

TIMETABLE

Sunday 04 Oct. 16:00 - 21:00 REGISTRATION

| | 05 Oct Monday | | 06 Oct Tuesday | | 07 Oct Wednesday | | 08 Oct Thursday | | 09 Oct Friday | |
|--------------|---|----------|------------------------------|----------|-----------------------------|-----------|-------------------------------|-----------|--------------------------|--------|
| 8:30 | REGISTRATION Opening Remarks | | Boyer | | Ozorio | | Ruelle | | Kurchan | |
| 9:00 | | | Geisel | | Casati | | Barkai | | Jensen | |
| 9:30 | Stanley | | Grassberger | | Talkner | | Pikovsky | | Grebogi | |
| 10:00 | Herrmann | | Kenkre | | Saraceno | | Tsallis | | Christensen | |
| 10:30 | COFFEE-BREAK | | | | | | | | | |
| 11:00 | Janosi | Marti | Gleiser | Ruffo | Dawson | F. Aguiar | Hernandez | RiosLeite | Borzi | Gandhi |
| 11:30 | Luque | Caldas | Ortega | Veneger. | Zorzenon | Borondo | Chame | Egydio | Marconi* | Lima |
| 11:50 | Tirnakli | Stilck | Eguia | Lyra | Pinho* | Dechoum | Dalton | Lee | Avila | Penna |
| 12:10 | Fort | Viana | Wedeman# | Stariolo | Mekler* | Wisniacki | Vega | Cosenza | Closing Remarks | |
| 12:40 | LUNCH | | | | | | | | | |
| 14:30 | Makse | Albano | M.Aguiar | Toral | | | Cannas | Turner | | |
| 15:00 | Risso | Benet | S.Andrade | Wio | | | Aldana | Robledo | | |
| 15:30 | Macau | Beims | Argollo | R.Silva | | | C.Mussot | Martinez | | |
| 15:50 | Mendes | Sanders | R.Andrade | Debbasch | | | Larralde* | Pinto | | |
| 16:10 | COFFEE-BREAK | | | | | | | | | |
| 16:40 | Falcon | Gleria | Ortmanns | Madruga | | | Arenzon | Cocho | | |
| 17:00 | Dauxois | Masoller | Kuperman | Tellez | | | Dickman | Beck | | |
| 17:30 | Clerc | Nobre# | Moukarzel | Barbosa | | | Plastino | Oliveira | | |
| 18:00 | POSTER SESSION I | | POSTER SESSION II | | ROUND TABLE | | POSTER SESSION III | | | |
| 20:00 | WELCOME | | | | | | | | | |

* 30min, # 20 min

SCIENTIFIC PROGRAM

Monday 05 October

Plenary Session

Chair: Constantino Tsallis

09:30 - 10:00 *Economic fluctuations and statistical physics* H. E. Stanley

10:00 - 10:30 *Robustness of social networks* Hans Herrmann

COFFEE BREAK

Session A

Chair: Pablo Gleiser

11:00 - 11:30 *Detecting nonlinearities in fluctuating atmospheric parameters* Imre János

11:30 - 11:50 *The architecture of mutualistic networks minimizes competition and increases biodiversity* Bartolo Luque

11:50 - 12:10 *Analysis of self-organized criticality in complex systems* Ugur Tirnakli

12:10 - 12:40 *Catastrophic shifts in ecosystems: Early warnings and management procedures (inspired in the physics of phase transitions)* Hugo Fort

Session B

Chair: Soares Andrade

11:00 - 11:30 *Turbulent fountains in stratified flows* Arturo Martí

11:30 - 11:50 *Dynamical characteristics of plasma turbulence in TCABR tokamak* Ibere Caldas

11:50 - 12:10 *Solution of a lattice gas model with orientational degrees of freedom on a Husimi lattice* Jürgen Stilck

12:10 - 12:40 *Fractal structures in nonlinear dynamics and plasma physics* Ricardo Luiz Viana

LUNCH

Session A

Chair: Marcia Barbosa

14:30 - 15:00 *Theory of random packings* Hernán Alejandro Makse

15:00 - 15:30 *Conditions for the rise of a Brazil nut* Dino Risso

15:30 - 15:50 *Interaction of a bouncing ball with a sinusoidally vibrating table* Elbert Macau

Session B

Chair: Horacio Wio

14:30 - 15:00 *On the interplay between spatial and time discrete scale invariance in dynamical process in fractal media* Ezequiel Albano

15:00 - 15:30 *Statistics planetary systems: Variations on a model by Laskar* Luis Benet

15:30 - 15:50 *Detecting focusing motion in nonintegrable Hamiltonian system* Marcus Werner Beims

15:50 - 16:10 *Chaotic properties of three-dimensional billiards* David P. Sanders

COFFEE BREAK

Session A

Chair: Ricardo Viana

16:40 - 17:00 *Nonlinear wave-vortex interaction* Claudio Falcon

17:00 - 17:30 *Nonlinear internal waves in physical oceanography* Thierry Dauxois

17:30 - 18:00 *Driven front propagation in 1-D spatially periodic media: Experiments and theory* Marcel Clerc

Session B

Chair: Gandhi Viswanathan

16:40 - 17:00 *Relative efficiency of financial markets and the algorithmic complexity theory* Iram Gleria

17:00 - 17:30 *Quantifying stochastic and coherence resonances and detecting noise-induced order via information theory complexity measures* Cristina Masoller

17:30 - 17:50 *Nonlinear Differential Equations with a Common Type of Solution* Fernando Nobre

18:00 - 19:30 **POSTER SESSION I**

Tuesday 06 October

Plenary Session

Chair: Marcus de Aguiar

- 08:30 - 09:00 *Modeling animal movements in complex environments* [Denis Boyer](#)
09:00 - 09:30 *Phase transitions towards self-organized criticality in neuronal systems* [Theo Geisel](#)
09:30 - 10:00 *Two applications of mutual information to biological data analysis* [Peter Grassberger](#)
10:00 - 10:30 *Nonlinear extinction of biological populations* [V. M. Kenkre](#)

COFFEE BREAK

Session A

Chair: Denis Boyer

- 11:00 - 11:30 *Modeling brain functional networks* [Pablo Gleiser](#)
11:30 - 11:50 *Imbalance of synchronous activity in epilepsy* [Guillermo Ortega](#)
11:50 - 12:10 *Synchronized release in sensory synapses* [Manuel Equia](#)
12:10 - 12:30 *Properties of memory dynamics with Generalized Simulated Annealing for modeling mental processes* [Roseli Wedemann](#)

Session B

Chair: Gustavo Martinez-Mekler

- 11:00 - 11:30 *Statistical mechanics and dynamics of solvable models with long-range interactions*
[Stefano Ruffo](#)
11:30 - 11:50 *Superdiffusive Dynamics in Hamiltonian Systems* [Roberto Venegeroles](#)
11:50 - 12:10 *Long-range elastic-mediated interaction between nanoparticles adsorbed on free-standing smectic films* [Marcelo Lyra](#)
12:10 - 12:40 *Bond-orientational order and pattern formation in systems with competing interactions at different scales* [Daniel Stariolo](#)

LUNCH

Session A

Chair: Cristina Masoller

- 14:30 - 15:00 *Dynamical processes on networks* [Marcus A. M. de Aguiar](#)
15:00 - 15:30 *Optimal path cracks: a model for the collapse of transportation networks* [José Soares Andrade](#)
15:30 - 15:50 *Predicting fluxes of metabolic reactions* [Marcio Argollo de Menezes](#)
15:50 - 16:10 *Network evolution based on minority game with herding behavior* [Roberto Andrade](#)

Session B

Chair: Ronald Dickman

- 14:30 - 15:00 *Divide and conquer: Resonance induced by competitive interactions* [Raúl Toral](#)
15:00 - 15:30 *Stochastic resonance in extended systems: The role of the coupling mechanism* [Horacio Wio](#)
15:30 - 15:50 *The physics of the random telegraph signals - Decreasing the noise in semiconductor devices: An analytical and computational approach* [Roberto da Silva](#)
15:50 - 16:10 *Diffusions in fluctuating geometries* [Fabrice Debbasch](#)

COFFEE BREAK

Session A

Chair: Roberto Andrade

- 16:40 - 17:00 *Mass condensation on networks with pair-factorized steady states* [Hildegard Meyer-Ortmanns](#)
17:00 - 17:30 *A model for the evolution of geopolitical division of the Ancient World* [Marcelo Kuperman](#)
17:30 - 18:00 *Bootstrap percolation on networks with long-range couplings* [Cristian Moukarzel](#)

Session B

Chair: Marcel Clerc

- 16:40 - 17:00 *Stability of polymer blends with free surfaces* [Santiago Madruga](#)
17:00 - 17:30 *Non-linear screening of charged macromolecules* [Gabriel Téllez](#)
17:30 - 18:00 *Dynamic and thermodynamic anomalies in water* [Marcia Barbosa](#)

18:00 - 19:30 POSTER SESSION II

Wednesday 07 October

Plenary Session

Chair: David Sanders

- 08:30 - 09:00 *Nonunitary evolution of the density operator* Alfredo M. Ozório de Almeida
09:00 - 09:30 *Classical and quantum transport: from Fourier law to thermoelectric efficiency* Giulio Casati
09:30 - 10:00 *Fluctuation and work theorems of open quantum systems* Peter Talkner
10:00 - 10:30 *Open quantum maps: a view from quantum information theory* Marcos Saraceno

COFFEE BREAK

Session A

Chair: Marcelo Kuperman

- 11:00 - 11:30 *How space and dynamics shape intracellular calcium signals* Silvina Ponce-Dawson
11:30 - 11:50 *Clustering parasitemia time series of malaria patients* Rita Zorzenon
11:50 - 12:20 *Modelling the dynamics and control of transmitted diseases* Suani T. R. de Pinho
12:20 - 12:50 *Regulatory network dynamics for sea urchin sperm navigation* Gustavo Martinez-Mekler

Session B

Chair: Marcus Beims

- 11:00 - 11:30 *Jahn-Teller and Renner-Teller intersections in a quantized Sinai billiard: Numerical and microwave experiments* Flávio M. de Aguiar
11:30 - 11:50 *Homoclinic quantum numbers* Florentino Borondo
11:50 - 12:10 *Patterns Formation in Optical Parametric Oscillator* Kaled Dechoum
12:10 - 12:40 *Loschmidt echo in perturbed cat maps* Diego Wisniacki

LUNCH

18:00 ROUND TABLE

Complex systems studies in Latin America

Marcus A.M. de Aguiar, Marcelo Kuperman, Gustavo Martinez-Mekler, Octavio Miramontes, Constantino Tsallis

Thursday 08 October

Plenary Session

Chair: Flavio Aguiar

- 08:30 - 09:00 *Linear response for systems who do or do not satisfy the chaotic hypothesis* David Ruelle
09:00 - 09:30 *Weak ergodicity breaking and its relation to weak chaos* Eli Barkai
09:30 - 10:00 *Chaotic destruction of Anderson localization in nonlinear disordered lattices* Arkady Pikovsky
10:00 - 10:30 *Why are there so many q-Gaussian-like distributions in nature?* Constantino Tsallis

COFFEE BREAK

Session A

Chair: Arturo Marti

- 11:00 - 11:30 *Wetting patterns and instabilities on nanostructured surfaces* Susana Hernández
11:30 - 11:50 *Dewetting of ultra-thin solid films* Anna Chame
11:50 - 12:10 *On-Off Intermittency in Thin Film Electromigration* Eric Dalton
12:10 - 12:40 *Non-equilibrium dynamics of symmetry breaking phase transitions in block copolymer thin films*
Daniel A. Vega

Session B

Chair: Alfredo Ozorio

- 11:00 - 11:30 *Synchronization of optically coupled chaotic lasers* José Roberto Rios-Leite
11:30 - 11:50 *Fermi acceleration and dissipation on the annular billiard* Ricardo Eglydio de Carvalho
11:50 - 12:10 *Optical modes in chaotic dielectric microcavities* Soo-Young Lee
12:10 - 12:40 *Synchronization induced by intermittent versus partial drives in dynamical networks* Mario Cosenza

LUNCH

Session A

Chair: Mario de Oliveira

- 14:30 - 15:00 *Long range dispersal and pattern formation in natural invasion processes* Sergio Cannas
15:00 - 15:30 *Phase transitions and collective motion: A recent debate* Maximino Aldana
15:30 - 15:50 *Many-body effects in the coalition formation process* Marcelo del Castillo-Mussot
15:50 - 16:20 *Aggregation of retail stores* Hernán Larralde

Session B

Chair: Ibere Caldas

- 14:30 - 15:00 *Linear dynamics on spaces with boundaries: almost linear systems* Stefan Thurner
15:00 - 15:30 *Statistical dynamics at zero Lyapunov exponent* Alberto Robledo
15:30 - 15:50 *Fast, parallel and secure cryptography algorithm using Lorenz's attractor* Alexandre Martinez
15:50 - 16:20 *Periodic-orbit analysis and intermingled basins in biological systems* Sandro E. de Souza Pinto (cancelled.)

COFFEE BREAK

Session A

Chair: Gabriel Tellez

- 16:40 - 17:00 *Curvature-driven coarsening: new exact, numerical and experimental results* Jeferson Arenzon
17:00 - 17:30 *Recent results on absorbing-state phase transitions* Ronald Dickman (cancelled)
17:30 - 18:00 *Statistical mechanics' tools and quantum phase transitions* Angel Plastino

Session B

Chair: Cristian Moukarzel

- 16:40 - 17:00 *Two exponent power law behavior of successive correlation products: A Peripheral Limit Theorem* Germinal Cocho
17:00 - 17:30 *Complex systems with time scale separation: New applications of superstatistical techniques*
Christian Beck
17:30 - 18:00 *Stochastic fluctuations in population dynamics* Mário de Oliveira (cancelled)

18:00 - 19:30 **POSTER SESSION III**

Friday 09 October

Plenary Session

Chair: Octavio Miramontes

- 08:30 - 09:00 *Geometric order in amorphous systems* [Jorge Kurchan](#)
09:00 - 09:30 *Oscillation patterns in genetic feed-back loops* [Mogens Høgh Jensen](#)
09:30 - 10:00 *Queueing phase transition: Theory of translation* [Celso Grebogi](#)
10:00 - 10:30 *Movement patterns and social organization: How ants move inside their nests* [Kim Christensen](#)

COFFEE BREAK

Session A

Chair: Santiago Madruga

- 11:00 - 11:30 *The magnetisation curve in the spin ice $Dy_2Ti_2O_7$ for $H//[111]$: experiments at low temperature* [Rodolfo Borzi](#)
11:30 - 12:00 *Geometrical depinning and rectification of domain walls in a multiply connected space* [Verónica Marconi](#)

Session B

Chair: Marcio Argollo

- 11:00 - 11:30 *Incompressible flows and random walks* [Gandhi M. Viswanathan](#)
11:30 - 11:50 *Analysing and controlling the tax evasion dynamics and fluctuations via Majority-vote model* [Francisco Lima](#)
11:50 - 12:10 *Time Series Segmentation based on Entropy and Fluctuations* [Thadeu Penna](#) (cancelled)

LUNCH
