

Program MEDYFINOL 2014

Monday 13

9:00 – 9:40 hs, Opening Ceremony:

9:40 – 12:40 hs, Plenary Talks:

Chairman: Marcelo Lyra

PT1-1 (9:40 – 10:20): *Macroscopic behavior of systems with a dynamic preferred direction* (Helmut R. Brand)

10:20 – 10:40 hs, Coffee Break

Chairman: Orazio Descalzi

PT1-2 (10:40 – 11:20): *Dynamics in Semiconductor Lasers* (Jose R Rios Leite)

PT1-3 (11:20 – 12:00): *Slaying the Dragon Kings: Predictability and Suppression of Extreme Events in Chaotic Systems* (Hugo Cavalcante)

PT2-9 (11:20 – 12:00): *Upper critical dimension, Galilean Invariance, and exact solution for the etching model* (F. Oliveira)

12:40 – 15:00 hs, Lunch

15:00 -16:40hs, Invited Talks and Oral Contributions

SESSION A1 – *Chairman: Juan Luis Cabrera*

A1-1 (15:00 - 15:20): *Periodic collective behavior: what matters is the coupling function* (Nicolás Rubido, Celso Grebogi, Murilo S. Baptista)

A1-2 (15:20 - 15:40): *Characterizing Weak Chaos using Time Series of Lyapunov Exponents* (R. M. da Silva, C. Manchein, M. W. Beims, E. G. Altmann)

A1-3 (15:40 - 16:00): *Inconsistencies in Steady State Thermodynamics* (R. Dickman)

A1-4 (16:00 - 16:20): *A general approach for dealing with dynamical systems with spatio-temporal periodicity* (Jesús Casado-Pascual, José A. Cuesta, Niurka R. Quintero, Renato Alvarez-Nodarse)

SESSION A2 – *Chairman: Fernando Montani*

A2-1 (15:00 - 15:20): *Signal to noise improvement on analyzing a cryopreservation process: a related use for Wavelet Transform* (A. Korol)

A2-2 (15:20 - 15:40): *Stochastic neurogenesis: the retinal development* (A. Barton, A. J. Fendrik)

A2-3 (15:40 - 16:00): *A Maximum Entropy Approach for predicting epileptic tonic-clonic seizure* (V. Vampa, M. T. Martín, A. Plastino)

A2-4 (16:00 - 16:20): *Sleep Spindles Chirp analysis in EEG Control Examinations* (R. Toledo, F. Souza, G. J. L. Gerhardt, S. V. Schönwald, J. L. Rybarczyk Filho, N. Lemke)

C1-4 (16:20 -16:40): *Experiments on neural computing* (G. Savino, C. M. Formigli, R. Deza)

16:40 – 17:00 hs, Coffee Break

17:00 – 18:20: Invited Talks and Oral Contributions

SESSION D1 – Chairman : *Patricio Cordero*

D1-1 (17:00 – 17:20): *Cohesion and order of swarms* (Angelo M. Calvo, Edgardo Brigatti)

D1-2 (17:20 – 17:40): *The slater's approach on the stability of quasi-periodic orbits* (C. V. Abud, I. L. Caldas)

D1-3 (17:40 – 18:00): *Spatial chaos control in coupled map networks with time-varying coupling* (R. Frehse Pereira, R. Miquéias Szmoski, S. E. de Souza Pinto)

D1-4 (18:00 – 18:20) : *Solitons interaction in a coherently driven nonlinear dispersive medium* (R. V. Moreira, S. A. Garcia, C. C. D. da Silva, D. P. Caetano)

SESSION D2 – Chairman: *Roberto Rios Leite*

D2-1 (17:00 – 17:20): *Detection of direct links in networks of interacting dynamical units: experiments and theory* (A. Marti)

D2-2 (17:20 – 17:40): *Exploring the tug of war between positive and negative interactions among savanna trees: Competition, dispersal, and protection from fire* (F.S. Bacelar, J. M. Calabrese, E. Hernández-García)

D2-3 (17:40 – 18:00): *Arrays of stochastic oscillators: Nonlocal coupling, clustering, and wave formation* (D. Escaff, I. L. D. Pinto, K. Lindenberg)

D2-4 (18:00 – 18:20) : *Stochastic-resonant spatiotemporal patterns in a FitzHugh--Nagumo ring* (N. Martínez, L. Vassallo, G.V. Savino, C.M. Formigli, A.D. Sánchez, G.G. Izús, M.G. dell'Erba, R.R. Deza)

Tuesday 14

9:00 – 10:20 hs, Plenary Talks

Chairman: Jesus Gómez-Gardeñe

PT2-5 (9:00 – 9:40): *How Basin Stability Complements the Linear-Stability Paradigm* (Jüergen Kurths)

PT2-6 (9:40 – 10:20): *Nonadditive entropies and nonextensive statistical mechanics: where do we stand today?* (Constantino Tsallis)

10:20 – 10:40 hs, Coffee Break

Chairman: Jürgen Kurths

PT4-18 (10:40 – 11:20): *Granular systems in a vibrated box* (Patricio Cordero)

PT2-8 (11:20 – 12:00): *A thermodynamical formalism describing mechanical interactions* (R. Andrade)

PT3-13 (12:00 – 12:40): *Non-Markovian stochastic processes: The case of delay* (Raúl Toral)

12:40 - 15:00 hs, Lunch

15:00 – 16:20 hs, Invited Talks and Oral Contributions

SESSION B1 – *Chairman: Helmut Brand*

B1-1 (15:00 -15:20): *Explosive dissipative solitons and their anomalous diffusion* (J. Cisternas)

B1-2 (15:20 -15:40): *Higher order effects on dissipative solitons* (C. Cartes, O. Descalzi)

B1-3 (15:40 -16:00): *Interactions of quasi-one-dimensional dissipative solitons* (O. Descalzi, H. R. Brand)

B1-4 (16:00 -16:20): *Dynamics of entanglement between harmonic modes in stable and unstable regimes* (R. Rossignoli, N. Canosa, L. Rebón)

B1-5 (16:20 -16:40): *Generalized entropic measures of quantum correlations in spin chains* (N. Canosa, L. Ciliberti, R. Rossignoli)

SESSION B2 – *Chairman: Ana Korol*

B2-1 (15:00 -15:20): *Wavelet techniques for a deep data analysis: from multiresolution scheme to 2-microlocal formalism.* (E. Serrano)

B2-2 (15:20 -15:40): *Chaos, Noise, and an analytical understanding of the Fisher Information* (H. Lange, S. Sippel)

B2-3 (15:40 -16:00) : *Data manipulation detection via permutation Information Theory quantifiers* (A. Fernández Bariviera, M. Belén Guercio, L. B. Martinez)

B2-4 (16:00 -16:20): *A formalism to describe episodes of hyperinflation and high inflation* (L. Szybisz, Martín A. Szybisz)

B2-5 (16:20 -16:40) : *Modeling positive Granger causality and negative phase lag between neuronal circuits in the presence of synaptic plasticity* (F. S. Matias, P. Carelli, M. Copelli, C. R. Mirasso)

16:40 – 17:00 hs, Coffee Break

17:00 – 18:20 hs, Short Talks

SESSION F1 – Chairman: Katja Lindenberg

F1-1 (17:00 – 17:10): *Globally coupled stochastic two-state oscillators: Fluctuations due to finite numbers* (I. L. D. Pinto, D. Escaff, U. Harbola, A. Rosas, K. Lindenberg)

F1-2 (17:10 – 17:20): *Basin attraction in a drift wave model with dissipation* (R. S. Oyarzabal, A. M. Batista, J. D. Szezech)

F2-6 (17:20 – 17:30): *Screening effect of exciton on the nonlinear optical properties of semiconductor quantum dots* (J. E. Q. Bautista, M. L. Lyra, R. P. A. Lima)

F1-5 (17:40 – 17:50): *Scaling of the dynamics of homogeneous states of one-dimensional long-range interacting systems* (L. F. Souza, M. A. Amato, T. M. Rocha Filho)

F1-6 (17:50 – 18:00): *The behavior of drag force during the transient stage* (P. V. S. Souza, D. Girard, P. M. C. de Oliveira)

F1-7 (18:00 – 18:10): *Growth patterns and scaling laws governing AIDS epidemic in Brazilian cities* (F. J. Antonio, S. Picoli, J. J. V. Teixeira, R. S. Mendes)

F2-7 (18:10 – 18:20): *Stochastic Dynamical Approach for Studying Reinfection on Transmitted Diseases* (Alessandro S. de Barros, Suani T. R. Pinho)

18:20 – 19:00 hs, Poster Presentation (Session 1)

Wednesday 15

9:00 -12:40 hs, Plenary Talks:

Chairman: Osvaldo A. Rosso

PT3-10 (9:00 – 9:40): *Complex dynamics arising from instability. Stick balancing, cellular mitosis and neurons* (Juan Luis Cabrera)

PT3-11 (9:40 – 10:20): *Neural population activity: finding simplicity in complexity* (Fernando Montani)

10:20 – 10:40: Coffee Break

Chairman: Constantino Tsallis

PT3-12 (10:40 – 11:20): *Reconciling information directionality with negative time lag in neuronal circuits* (Claudio. R. Mirasso)

PT1-4 (11:20 – 12:00): *News from Hamiltonian systems* (Günter Radons)

PT5-21 (12:00 – 12:40): *Branching and caustics of tsunami waves: Where do the strongest wave heights occur ?* (Theo Geisel)

FREE AFTERNOON (Conference Excursion)

Lunch at Restaurant Ancoradouro in the border of Lagoa Mundau, followed by a Boat Road in the laguna passing through the 9 Ilands. End at sun set with live sax music.

Bus will leave the Hotel at 13:00 hs

Lunch between 13:30h and 14:30 hs

Boat ride: 14:30h – 17:00 hs

Sunset at Restaurant Ancoradouro (gift shopping on the streets)

Bus will leave to the hotel at 18:00 hs

Cost per person: R\$ 50,00 (to be paid at the secretary before Tuesday 12:00 hs)

Thursday 16

9:00 – 12:40 hs, Plenary Talks

Chairman: Günter Radons

PT4-15 (9:00 – 9:40): *Time-series based prediction of complex dynamics and complex networks* (Celso Grebogi)

PT4-16 (9:40 – 10:20): *From smooth to explosive phase transitions in complex networks: Synchronization and Epidemics* (Jesús Gómez-Gardeñes)

10:20 – 10:40 hs, Coffee Break

Chairman: Hector Mancini

PT4-17 (10:40 - 11:20): *Comparision between thermoconvective and magneto hidrodynamic flows* (Héctor Mancini)

PT5-20 (11:20 – 12:00): *Water dynamics under nanoconfinement* (Marcia C. Barbosa)

PT4-19 (12:00 – 12:40): *Exploration and Arrival Statistics of Mortal Random Walkers* (Katja Lindenberg)

10:40 – 15:00 hs, Lunch

15:00 -16:40 hs, Invited Talks and Oral Contributions

SESSION C1 – *Chairman: Celso Grebogi*

C1-1 (15:00 -15:20): *Fractal characterization of the left ventricular wall mechanics* (Walter Legnani)

C1-2 (15:20 -15:40): *Universal bursty behaviour in human violent conflicts* (S. Picoli, M. del Castillo-Mussot, H. V. Ribeiro, E. K. Lenzi, R. S. Mendes)

C1-3 (15:40 -16:00): *Wavelet Functional Analysis of Variance for Dependent Errors* (Aluisio Pinheiro)

A2-5 (16:00 - 16:20): *The Role of Short-time Chirps in EEG* (G. J. L Gerhardt, S. V. Schonwald, E. L de Santa-Helena, N. Lemke, J. L. Rybarczyk Filho)

C1-5 (16:20 -16:40): *Can Directed Percolation Models with Undersampling Reproduce the Statistics of Neuronal Avalanches?* (Mauro Copelli 1, Tiago Ribeiro, Sidarta Ribeiro)

SESSION C2 – *Chairman :Raul Toral*

C2-1 (15:00 -15:20): *Interval edge estimation in SAR images* (R. Ospina, L. Dias, F. Cribari-Neto)

C2-2 (15:20 – 15:40): *Q statistics and disequilibrium in dynamic speckle measures* (Héctor Rabal, Luciano Zunino, Osvaldo Rosso, Nelly Cap)

C2-3 (15:40 – 16:00): *Characterization of Vehicle Behavior with Information Theory* (Andre L. L. Aquino, Tamer S. G. Cavalcante, Alejandro C. Frery, Eliana S. Almeida, Osvaldo A. Rosso)

C2-4 (16:00 – 16:40): *Should I move to the cloud? A scientific computing point of view* (Heitor Ramos)

C2-5 (16:20 – 16:40): *Statistical Complexity Measure & Energy Disaggregation* (Leonardo Viana)

16:40 – 17:00 hs, Coffee Break

17:00 – 18:40 hs, Invited Talks and Oral Contributions

SESSION E1 – Chairman: Claudio Mirasso

E1-3 (17:00 – 17:20) : *Epidemic spreading on weighted networks* (C. Buono, F. Vazquez, L. A. Braunstein)

E1-4 (17:20 – 17:40): *Nonlinear interfacial dynamics in magnetic fluids* (S. A. Lira, J. A. Miranda)

E2-2 (17:40 – 18:00): *Studying behavior of a soliton in the presence of an external electric field on a non-linear lattice.* (A. Ranciaro Neto, F.A.B.F. de Moura)

SESSION E2 – Chairman: Marcia Barbosa

E2-1 (17:00 – 17:20): *People interactivity from vote distributions* (A. M. Calvão, N. Crokidakis, C. Anteneodo)

E2-3 (17:20 – 17:40): *A method for using Q-learning in continuous state-action spaces* (Ana Julia Villar, Juan Miguel Santos)

E2-4 (17:40 – 18:00): *Sperm Cell Dynamics in Restricted Geometries* (C. A. Condat, V. I. Marconi, I. Berdakin, A. Guidobaldi, M. Oviedo, L. Giojalas, Y. Jeyaram, A. V. Silhanek)

18:00 – 19:00 hs, Poster Presentation (Session 2)

19:00 – 19:10hs - Closing

Posters

Poster Session 1 (Tuesday)

PP1 : *Maximum Entropy constraints and higher-order spike correlations* (L. Montangie, F. Montani)

PP2 : *Higher-order spike correlations and neuronal information processing* (L. Montangie, F. Montani)

PP3 : *Modeling a noisy spiking neuron* (Roman Baravalle, Fernando Montani)

PP4 : *From spiking neuron models to the neural dynamics of a population of neurons* (Emilia B Deleglise, Osvaldo A. Rosso, Fernando Montani)

PP5 : *A parametric, information-theory model for predictions in time series* (M. T. Martín, Victoria Vampa)

PP6 : *Permutation entropy applied to bioacoustic signal segmentation* (Juan G. Colonna, Marco A. P. Cristo, Osvaldo A. Rosso, Eduardo F. Nakamura)

PP7 : *Controlling Tumor Cells* (D. H. Margarit, L. Romanelli)

PP8 : *Markov Chains and the Routes of Metastasis* (D. H. Margarit, L. Romanelli, C. Simoncini)

PP9 : *Experimental verification of the stochastic resonance in a Chua chaotic circuit produced by power law distributed noise* (Iacyel G. Silva, Marcos V. Dias Vermelho, Jailson A. Melo, Marcelo L. Lyra)

PP10 : *Study of the economic crisis by using the Multifractal Specific Heat* (L. Catalano, A. Figliola)

PP11 : *Vulnerability analysis of power grids characterized as complex networks* (R. S. Cabral, A. C. Frery)

PP12 : *Texture Analysis in SAR Imagery using the G_1^0 Distribution* (Juliana Gambini, Magdalena Lucini, Julia Cassetti, Alejandro C. Frery)

PP13 : *A Study of Energy Behavior: a Information Theory Approach* (Tamer S. G. Cavalcante, Andre L. L. Aquino, Osvaldo A. Rosso, Evellyn S. Cavalcante, Phillippe S. L. Dias)

PP14 : *Characterizing temporal correlations with ordinal patterns analysis* (Felipe Olivares, Luciano Zunino, O. A. Rosso)

PP15 : *The effect of off-diagonal nonlinearity in two-dimensional crystalline systems.* (J. L. L. dos Santos, F. A. B. F. de Moura, W. S. Dias, M. L. Lyra)

PP16 : *An study of the scaling of the dynamics of homogeneous states of one-dimensional gravitational systems* (Lydiane F. Souza, M. A. Amato, T. M. Rocha Filho)

PP17 : *Electron-soliton dynamics in chains with cubic nonlinearity* (M. O. Sales, F. A. B. F. de Moura)

Poster Session 2 (Thursday)

PP18 : *Two-dimensional Anderson Model with off-diagonal nonlinearity* (M. O. Sales, W. S. Dias, M. L. Lyra, F.A.B.F. de Moura)

PP19 : *Robustness of natural measure of typical non-hyperbolic chaotic systems* (Rodrigo Frehse Pereira, Sandro Ely de Souza Pinto, Murilo da Silva Baptista)

PP20 : *Generating partitions of induced Duffing map* (Rodrigo Frehse Pereira)

PP21 : *The time-varying networks of the cortical nonlinear dynamic: a study of fibromyalgia syndrome.* (Pedro Teodoro Cardoso, Rafael Silva Rosário, Pedro Montoya, José Garcia Vivas Miranda)

PP22 : *Stability and pattern formation in a non-local Fisher Komolgorov dynamics* (Rogelma M. S. Ferreira, Andre L. A. Penna, Fernando Barbosa, Keila Lopes, Fernando A. Oliveira)

PP23 : *Hamilton-Jacobi and Fokker-Planck equations for the harmonic oscillator* (E. Cortés, J. I. Jiménez-Aquino)

PP24 : *Detection of weak signals in memory thermal baths* (J. I. Jiménez-Aquino, R. M. Velasco, M. Romero-Bastida)

PP25 (former C1-1): *Very prolonged practice in blocks of trials: Scaling of fitness, Universality and Persistence* (Andréia S. Itami, Fernando J. Antonio, Renio S. Mendes)

PP26 (former F2-1): *Non-Gaussian center of pressure velocity distribution during quiet stance* (E. S. D. Santos, S. Picoli, P. P. Deprá, R. S. Mendes)

PP27 (former F2-2): *Modeling Neuronal Communities From Real Brain Networks* (E. L. Lameu, F. S. Borges, A. M. Batista, M. S. Baptista)

PP28 (former F2-3): *Dynamic range in a neuron network with time delay* (F. S. Borges, E. L. Lameu, K. C. Iarosz, A. M. Batista, R. L. Viana, S. R. Lopes, I. L. Caldas)

PP29 (former F1-3): *Chimera States on maps with nonlocal coupling* (M. S. Santos, A. M. Batista, J. D. Szezech Jr)

PP30 (former F2-4): *The Impact of Cancer on the Neural Activity* (K. C. Iarosz, A. M. Batista, M. S. Baptista, P. R. Protachevich)

PP31 (former F2-5): *Spike timing dependent plasticity in Hodgkin-Huxley network* (R. R. Borges, K. C. Iarosz, F. S. Borges, E. L. Lameu, A. M. Batista, I. L. Caldas)

PP32 (former F1-4): *Gyroaveraged ExB chaotic transport with Zonal Flow Bifurcation* (J. D. da Fonseca, D. del-Castillo-Negrete, I. L. Caldas)

PP33 (former E1-2): *WaveFinder: a tool for signal processing using Neuroheadsets and Android System* (Alex Augusto Biazotti, Gunther J. L. Gerhardt, Ney Lemke, Jose L. Rybarczyk-Filho)

PP34: *The saturation effect in the diode-like behavior of a nonlinear asymmetric dimer* (T.F. Assunção, E.M. Nascimento and M.L. Lyra)