

Recent Publications

Books

1. **Zbilut JP**, Giuliani A (2008). Simplicity: The Latent Order of Complexity. Nova Science Publishers, NY.
2. Webber Jr. CL, **Zbilut JP** (in prep.). Recurrence Quantification Analysis for Real-World Systems. Nova Science Publishers, NY.
3. **Zbilut JP**, Scheibel T (Eds). To Fold or Not to Fold: Some Current Concepts of Protein Chemistry. (2007). Nova Science Publishers, NY.
4. Benigni R, Colosimo A, Giuliani A, Sirabella P, **Zbilut J** (Eds)(2005). International Meeting, Complexity in the Living: A Problem-Oriented Approach. Rome September 28-30, 2004. (Rapporti ISTISAN 05/20). Istituto Sueriore di Sanita, Rome.
5. **Zbilut JP** (2004). Unstable Singularities and Randomness: Their Importance in the Complexity of the Physical, Biological and Social Sciences. Elsever, Boston, Amsterdam.
6. **Zbilut JP** (2004). Singularità Instabili e Casualità. La loro Importanza nella Complessità delle Scienze Fisiche e Psico-sociali. FrancoAngeli, Milan.
7. Zak M, **Zbilut JP**, Meyers RE (1997). From instability to Intelligence: Complexity and Predictability in Nonlinear Dynamics. (Lecture Notes in Physics: New Series m 49). Springer Verlag, Berlin Heidelberg New York.

Book Chapters, Proceedings, Contributions

1. **Zbilut JP** (in press). Occam's razor revisited: simplicity vs. complexity in biology. IN: Licata I, Sakaji A (Eds). Physics of Emergence and Organization. World Scientific, Singapore.
2. Webber CL Jr, **Zbilut JP** (2005). Recurrence quantification analysis of nonlinear dynamical systems. In: Tutorials in Contemporary Nonlinear Methods for the Behavioral Sciences, Riley MA, Van Orden GC (Eds) Found at URL, <http://www.nsf.gov/sbe/bcs/pac/nmbs/nmbs.jsp>
3. **Zbilut JP**, Mitchell JC, Giuliani A, Colosimo A, Marwan N, Colafranceschi M, Webber Jr CL (2005). Aggregation propensity of proteins quantified by hydrophobicity patterns and net charge. In: Benigni R, Colosimo A, Giuliani A, Sirabella P, **Zbilut J** (2005). International Meeting, Complexity in the Living: A Problem-Oriented Approach. Rome September 28-30, 2004. (Rapporti ISTISAN 05/20). Istituto Sueriore di Sanita, Rome, pp 136-151.
4. Bianciardi M, Sirabella P, Hagberg GE, Giuliani A, **Zbilut JP**, Colosimo A (2005). Analyzing spatial distributions of fMRI "bold" signals by RQA variables. In: Benigni R, Colosimo A, Giuliani A, Sirabella P, **Zbilut J** (2005). International Meeting, Complexity in the Living: A Problem-Oriented Approach. Rome September 28-30, 2004. (Rapporti ISTISAN 05/20). Istituto Sueriore di Sanita, Rome, pp 238-243.

5. **Zbilut JP** (2005). Use of recurrence quantification analysis in economic time series. In: Economics: Complex Windows (Salzzano M, Kirman A, Eds). Springer, Milan, Berlin, Heidelberg, New York, pp 91-104.
6. Orsucci F, Giuliani A, **Zbilut JP** (2004). Structure & coupling of semiotic sets. AIP Conference Proceedings. 742: 83-93.
7. Darovic G, **Zbilut JP** (2004). Chapters on Pulmonary Physiology and Hemodynamic Monitoring. Handbook of Hemodynamic Monitoring, 2nd Edition .Philadelphia, Saunders.
8. Webber CL, **Zbilut JP**, (2006). Ventilatory pattern variability. Wiley Encyclopedia of Biomedical Engineering.
9. **Zbilut JP**, Webber, CL, (2006). Recurrence quantification analysis. Wiley Encyclopedia of Biomedical Engineering.
10. **Zbilut JP**, Giuliani A. Algorithmic complexity.(2004). Encyclopedia of Nonlinear Science. Fitzroy Dearborn.
11. Conte E, Federici A, Khrennikov A, **Zbilut JP**, (2004). Is determinism the basic tenet in dynamics of biological matter? Proceedings of the International Conference on Quantum Theory, University of Vaxjo, Sweden, June 1-6, 2003.
12. **Zbilut JP**, Santucci PA, Yang S-Y, Podolski, JL (2002). Linear and Nonlinear Evaluation of Ventricular Arrhythmias. In: Medical Data Analysis: Proceedings of the Third International Symposium. A. Colosimo, A. Giuliani and P. Sirabella (Eds). (Lecture Notes in Computer Science 2526). Springer, Berlin.
13. Darovic GO, **Zbilut JP** (2002). Pulmonary anatomy and physiology (Chap. 2). In: Darovic GO (ed), Hemodynamic Monitoring: Invasive and Noninvasive Clinical Applications (3rd ed). Philadelphia, W.B. Saunders, pp 9-41.
14. Darovic GO, **Zbilut JP** (2002). Fluid-filled monitoring systems (Chap. 6). In: Darovic GO (ed), Hemodynamic Monitoring: Invasive and Noninvasive Clinical Applications (3rd ed). Philadelphia, W.B. Saunders, pp 113-131.
15. Webber Jr CI, **Zbilut JP** (2001). Recurrence Quantification Analysis. In: Proceedings of 4th International IEEE EMBS Summer School on Biocomplexity, Bioscaling and Biosignal Interpretation (Ed M Akay). Dartmouth College, Dartmouth, Vermont.

Journals (Refereed)

1. Krishnan A, **Zbilut JP**, Giuliani A (in press). Proteins as networks. Current Protein and Peptide Science.
2. Enriquez JR, Prata P, **Zbilut JP**, Volgman AS, Calvin JE (in press). Women tolerate medical therapy for coronary artery disease as well as men, but are still treated less frequently with statins. Gender Medicine.
3. Valerio MC, Porcelli F, **Zbilut JP**, Giuliani A, Manetti C, Conti F (in press). pH Effects on the Conformational Preferences of Amyloid beta-

- Peptide (1-40) in HFIP Aqueous Solution by NMR Spectroscopy. ChemMedChem. On Line, Early View.
4. Carrubba S, Frilot C, Chesson Jr AL, Webber Jr CL, **Zbilut JP**, Marino AA (2008). Magnetosensory evoked potentials: Consistent nonlinear phenomena. Neuroscience Research 60: 95-105.
 5. Zaldivar J-M, Strozzi F, Dueri S, Marinov D, **Zbilut JP** (2008). Characterization of regime shifts in environmental time series with recurrence quantification analysis. Ecological Modelling 2:58-70.
 6. Krishnan A, Giuliani A, **Zbilut JP**, Tomita M (2007). Network scaling invariants help to elucidate basic topological principles of proteins. J Prot Res 6:3924-3934.
 7. Bianciardi M, Sirabella P, Hagberg GE, Giuliani A, **Zbilut JP**, Colosimo A (2007). Model-free analysis of brain fMRI data by recurrence quantification. Neuroimage 37:489-503.
 8. **Zbilut JP**, Webber Jr CL (2007). Recurrence quantification analysis; introduction and historical context. Int J of Chaos Bifurc 17: 3477-3481.
 9. Webber Jr CL, **Zbilut JP** (2007). Recurrence quantifications: feature extractions from recurrence plots. Int J of Bifurc Chaos 17: 3467-3475.
 10. Conte E, Federici A, Pierri G, Mendolicchio L, **Zbilut JP** (2007) A brief note on recurrence quantification analysis of bipolar disorder performed by using a van der Pol oscillator model. Chaos and Complexity Letters 3 (1).
 11. Conti F, **Zbilut JP** (2007). Report on The First Maga Circe Conference on Metabolic Systems Analysis FEBS J 274: 1125.
 12. **Zbilut JP**, Chua GH, Krishnan A, Bossa C, Rother K, Webber CL Jr, Giuliani A (2007). A topologically related singularity suggests a maximum preferred size for protein domains. Proteins Structure Function & Bioinformatics 66: 621-629.
 13. Conte E, Federici A, Minervini M, Papagni A, **Zbilut JP** (2006) Measures of coupling strength and synchronization in non linear interaction of heart rate and systolic blood pressure in the cardiovascular control system. Chaos and Complexity Letters 2 (2006),1:1-22.
 14. Schumacher AM, **Zbilut JP**, Webber Jr CL, Schwertz, DW, Piano MR (2006). Detection of cardiac variability in the isolated rat heart. Biological Research for Nursing. 8: 55-66.
 15. **Zbilut JP**, Chua GH, Krishnan A, Bossa C, Colafranceschi M, Giuliani A (2006). Entropic criteria for protein folding derived from recurrences: Six residues patch as the basic protein word. FEBS Lett 580: 4861-4864
 16. Orsucci F, Giuliani A, Webber, Jr C, **Zbilut J**, Fonagy P, Mazza M (2006). Combinatorics and synchronization in natural semiotics. Physica A 361:665-676
 17. Conte E, Pierri GP, Federici A, Mendolicchio L, **Zbilut JP** (2006). On a model of biological neuron with terminal chaos and quantum like features. Chaos Solitons and Fractals 30, 774–780.

18. Benigni R, Giuliani A, **Zbilut JP**, Ellis SW, Allorge D (2005). A signal analysis approach applied to the study of sequence, structure and function of the proteins. Current Computer-Aided Drug Design 2: 1-19.
19. Trulla LL, Giuliani A, Zimatore G, Colosimo A **Zbilut JP** (2005). Non linear assessment of musical consonance. Electronic Journal of Theoretical Physics 2(8), No. 3 (open access).
20. Mastrodonardo M, Conte E, **Zbilut JP** (2005). A fractal analysis of skin pigmented lesions using the novel tool of the variogram technique. Chaos Solitons and Fractals 28: 1119-1135.
21. **Zbilut JP**, Scheibel T, Huemmerich D, Webber Jr CL, Colafranceschi M, Giuliani A (2005). Statistical approaches for investigating silk properties. Applied Physics A 82: 243-251.
22. **Zbilut JP**, Scheibel T, Huemmerich D, Colafranceschi M, Giuliani A (2005). Spatial stochastic resonance in proteins. Physics Letters A 346: 33-41.
23. Colafranceschi M, Colosimo A, **Zbilut JP**, Uversky VN, Giuliani A (2005). Structure-related statistical singularities along protein sequences: A correlation study. J. Chem. Inf. Model., 45: 183 -189.
24. Valerio M, Colosimo A, Conti F, Giuliani A, Grottesi A, Manetti C, **Zbilut JP** (2005). Early events in protein aggregation: molecular flexibility and hydrophobicity/charge interaction in amyloid peptides as studied by molecular dynamics simulations. Proteins Structure Function and Bioinformatics 58:110-118.
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26. Zaldívar JM, Bosch J, Strozzi F, **Zbilut JP** (2005) Early warning detection of runaway initiation using chaos-like features Communications in Nonlinear Science and Numerical Simulation 10:299-311
27. Conte E, Vena A, Federici A, Giuliani R, **Zbilut JP** (2004). A brief note on possible detection of physiological singularities in respiratory dynamics by recurrence quantification analysis of lung sounds, Chaos, Solitons & Fractals 21:869-877.
28. **Zbilut JP**, Mitchell JC, Giuliani A, Marwan N, Webber Jr. CL (2004). Singular hydrophobicity patterns and net charge: A mesoscopic principle for protein aggregation/folding. Physica A 343: 348–358.
29. Conte E, Federici A, **Zbilut JP** (2004). On a simple case of possible non-deterministic chaotic behavior in compartment theory of biological observables, Chaos, Solitons & Fractals 22:277-284.
30. Vena A, Conte E, Perchiazzi G, Federici A, Giuliani R, **Zbilut JP** (2004). Detection of physiological singularities in respiratory dynamics analyzed by

- recurrence quantification analysis of tracheal sounds, Chaos, Solitons & Fractals 22:869-881.
31. Manetti C, Castro C, **Zbilut JP** (2004). Application of trilinear SLICING to analyse a single relaxation curve. Journal of Magnetic Resonance. 168:273-7.
 32. Porrello A, Soddu S, **Zbilut JP**, Crescenzi M, Giuliani A, (2004). Discrimination of single amino acid mutations of the p53 protein by means of deterministic singularities of recurrence quantification analysis. Proteins Structure Function & Genetics. 55: 743-755
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48. Webber Jr CL, Giuliani A, **Zbilut JP**, Colosimo A (2001). Elucidating protein secondary structures using alpha-carbon recurrence quantifications. Proteins Structure, Function, and Genetics 44: 292-303.
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51. Ikagawa S, Shinohara M, Fukunaga T, **Zbilut JP**, Webber, Jr CL (2000). Nonlinear time-course of lumbar muscle fatigue using recurrence quantifications. Biological Cybernetics 82: 373-382.
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54. **Zbilut JP**, Webber Jr CL, Colosimo A (2000). The role of hydrophobicity patterns in prion folding as revealed by recurrence quantification analysis of primary structure. Protein Engineering 13: 99-104
55. Giuliani A, Benigni R, Sirabella P, **Zbilut JP** Colosimo A (2000). Exploiting the information content of protein sequences using time-series methods: a case study in rubredoxins. Biophys J 78:136-149.