
- 20- *The evolution of developmental patterning under genetic duplication constraints*, M. A. Fuentes and D. C. Krakauer. Accepted for publication J. R. Soc. Interface, 2007.
- 21- *Computing the non-linear anomalous diffusion equation from first principles*, M. A. Fuentes and Manuel O. Cáceres. Accepted for publication PLA, 2007.
- 22- *Distinguishing Noise from Chaos*, O. A. Rosso, H. A. Larrondo, M. T. Martin, A. Plastino and M. A. Fuentes. Accepted for publication PRL, 2007.

### **Work in progress**

- 23- *On the emergences of neutrality, diversity symmetry breaking and coexistence in ecosystems*, Juan E. Keymer, Miguel A. Fuentes and Pablo A. Marquet.
- 24- *Developmental autonomy and somatic niche construction during cellular division and differentiation*, Anya K. Bershad, Miguel A. Fuentes, and David C. Krakauer.

### **Thesis**

Master: *Relaxation in Saddle-Node type Bifurcations for Scalar Fields*, in the Statistical Physics Group of Instituto Balseiro at Centro Atómico Bariloche, under the direction of Dr. M.O. Cáceres.

Ph. D.: *Reaction Diffusion System and Stochastic Resonance*, in the Statistical Physics Group of Instituto Balseiro at Centro Atómico Bariloche, under the direction of Dr. H. Wio (Centro Atómico Bariloche ) and Dr. V. Krinsky (Intitut Non Lineaire de Nice , France).

## Stages

1999, Université Pierre et Marie Curie. Paris, France.

1999, Laboratoire d'analyse numérique, Université Lyon I, France: *Study of Dissipative Structures in Catalytic Systems*. Under the direction of Dr. Vitaly A. Volpert.

2000, Institut Non Linéaire de Nice, Nice, France: *Patterns in cultured brain capillary endothelial cells*. Under the direction of Dr. Valentin Krinsky.

2001, Institut Non Linéaire de Nice, Nice, France: *Signals propagation in 2D cultures of cardiac cells*. Under the direction of Dr. Valentin Krinsky.

2001, Centre de Recherche Paul Pascal, Bordeaux, France: *Propagation and interaction of cellular fronts in a closed systems*. Under the direction of Dr. Patrick De Kepper.

2002, Consortium of Americas for Interdisciplinary Sciences, New Mexico, USA: *Pattern Formation in Biological Models*. Under the direction of Dr. V. M. Kenkre.

2003, Los Alamos National Laboratory, New Mexico, USA: *Polaron in Soft Potentials*. Under the direction of Dr. A. Bishop.

## Languages

Spanish, English, French.

## Programming Languages

Fortran, C, C++.

Miguel Angel Fuentes

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