

**LIST OF PUBLICATIONS**  
of Maurizio Serva

**Papers published in journals:**

109. M. Serva and M. Pasquini, *Dialects of Madagascar*. PLoS ONE **5(10)**, (2020), e0240170, (28 pages).
108. M. Serva, *Random Motion of Light-Speed Particles*. Journal of Statistical Physics **181**, (2020), 1603-1608.
107. M. Pasquini and M. Serva, *Stability of meanings versus rate of replacement of words: an experimental test*. Journal of Quantitative Linguistics , (on line 6 Aug 2019, 22 pages).
106. M. Pasquini and M. Serva, *Horizontal transfers are a primary aspect of languages evolution*. Europhysics Letters **125**, (2019), 38002, (9 pages)
105. M. Serva, D. Vergni and A. Vulpiani, *Diffusione e reazione: dal moto Browniano alla diffusione delle epidemie*. Rivista dell'Unione Matematica Italiana. Matematica, Cultura e Società **3**, (2018), 93-102.
104. M. Serva, D. Vergni, D. Volchenkov and A. Vulpiani, *Recovering geography from a matrix of genetic distances*. Europhysics Letters **118**, (2017), 48003, (7 pages).
103. M. Serva, D. Vergni and A. Vulpiani, *Linear and anomalous front propagation in systems with non-Gaussian diffusion: The importance of tails*. Physical Review E **94**, (2016), 012141, (6 pages).
102. F. Petroni and M. Serva, *Observability of market daily volatility*. Physica A **444**, (2016), 838-842.
101. M. Serva, *A stochastic model for the interbreeding of two populations continuously sharing the same habitat*. Bulletin of Mathematical Biology **77**, (2015), 2354-2365.
100. M. L. de Almeida, E. L. Albuquerque, U. L. Fulco and M. Serva, *A percolation system with extremely long range connections and node dilution*. Physica A **416**, (2014), 273-278.
99. M. Serva, *Asymptotic properties of a bold random walk*. Physical Review E **90**, (2014), 022121, (4 pages).
98. M. Serva, *Exactly solvable tight-binding model on the RAN: fractal energy spectrum and Bose-Einstein condensation*. Journal of Statistical Mechanics: Theory and Experiment, (2014), P08018, (19 pages).
97. I.M.N de Oliveira, F.A.B.F de Moura, M. L. Lyra and M. Serva, *Bose-Einstein condensation in diamond Hierarchical lattices*, Physical Review E **89**, (2014), 052133, (7 pages).
96. J. F. Fontanari and M. Serva, *Effect of migration in a diffusion model for template coexistence in protocells*. Bulletin of Mathematical Biology **76**, (2014), 654-672.
95. M. B. da Silva, P. C. Da Silva, A. Macedo-Filho, M. L. Lyra, E. L. Albuquerque, M. Serva and U. L. Fulco, *Non-universality of the absorbing-state phase-transition in a linear chain with power-law diluted long-range connections*. Physica A **404**, (2014), 271-278.
94. J. F. Fontanari and M. Serva, *Nonlinear group survival in Kimura's model for the evolution of altruism*. Mathematical Biosciences **249**, (2014), 18-26.
93. M. Serva, U. L. Fulco and E. L. Albuquerque, *Exact solutions and infinite-order phase transitions for a general class of Ising models on the regularized Apollonian network*. Journal of Statistical Mechanics: Theory and Experiment, (2014), P01010, (23 pages).
92. M. Serva, *Scaling behavior for random walks with memory of the largest distance from the origin*. Physical Review E **88**, (2013), 052141, (6 pages).
91. M. Serva, U. L. Fulco and E. L. Albuquerque, *Ising models on the regularized Apollonian network*. Physical Review E **88**, (2013), 042823 (5 pages).
90. M. Serva, F. Petroni, D. Volchenkov and S. Wichmann, *From Indonesia to Madagascar: in search of the origins of the Malagasy language*. Indian Ocean Review of Science and Technology (2013), 1, (13 pages).

89. I. N. de Oliveira, T. B. dos Santos, F. A. B. F. de Moura, M. L. Lyra and M. Serva, *Critical behavior of the ideal-gas Bose-Einstein condensation in the Apollonian network*. Physical Review E **88**, (2013), 022139, (7 pages).
88. J. F. Fontanari and M. Serva, *Solvable model for template coexistence in protocells*. Europhysics Letters **101**, (2013), 38006, (6 pages).
87. L. F. da Silva, R. N. Costa Filho, A. R. Cunha, A. Macedo-Filho, M. Serva, U. L. Fulco and E. L. Albuquerque, *Critical properties of the SIS model dynamics on the Apollonian network*. Journal of Statistical Mechanics: Theory and Experiment, (2013), P05003, (12 pages).
86. M. B. da Silva, A. Macedo-Filho, E. L. Albuquerque, M. Serva, M. L. Lyra and U. L. Fulco, *Critical Properties of a Super-diffusive Epidemic Process*. Physical Review E **87**, (2013), 062108, (6 pages).
85. M. Serva, F. Petroni, D. Volchenkov and S. Wichmann, *Malagasy dialects and the peopling of Madagascar*. Journal of the Royal Society Interface **9**, (2012), 54-67.
84. M. Serva, *The settlement of Madagascar: what dialects and languages can tell us*. PLoS ONE **7(2)**, (2012), e30666, (8 pages).
83. A. G. M. Neves and M. Serva, *Extremely rare interbreeding events can explain Neandertal DNA in living humans*. PLoS ONE **7(10)**, (2012), e47076, (10 pages).
82. F. Petroni and M. Serva, *Automated world stability and language phylogeny*. Journal of Quantitative Linguistics **18**, (2011), 53-62.
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80. M. Serva, *Exact and approximate solutions for the dilute Ising model*. Physica A **390**, (2011), 2443-2451.
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78. F. Petroni and M. Serva, *Lexical evolution rates derived from automated stability measures*. Journal of Statistical Mechanics: Theory and Experiment, (2010), P03015, (10 pages).
77. M. Serva, *Magnetization densities as replica parameters: the dilute ferromagnet*. Physica A **389**, (2010), 2700-2707.
76. L. Prignano and M. Serva, *Genealogical trees from genetic distances*. The European Physical Journal B, Condensed Matter Physics **69**, (2009), 455-463.
75. F. Petroni, L. Prignano and M. Serva, *Family trees: languages and genetics*. Markov Processes and Related Fields **15**, (2009), 417-440.
74. M. Serva and F. Petroni, *Indo-European languages tree by Levenshtein distance*. Europhysics Letters **81**, (2008), 68005 (5 pages).
73. C. M. Nascimento, H. B. N. Júnior, H. D. Jennings, M. Serva, Iram Gleria and G. M. Viswanathan, *Multi-fractality and heteroscedastic dynamics: An application to time series analysis*. Europhysics Letters **81**, (2008), 18002 (4 pages).
72. F. Petroni and M. Serva, *Language distance and tree reconstruction*. Journal of Statistical Mechanics: Theory and Experiment, (2008), P08012, (15 pages).
71. A. Figueiredo, R. Matsushita, S. daSilva, M. Serva, G. M. Viswanathan, C. Nascimento and I. M. Glèria, *The Lévy sections theorem: An application to econophysics*. Physica A **386**, (2007), 756-759.
70. H.B. Nascimento Jr., U.L. Fulco, M L. Lyra, M. Serva and G.M. Viswanathan, *Porque as bolsas de valores quebram: a origem das caudas grossas nas distribuições de retornos - Why stock markets crash: the origin of fat tailed distributions of returns*. Revista Brasileira de Ensino da Física **29**, (2007), 341-346.
69. M. Serva, *Mitochondrial DNA replacement versus nuclear DNA persistence*. Journal of Statistical Mechanics: Theory and Experiment, (2006), P10013, (8 pages).

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66. M. Serva, *On the genealogy of populations: trees, branches and offspring*. *Journal of Statistical Mechanics: Theory and Experiment*, (2005), P07011, (19 pages).
65. L. Berardi and M. Serva, *Time and foreign exchange markets*. *Physica A* **353**, (2005), 403-412.
64. M. Serva, *Lack of self averaging in family trees*. *Physica A* **332**, (2004), 387-393.
63. F. Petroni and M. Serva, *Real prices from spot foreign exchange market*. *Physica A* **344**, (2004), 194-197.
62. U. L. Fulco, M. L. Lyra, F. Petroni, M. Serva and G. M. Viswanathan, *A stochastic model for multifractal behavior of stock prices*. *International Journal of Modern Physics B* **18**, (2004), 681-689.
61. F. Petroni and M. Serva, *Spot foreign exchange market and time series*. *The European Physical Journal B, Condensed Matter Physics* **34**, (2003), 495-500.
60. G. M. Viswanathan, U. L. Fulco, M. L. Lyra and M. Serva, *The origin of fat-tailed distributions in financial time series*. *Physica A* **329**, (2003), 273-280.
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58. R. Baviera, M. Pasquini, M. Serva, D. Vergni and A. Vulpiani, *Antipersistent Markov behaviour in foreign exchange markets*. *Physica A* **312**, (2002), 565-576.
57. R. Baviera, M. Pasquini, M. Serva, D. Vergni and A. Vulpiani, *Correlations and multi-affinity in high frequency financial datasets*. *Physica A* **300**, (2001), 551-557.
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55. M. Serva, *Random dynamical systems, entropies and information*. *Physica A* **290**, (2001), 243-250.
54. M. Pasquini and M. Serva, *Macroscopically frustrated Ising model*. *Physical Review E* **63**, (2001), 56109-56114.
53. E. Aurell, R. Baviera, O. Hammarlid, M. Serva and A. Vulpiani, *A general methodology to price and hedge derivatives in incomplete markets*. *International Journal of Theoretical and Applied Finance* **3**, (2000), 1-24.
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51. E. Aurell, R. Baviera, O. Hammarlid, M. Serva and A. Vulpiani, *Growth optimal investment and pricing of derivatives*. *Physica A* **280**, (2000), 505-521.
50. M. Pasquini and M. Serva, *Clustering of volatility as a multiscale phenomenon*. *The European Physical Journal B, Condensed Matter Physics* **16**, (2000), 195-201.
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47. M. Serva, *Optimal lag in dynamical investments*. *International Journal of Theoretical and Applied Finance* **2**, (1999), 471-481.
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45. R. Baviera, M. Pasquini and M. Serva, *Cluster approximation for Ising spin glasses*. *Journal de Physique IV* **8**, (1998), 75-79.

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42. M. Serva, *2d Ising model with layers of quenched spins*. Journal of Statistical Physics **91**, (1998), 31-45.
41. R. Baviera, M. Pasquini, M. Serva and A. Vulpiani, *Optimal strategies for prudent investors*. International Journal of Theoretical and Applied Finance **1**, (1998), 473-486.
40. M. Pasquini and M. Serva, *Two-dimensional frustrated Ising model with four phases*. Physical Review E **56**, (1997), 2751-2756.
39. M. Serva, *Exact solution of a two-dimensional random Ising model*. Physical Review E **56**, (1997), R2339-R2342.
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36. G. Paladin and M. Serva, *Bethe-Peierls approximation for the 2d random Ising model*. Journal of Physics A: Mathematical and General **29**, (1996) 1381-1395.
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31. M. Pasquini, G. Paladin and M. Serva, *Rigorous bounds of the Lyapunov exponents of the one dimensional random Ising model*. Journal of Statistical Physics **80**, (1995) 357-373.
30. S. Scarlatti, M. Serva and M. Pasquini, *Large deviations for Ising spin glasses with constrained disorder*. Journal of Statistical Physics **80**, (1995) 337-356.
29. G. Paladin, M. Serva and A. Vulpiani, *Complexity in dynamical systems with noise*. Physical Review Letters **74**, (1995) 66-69.
28. L. Chiatti, M. Cini and M. Serva, *Is macroscopic quantum coherence incompatible with macroscopic realism? II* Nuovo Cimento B **110**, (1995), 585-592.
27. G. Paladin, M. Pasquini and M. Serva, *Constrained annealing for systems with quenched disorder*. International Journal of Modern Physics B **9**, (1995) 399-467.
26. A. Crisanti, G. Paladin, M. Serva and A. Vulpiani, *Products of random matrices for disordered systems*. Physical Review E **49**, (1994) R953-R956.
25. Ph. Blanchard, G. Bolz, M. Cini, G.F. De Angelis and M. Serva, *Localization stabilized by noise*. Journal of Statistical Physics **75**, (1994) 749-755.
24. A. Crisanti, M. Falcioni, G. Paladin, M. Serva and A. Vulpiani, *Complexity in quantum systems*. Physical Review E **50**, (1994) 138-144.
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19. G. F. De Angelis and M. Serva, *Imaginary-time path integrals from Klein-Gordon equation*. Europhysics Letters **18**, (1992) 477-482.
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17. M. Cini and M. Serva, *Phase space representation of quantum mechanics in terms of coherent states*. Il Nuovo Cimento B **107**, (1992) 825-833.
16. G. Paladin and M. Serva, *Analytic solution of the random Ising model in one dimension*. Physical Review Letters **69**, (1992) 706-709.
15. M. Cini and M. Serva, *Measurement in quantum mechanics and classical statistical mechanics*. Physics Letters A **167**, (1992) 319-325.
14. G. F. De Angelis, A. Rinaldi and M. Serva, *Imaginary-time path integral for a relativistic spin 1/2 particle in a magnetic field*. Europhysics Letters **14**, (1991) 95-100.
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12. M. Serva, *Hamiltonian semigroups associated to boson's systems: a probabilistic approach*. Journal of Physics A: Mathematical and General **23**, (1990) 863-870.
11. R. Marra and M. Serva, *Variational principles for a relativistic stochastic mechanics*. Annales de l'Institut Henri Poincaré, Physique théorique **53**, (1990) 97-108.
10. M. Cini and M. Serva, *Where is an object before we look at it?* Foundation of Physics Letters **3**, (1990) 129-151.
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7. Y.-C. Zhang, M. Serva and M. Policarpov, *Diffusion reproduction processes*. Journal of Statistical Physics **58**, (1990) 849-861.
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2. Ph. Blanchard, S. Golin and M. Serva, *Repeated measurements in stochastic mechanics*. Physical Review D **34**, (1986) 3732-3738.
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#### Popularization and papers in volume:

6. M. Serva, *Le origini del popolo malgascio, alcune certezze e qualche mistero*. In *Maddmaths! Matematica Divulgazione Didattica*, (2017), <http://maddmaths.simai.eu/divulgazione/focus/popolo-malgascio/>, (4 pages).

5. F. Petroni, M. Serva and D. Volchenkov, *Levenstein's distance for measuring lexical evolution rates*. In *Nonlinear Dynamics, New Directions: Models and Applications*, Series: Nonlinear Systems and Complexity, edited by H. González-Aguilar and E. Ugalde, (Springer, New York, 2015), Vol. 12, 215-240.
4. E. Aurell, R. Baviera, O. Hammarlid, M. Serva and A. Vulpiani, *Large bets, rare fluctuations and derivative pricing*. In *Off the wall*, monthly column of Numerix, (1998), Numerix LLC, www.numerix.com, (5 pages).
3. M. Serva, *Traiettorie stocastiche*. In *Enciclopedia delle Scienze Fisiche*, Istituto della Enciclopedia Italiana, G. Treccani. Vol. VI (1995) 265-271.
2. G. F. De Angelis and M. Serva, *Path integrals in relativistic quantum mechanics*. In *Quantum Probability and related topics*, edited by L. Accardi, QP-PQ: Quantum Probability and White Noise Analysis **9**, (1994) 159-188.
1. Ph. Blanchard, M. Cini and M. Serva, *The measurement problem in the stochastic formulation of quantum mechanics*. In *Ideas and methods in quantum and statistical physics. In memory of Raphael Høegh-Krohn*, edited by S. Albeverio *et al.* (Cambridge University Press, 1992), **2**, 149-171.

### Conference proceedings:

12. M. Serva, *The origins of the Malagasy people, some certainties and a few mysteries - As origens do povo malgaxe, algumas certezas e vários mistérios*. IEAT Grande Conferência, Instituto de Estudos Avançados Transdisciplinares, <https://www.ufmg.br/ieat/>, (Belo Horizonte, 2017), (13 pages).
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10. M. Serva, Ph. Blanchard, E. W. Holman, F. Petroni, D. Volchenkov and S. Wichmann, *The phylogeny of Malagasy dialects*. In *Cognitive modeling in linguistics*, (Dubrovnik 2010). Text Processing and Cognitive Technologies **19**, edited by V. Solovyev and V. Polyakov, (Kazan: KSU, 2010), 253-256.
9. M. Serva, *Automated languages phylogeny from Levenshtein distance - Filogenia automatizada de línguas a partir da distância de Levenshtein*. International Conference, Visitas Internacionais, Instituto de Estudos Avançados Transdisciplinares, <https://www.ufmg.br/ieat/>, (Belo Horizonte, 2009), (10 pages).
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7. R. Baviera, M. Pasquini, M. Serva, D. Vergni and A. Vulpiani, *Weak efficiency and information in foreign exchange markets*. In *Finance and Turbulence*, (Aarhus 1999). Edited by O. E. Barndorff-Nielsen, B. J. Christensen, H. Bunzel and M. Sørensen. ISSN 1398-5981, MaPhySto Series: MPS-misc 1999-14, (1999), 5-25.
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2. M. Cini and M. Serva, *State vector collapse as a classical statistical effect of measurement*. In *Quantum theory without reduction*, (Roma 1989) edited by M. Cini and J.-M. Levy-Leblond (A. Hilger, IOP Publishing Ltd. London, 1990), 103-121.
1. M. Cini and M. Serva, *Stochastic interpretation of emission and absorption of the quantum of action*. In *NATO Advanced Research Workshop on Fundamental aspects of quantum theory*, (Como 1985) edited by V. Gorini and A. Frigerio (Plenum Publishing Corporation, NY, 1986), 133-137.