CURRICULUM VITAE
of Maurizio Serva

General data:

- Dipartimento di Ingegneria e Scienze dell'Informazione e Matematica (DISIM), Università dell'Aquila.

- Telephone: +39 0862433153, E-mail: maurizio.serva@univaq.it.

- Languages: Italian, English, Portuguese, French, Spanish and Malagasy.

Education:

- Laurea (*summa cum laude*) in Physics, University of Rome "La Sapienza", 26th July 1984. Title of the thesis: *L'Impulso in Meccanica Stocastica*. Supervisor: Marcello Cini.

- *Doktor der Naturwissenschaften* (Doctor Rerum Naturalium), University of Bielefeld, Germany, 20th August 1990. Title of the thesis: *Stochastic Processes; a Possible Language for Quantum Mechanics*. Supervisor: Philippe Blanchard. Note: *ausgezeichnet* (excellent).

Career:

- Civil service as auxiliary operator for fire prevention of the Italian Forest Rangers, October 1981 - September 1982.

- Guest researcher at the Research Center on Stochastic Processes Bi.Bo.S., University of Bielefeld (Germany), January 1985 - September 1985.

- Fellowship from Istituto Nazionale per la Fisica Nucleare for research at the University of Rome "La Sapienza", October 1985 - September 1987.

- Associate Researcher of the Centre National de la Recherche Scientifique at the Laboratory of Theoretical Physics, Luminy (Marseille), October 1987 - March 1988.

- Fellowship from Consiglio Nazionale delle Ricerche at the Research Center on Stochastic Processes Bi.Bo.S., University of Bielefeld (Germany), July 1988 - June 1990.

- Senior Researcher in Mathematical Physics at the University of L'Aquila, June 1990 - May 2015.

- Italian qualification as Associate Professor in Mathematical Physics achieved in December 2013 (2012 ASN Session). From May 2015 Associate Professor in Mathematical Physics at the University of L'Aquila.

- Italian qualification as Full Professor in Mathematical Physics in the 2018 ASN session, credited in November 2020.

Visits and fellowships:

- Guest professor at the Institut Supérieur Polytechnique de Madagascar in Antananarivo (sabbatical), November 1994 - October 1995.

- Guest researcher at the Research Center BiBoS in Germany, the Federal University of Minas Gerais in Brazil and the University of Fribourg in Switzerland (sabbatical), November 2008 - October 2009.

- Guest professor at the Universidade Federal do Rio Grande do Norte in Brazil (sabbatical), October 2012 - September 2013.

- Guest professor at the Université de Toliara (Madagascar) and at the Institut Supérieur Polytechnique de Madagascar in Antananarivo (sabbatical), November 2018 - May 2019.

- Moreover short visits at various Universities and Institutions. Among others: the Federal University of Alagoas in Brazil, the Research Center BiBoS in Germany, the Polytechnic of Antananarivo in Madagascar, the University of Stockholm, the Nordita Institute in Copenhagen, the University of Fribourg in Switzerland, the Federal University of Minas Gerais in Brazil, the Centre National de la Recherche Scientifique at the Laboratory of Theoretical Physics, Luminy (Marseille), the University of Toliara in Madagascar and the Federal University of Rio Grande do Norte in Brazil.

Scientific output:

- Present research: Quantitative Linguistics, Relativistic Stochastic Processes and Quantum Localization by Brownian Noise and Non-linearity.

- Previous research: Stochastic Methods in Quantum Mechanics, Foundations of Quantum Mechanics and Classical Limit, Dynamical Systems and Information Theory, Statistical Mechanics of Disordered Systems, Classical and Quantum Statistical Mechanics on Networks and Fractals, Stochastic Models in Finance, Evolution Models in Biology, Epidemics Models in Biology, Reaction-Diffusion Models in Physics and Biology, Non-Markovian Random Walks and Anomalous Diffusion.

- Author of 120 research papers published in international journals. Also author of articles in volume, conference proceedings, encyclopedia entries and popularization papers.

- Organizer of about 20 scientific meetings and author of about 90 invited and conference talks in various countries: Italy, Madagascar, Denmark, France, Germany, Brazil, Croatia, Romania, Sweden, Switzerland, Argentina, Finland, Indonesia, Brazil, Slovenia, Bulgaria, Spain, Portugal, Israel and Greece.

Teaching:

- Various courses from 1990 to today at the University of L'Aquila (included PhD) and SSIS (Scuola di Specializzazione all'Insegnamento Secondario): *Classical Mechanics, Statistical Mechanics, Financial Mathematics, Time Series Analysis, Statistics for Biology, Mathematical Models of Financial Markets, Mathematical Models in Science, Teaching of Financial Mathematics, Classical and Analytical Mechanics, Mathematical Physics, Rational Mechanics Differential Equations of Mathematical Physics, Mathematical Models, Why Microscopic Word is Not "Classic"?, Statistical Tools for Infrastructures Design, Quantum Theory and Information.*

- Two courses for PhD students in 2013 at the Federal University of Rio Grande do Norte (Brazil): *Mathematical Models for Biology* and *Probability and Statistics.*

- Author of two constantly updated online textbooks: *Briciole di Meccanica Classica* and *Briciole di Meccanica Quantistica.*

- Supervisor of Master and PhD theses in Physics and in Mathematics at the Universities of L'Aquila and Rome "La Sapienza".

- From November 1994 to the end of October 1995 and again at different times from 2006 to 2009, trainer of teachers at the Institut Supérieur Polytechnique de Madagascar.

- Member of the board of the teachers of the PhD course of the University of L'Aquila named *Mathematics*, cycles from XXV to XXVIII starting in the years from 2009 to 2012 and of the board of the teachers of the PhD course of the University of L'Aquila named *Mathematics and Models*, cycles from XXIX to XLI starting in the years from 2013 to 2025.

- From 2015 member of the board of the teachers for the creation of the doctoral program of the Institut Supérieur Polytechnique de Madagascar in Antananarivo.

- In 2006 builder and from 2006 director of a primary school in the village of Ambatomilo, in the South-West of Madagascar.

LIST OF PUBLICATIONS
of Maurizio Serva

Papers published in journals:

118. C. Chen, M. Colangeli, M. H. Duong and M Serva, *Model reduction of multivariate geometric Brownian motions and localization in a two-state quantum system.* Journal of Statistical Mechanics: Theory and Experiment, 073205 (41 pages), (2026).

117. M. Serva, *Evolution of the lexicon: a probabilistic point of view.* Journal of Statistical Mechanics: Theory and Experiment, 113404 (23 pages), (2025).

116. M. Serva, *Particles with constant speed and random velocity in 3+1 space-time: separation of the space variables.* Journal of Physics A: Mathematical and Theoretical, **57**, 295005 (16 pages), (2024).

115. M. Serva, *Constant speed random particles spontaneously confined on the surface of an expanding sphere.* Journal of Statistical Mechanics: Theory and Experiment, 053401 (15 pages), (2024).

114. M. Pasquini and M. Serva, *Gradual modifications and abrupt replacements: two stochastic lexical ingredients of language evolution.* Computational Linguistics **49**(2), 301-323, (2023).

113. M. Serva and M. Pasquini, *Linguistic clues suggest that the Indonesian colonizers directly sailed to Madagascar.* Language Sciences **93**, 101497 (11 pages), (2022).

112. M. Serva and M. Pasquini, *The Sabaki languages of Comoros.* Indian Ocean Review of Science and Technology, 1 (5 pages), (2021).

111. M. Serva and M. Pasquini, *Malagasy dialects in Mayotte.* EPL **133**, 68003 (7 pages), (2021).

110. M. Pasquini and M. Serva, *Stability of meanings versus rate of replacement of words: an experimental test.* Journal of Quantitative Linguistics **28**, 95-116, (2021).

109. M. Serva, *Brownian motion at the speed of light: a new Lorentz invariant family of processes.* Journal of Statistical Physics **182**, 59 (13 pages), (2021).

108. M. Serva and M. Pasquini, *Dialects of Madagascar.* PLoS ONE **15**(10), e0240170 (28 pages), (2020).

107. M. Serva, *Random motion of light-speed particles.* Journal of Statistical Physics **181**, 1603-1608, (2020).

106. M. Pasquini and M. Serva, *Horizontal transfers are a primary aspect of languages evolution.* EPL **125**, 38002 (9 pages), (2019).

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**, 93-102, (2018).

104. M. Serva, D. Vergni, D. Volchenkov and A. Vulpiani, *Recovering geography from a matrix of genetic distances.* EPL **118**, 48003 (7 pages), (2017).

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**, 012141 (6 pages), (2016).

102. F. Petroni and M. Serva, *Observability of market daily volatility.* Physica A **444**, 838-842, (2016).

101. M. Serva, *A stochastic model for the interbreeding of two populations continuously sharing the same habitat.* Bulletin of Mathematical Biology **77**, 2354-2365, (2015).

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**, 273-278, (2014).

99. M. Serva, *Asymptotic properties of a bold random walk.* Physical Review E **90**, 022121 (4 pages), (2014).

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, P08018 (19 pages), (2014).

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**, 052133 (7 pages), (2014).

96. J. F. Fontanari and M. Serva, *Effect of migration in a diffusion model for template coexistence in protocells.* Bulletin of Mathematical Biology **76**, 654-672, (2014).

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**, 271-278, (2014).

94. J. F. Fontanari and M. Serva, *Nonlinear group survival in Kimura's model for the evolution of altruism.* Mathematical Biosciences **249**, 18-26, (2014).

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, P01010 (23 pages), (2014).

92. M. Serva, *Scaling behavior for random walks with memory of the largest distance from the origin.* Physical Review E **88**, 052141 (6 pages), (2013).

91. M. Serva, U. L. Fulco and E. L. Albuquerque, *Ising models on the regularized apollonian network.* Physical Review E **88**, 042823 (5 pages), (2013).

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, 1 (13 pages), (2013).

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**, 022139 (7 pages), (2013).

88. J. F. Fontanari and M. Serva, *Solvable model for template coexistence in protocells.* EPL **101**, 38006 (6 pages), (2013).

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, P05003 (12 pages), (2013).

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**, 062108 (6 pages), (2013).

85. M. Serva, F. Petroni, D. Volchenkov and S. Wichmann, *Malagasy dialects and the peopling of Madagascar.* Journal of the Royal Society Interface **9**, 54-67, (2012).

84. M. Serva, *The settlement of Madagascar: what dialects and languages can tell us.* PLoS ONE **7(2)**, e30666 (8 pages), (2012).

83. A. G. M. Neves and M. Serva, *Extremely rare interbreeding events can explain Neandertal DNA in living humans.* PLoS ONE **7(10)**, e47076 (10 pages), (2012).

82. F. Petroni and M. Serva, *Automated world stability and language phylogeny.* Journal of Quantitative Linguistics **18**, 53-62, (2011).

81. Ph. Blanchard, F. Petroni, M. Serva and D. Volchenkov, *Geometric representations of language taxonomies.* Computer Speech and Language **25**, 679-699, (2011).

80. M. Serva, *Exact and approximate solutions for the dilute Ising model.* Physica A **390**, 2443-2451, (2011).

79. F. Petroni and M. Serva, *Measures of lexical distance between languages.* Physica A **389**, 2280-2283, (2010).

78. F. Petroni and M. Serva, *Lexical evolution rates derived from automated stability measures.* Journal of Statistical Mechanics: Theory and Experiment, P03015 (10 pages), (2010).

77. M. Serva, *Magnetization densities as replica parameters: the dilute ferromagnet.* Physica A **389**, 2700-2707, (2010).

76. L. Prignano and M. Serva, *Genealogical trees from genetic distances.* The European Physical Journal B, Condensed Matter Physics **69**, 455-463, (2009).

75. F. Petroni, L. Prignano and M. Serva, *Family trees: languages and genetics.* Markov Processes and Related Fields **15**, 417-440, (2009).

74. C. M. Nascimento, H. B. N. Júnior, H. D. Jennings, M. Serva, Iram Gleria and G. M. Viswanathan, *Multifractality and heteroscedastic dynamics: An application to time series analysis.* EPL **81**, 18002 (4 pages), (2008).

73. F. Petroni and M. Serva, *Language distance and tree reconstruction.* Journal of Statistical Mechanics: Theory and Experiment, P08012 (15 pages), (2008).

72. M. Serva and F. Petroni, *Indo-European languages tree by Levenshtein distance.* EPL **81**, 68005 (5 pages), (2008).

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**, 756-759, (2007).

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**, 341-346, (2007).

69. M. Serva, *Mitochondrial DNA replacement versus nuclear DNA persistence.* Journal of Statistical Mechanics: Theory and Experiment, P10013 (8 pages), (2006).

68. M. Serva, U. L. Fulco, I. M. Glèria, M. L. Lyra, F. Petroni and G. M. Viswanathan, *A Markov model of financial returns.* Physica A **363**, 393-403, (2006).

67. F. Petroni and M. Serva, *Investment strategies and hidden variables.* The European Physical Journal B, Condensed Matter Physics **51**, 601-608, (2006).

66. M. Serva, *On the genealogy of populations: trees, branches and offspring.* Journal of Statistical Mechanics: Theory and Experiment, P07011 (19 pages), (2005).

65. L. Berardi and M. Serva, *Time and foreign exchange markets.* Physica A **353**, 403-412, (2005).

64. M. Serva, *Lack of self averaging in family trees.* Physica A **332**, 387-393, (2004).

63. F. Petroni and M. Serva, *Real prices from spot foreign exchange market.* Physica A **344**, 194-197, (2004).

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**, 681-689, (2004).

61. F. Petroni and M. Serva, *Spot foreign exchange market and time series.* The European Physical Journal B, Condensed Matter Physics **34**, 495-500, (2003).

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**, 273-280, (2003).

59. R. Baviera, M. Pasquini, J. Raboanary and M. Serva, *Moving averages and price dynamics.* International Journal of Theoretical and Applied Finance **5**, 575-583, (2002).

58. R. Baviera, M. Pasquini, M. Serva, D. Vergni and A. Vulpiani, *Antipersistent Markov behaviour in foreign exchange markets.* Physica A **312**, 565-576, (2002).

57. R. Baviera, M. Pasquini, M. Serva, D. Vergni and A. Vulpiani, *Correlations and multi-affinity in high frequency financial datasets.* Physica A **300**, 551-557, (2001).

56. R. Baviera, M. Pasquini, M. Serva, D. Vergni and A. Vulpiani, *Forecast in foreign exchange markets.* The European Physical Journal B, Condensed Matter Physics **20**, 473-479, (2001).

55. M. Serva, *Random dynamical systems, entropies and information.* Physica A **290**, 243-250, (2001).

54. M. Pasquini and M. Serva, *Macroscopically frustrated Ising model.* Physical Review E **63**, 56109-56114, (2001).

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**, 1-24, (2000).

52. M. Pasquini and M. Serva, *Indeterminacy in foreign exchange markets.* Physica A **277**, 228-238, (2000).

51. E. Aurell, R. Baviera, O. Hammarlid, M. Serva and A. Vulpiani, *Growth optimal investment and pricing of derivatives.* Physica A **280**, 505-521, (2000).

50. M. Pasquini and M. Serva, *Clustering of volatility as a multiscale phenomenon.* The European Physical Journal B, Condensed Matter Physics **16**, 195-201, (2000).

49. Ph. Blanchard, M. Pasquini and M. Serva, *Effective localization induced by noise and non linearity.* Physica D **141**, 214-220, (2000).

48. M. Pasquini and M. Serva, *Multiscale behaviour of volatility autocorrelations in a financial market.* Economics Letters, **65**, 275-279, (1999).

47. M. Serva, *Optimal lag in dynamical investments.* International Journal of Theoretical and Applied Finance **2**, 471-481, (1999).

46. M. Pasquini and M. Serva, *Multiscaling and clustering of volatility.* Physica A **269**, 140-147, (1999).

45. R. Baviera, M. Pasquini and M. Serva, *Cluster approximation for Ising spin glasses.* Journal de Physique IV **8**, 75-79, (1998).

44. V. Loreto, M. Serva and A. Vulpiani, *On the concept of complexity of random dynamical systems.* International Journal of Modern Physics B **12**, 225-243, (1998).

43. R. Baviera, M. Pasquini and M. Serva, *A variational approach to Ising spin glasses in finite dimensions.* Journal of Physics A: Mathematical and General **31**, 4127-4140, (1998).

42. M. Serva, *2d Ising model with layers of quenched spins.* Journal of Statistical Physics **91**, 31-45, (1998).

41. R. Baviera, M. Pasquini, M. Serva and A. Vulpiani, *Optimal strategies for prudent investors.* International Journal of Theoretical and Applied Finance **1**, 473-486, (1998).

40. M. Pasquini and M. Serva, *Two-dimensional frustrated Ising model with four phases.* Physical Review E **56**, 2751-2756, (1997).

39. M. Serva, *Exact solution of a two-dimensional random Ising model.* Physical Review E **56**, R2339-R2342, (1997).

38. R. Donato, L. Peliti and M. Serva, *The selection of altruistic behavior.* Theory in Biosciences/Theorie in den Biowissenschaften **116**, 309-320, (1997).

37. M. Serva, G. Paladin and J. Raboanary, *Mean field solution of the random Ising model on the dual lattice.* Physical Review E **52**, R9-R12, (1996).

36. G. Paladin and M. Serva, *Bethe-Peierls approximation for the 2d random Ising model.* Journal of Physics A: Mathematical and General **29**, 1381-1395, (1996).

35. G. Paladin and M. Serva, *Beyond the mean field approximation for the spin glasses.* Physical Review E **54**, 4637-4643, (1996).

34. Ph. Blanchard and M. Serva, *Reply to "Comment on "Repeated measurements in stochastic mechanics"".* Physical Review D **51**, 3132-3134, (1995).

33. G. Paladin, M. Pasquini and M. Serva, *Constrained annealing for spin glasses.* Journal de Physique I **5**, 337-354, (1995).

32. M. Pasquini, G. Paladin and M. Serva, *Sequence of constrained annealed averages for one-dimensional disordered systems.* Physical Review E **51**, 2006-2012, (1995).

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**, 357-373, (1995).

30. S. Scarlatti, M. Serva and M. Pasquini, *Large deviations for Ising spin glasses with constrained disorder.* Journal of Statistical Physics **80**, 337-356, (1995).

29. G. Paladin, M. Serva and A. Vulpiani, *Complexity in dynamical systems with noise.* Physical Review Letters **74**, 66-69, (1995).

28. L. Chiatti, M. Cini and M. Serva, *Is macroscopic quantum coherence incompatible with macroscopic realism?* Il 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**, 399-467, (1995).

26. A. Crisanti, G. Paladin, M. Serva and A. Vulpiani, *Products of random matrices for disordered systems.* Physical Review E **49**, R953-R956, (1994).

25. Ph. Blanchard, G. Bolz, M. Cini, G.F. De Angelis and M. Serva, *Localization stabilized by noise.* Journal of Statistical Physics **75**, 749-755, (1994).

24. A. Crisanti, M. Falcioni, G. Paladin, M. Serva and A. Vulpiani, *Complexity in quantum systems.* Physical Review E **50**, 138-144, (1994).

23. G. Paladin, M. Pasquini and M. Serva, *Ferrimagnetism in a disordered Ising model.* Journal de Physique I **4**, 1597-1617, (1994).

22. M. Serva and G. Paladin, *Gibbs thermodynamic potentials for disordered systems.* Physical Review Letters **70**, 105-108, (1993).

21. A. Crisanti, G. Paladin, M. Serva and A. Vulpiani, *Random transfer matrices for the overlap in disordered systems.* Physical Review Letters **71**, 789-792, (1993).

20. A. Crisanti, G. Paladin, M. Serva and A. Vulpiani, *Lack of self-averaging in weakly disordered one dimensional systems.* Journal de Physique I **3**, 1993-2006, (1993).

19. G. F. De Angelis and M. Serva, *Imaginary-time path integrals from Klein-Gordon equation.* Europhysics Letters **18**, 477-482, (1992).

18. G. F. De Angelis and M. Serva, *Brownian path integrals from Dirac equation: a probabilistic approach to the Foldy-Wouthuysen transformation.* Journal of Physics A: Mathematical and General **25**, 6539-6550, (1992).

17. M. Cini and M. Serva, *Phase space representation of quantum mechanics in terms of coherent states.* Il Nuovo Cimento B **107**, 825-833, (1992).

16. G. Paladin and M. Serva, *Analytic solution of the random Ising model in one dimension.* Physical Review Letters **69**, 706-709, (1992).

15. M. Cini and M. Serva, *Measurement in quantum mechanics and classical statistical mechanics.* Physics Letters A **167**, 319-325, (1992).

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**, 95-100, (1991).

13. M. Serva and L. Peliti, *A statistical model of an evolving population with sexual reproduction.* Journal of Physics A: Mathematical and General **24**, L705-L709, (1991).

12. M. Serva, *Hamiltonian semigroups associated to boson's systems: a probabilistic approach.* Journal of Physics A: Mathematical and General **23**, 863-870, (1990).

11. R. Marra and M. Serva, *Variational principles for a relativistic stochastic mechanics.* Annales de l'Institut Henri Poincaré, Phisique théorique **53**, 97-108, (1990).

10. M. Cini and M. Serva, *Where is an object before we look at it?* Foundation of Physics Letters **3**, 129-151, (1990).

9. G. F. De Angelis and M. Serva, *Jump processes and diffusions in relativistic stochastic mechanics.* Annales de l'Institut Henri Poincaré, Phisique théorique **53**, 301-317, (1990).

8. G. F. De Angelis and M. Serva, *On the relativistic Feynman-Kac-Ito formula.* Journal of Physics A: Mathematical and General **23**, L965-L968, (1990).

7. Y.-C. Zhang, M. Serva and M. Policarpov, *Diffusion reproduction processes.* Journal of Statistical Physics **58**, 849-861, (1990).

6. M. Serva, *Relativistic stochastic processes associated to Klein-Gordon equation.* Annales de l'Institut Henri Poincaré, Phisique théorique **49**, 415-432, (1988).

5. M. Serva, *Probabilistic solutions of generalized birth and death equations and applications to field theory.* Journal of Physics A: Mathematical and General **20**, 435-446, (1987).

4. M. Cini and M. Serva, *Stochastic theory of emission and absorption of quanta.* Journal of Physics A: Mathematical and General **19**, 1163-1177, (1986).

3. G. F. De Angelis, G. Jona-Lasinio, M. Serva and N. Zanghi, *Stochastic mechanics of a Dirac particle in two space-time dimensions.* Journal of Physics A: Mathematical and General **19**, 865-871, (1986).

2. Ph. Blanchard, S. Golin and M. Serva, *Repeated measurements in stochastic mechanics.* Physical Review D **34**, 3732-3738, (1986).

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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*, http://maddmaths.simai.eu/divulgazione/focus/popolo-malgascio/ (4 pages), (2017).

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 **12**, 215-240, (2015).

4. E. Aurell, R. Baviera, O. Hammarlid, M. Serva and A. Vulpiani, *Large bets, rare fluctuations and derivative pricing.* In *Off the wall*, monthly columnn of Numerix, Numerix LLC, www.numerix.com (5 pages), (1998).

3. M. Serva, *Traiettorie stocastiche.* In *Enciclopedia delle Scienze Fisiche,* Istituto della Enciclopedia Italiana, G. Treccani. Vol. VI, 265-271, (1995).

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**, 159-188, (1994).

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 **2**, 149-171, (1992).

Conference procedings:

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, (Belo Horizonte, 2016). https://arxiv.org/pdf/1803.02197.pdf (13 pages), (2018).

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