

Dynamics Days South America 2010

Final Program

July 26 – 30, 2010

São José dos Campos, São Paulo, Brazil

Forewords and Welcome Message

The Dynamics Days was founded in 1980 and is now the longest standing and most respected international series of meetings devoted to the field of dynamics and nonlinearity. It has been held regularly in Europe since 1980, in the US since 1982, in the Asia-Pacific region since 1999. Over the time, these meetings have been served as a forum to promote regional as well as international scientific exchange and collaborations. Traditionally they have been bringing together researchers from a wide range of backgrounds including physics, biology, engineering, chemistry and mathematics for interdisciplinary research in nonlinear science.

From now on, the South America Region starts to periodically set a stage to receive this respectable and prominent meeting. As so, on behalf of the Organizing Committee, we would like to welcome you in São José dos Campos, Brazil, for the *"Dynamics Days South America 2010"*. Also, we would like to express our profound gratitude for your keen interest and very enthusiastic support shown for this conference. Thanks to you, to your work and collaboration, we can already say that our Dynamics Days in South America region is a success and will be kept as so for the years to come.

In this first edition, the number of submissions overpasses all the most optimistic forecast. In the same way, the amount of financial support that we have received from Brazil and abroad was over the expectance. Based on that, we can assert that all the community in our region are receiving here with joy, hope and enthusiasm the Dynamics Days.

Finally, we would like to thank everybody who joint us in the organization of this conference. It includes all the sponsors for their technical and financial support; all the participants for their contributions; all the committee members for their work and follow-through. We also expect that you have the opportunity to make friends, exchange scientific knowledge and establish collaborations that allow the development of the field of dynamics and nonlinearity in our region.

For the Organizing Committee,
Elbert E. N. Macau

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Conference Information

Registration

Registration for the conference Will be open at the following times, in the LIT / Fernando de Mendonça Auditory atrium:

Monday, July 26 th	8:00 AM – 5:00 PM
Tuesday, July 27 th	8:00 AM – 2:00 PM
Wednesday, July 28 th	8:00 AM – 2:00 PM
Thursday, July 29 th	8:00 AM – 2:00 PM
Friday, July 30 th	8:00 AM – 11:00 PM

Internet

Wireless internet access is available in the LIT building. The network available is *LIT_VISITANTES* which password is *lit*wi2010*.

Lunch breaks

The lunch will be served in the main hall of INPE's recreation center (see map), all days, from 12:30 PM to 2:20 PM. It will cost 15,00 BRL per kilo. Nearby this area, there is also a cafeteria, which offers coffee, drinks and snacks during all day.

Poster Sessions – Wednesday and Thursday, July 28, 29, 6:30 PM – 8:30 PM

During the poster sessions there will be snacks, cakes and drinks in the LIT / Fernando de Mendonça Auditory atrium.

Banquet – Tuesday, July 27, 7:00 PM

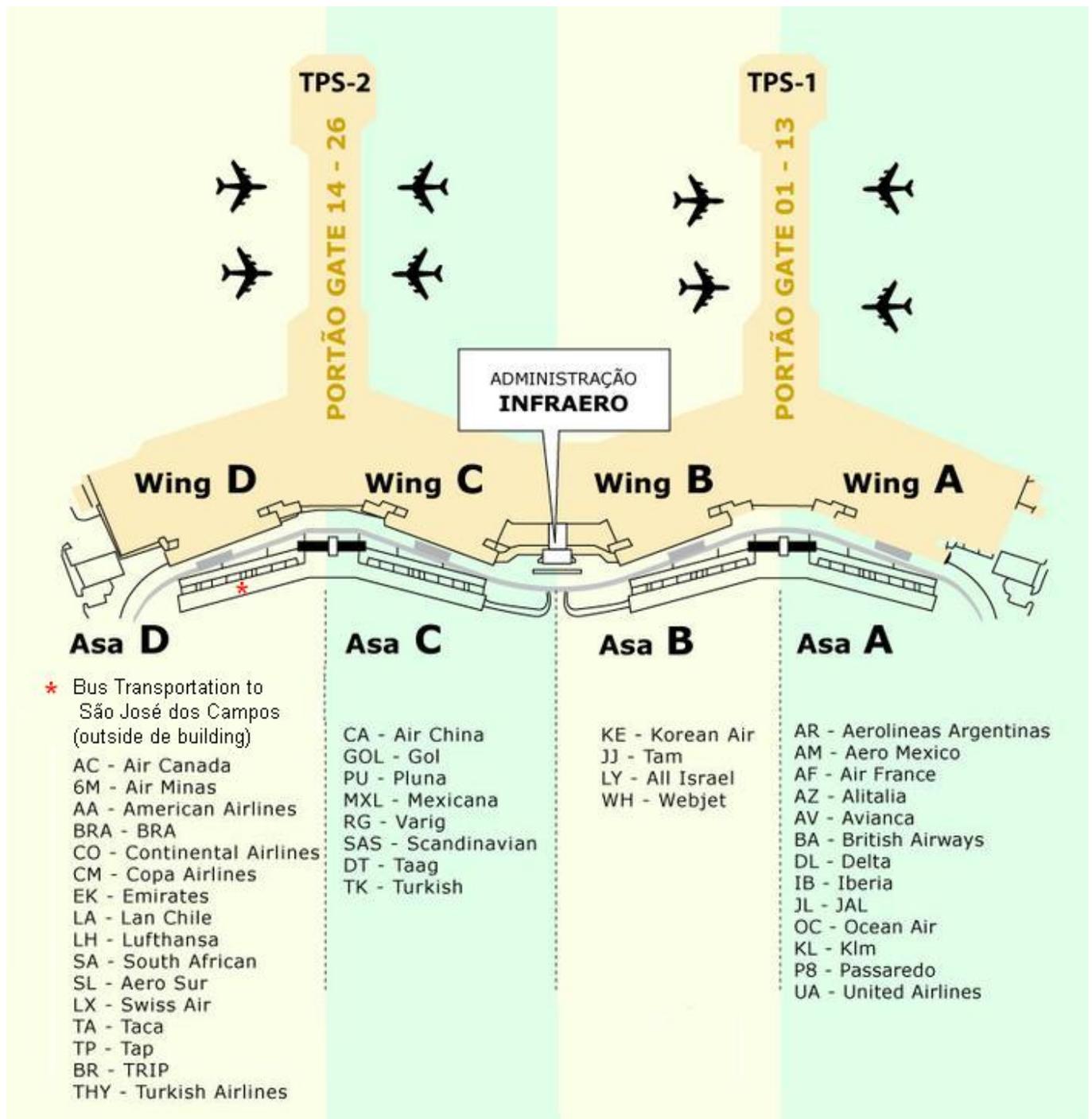
Churrascaria Vale Sul - <http://wikimapia.org/7202080/pt/Vale-Sul-Grill>

The banquet will take place in a very nice barbecue restaurant. There is a large buffet with salads, cheese and vegetables. The main attraction of the place is the Brazilian barbecue served in an all-you-can-eat basis. They also served grilled chicken and sea food. The following drinks are included: water, soft drinks, juices and beer, and one dessert of your choice. The banquet is included in the full registration fee. Additional tickets (for accompanying persons or for the ones who did not pay full registration fee) can be purchased at the registration desk.

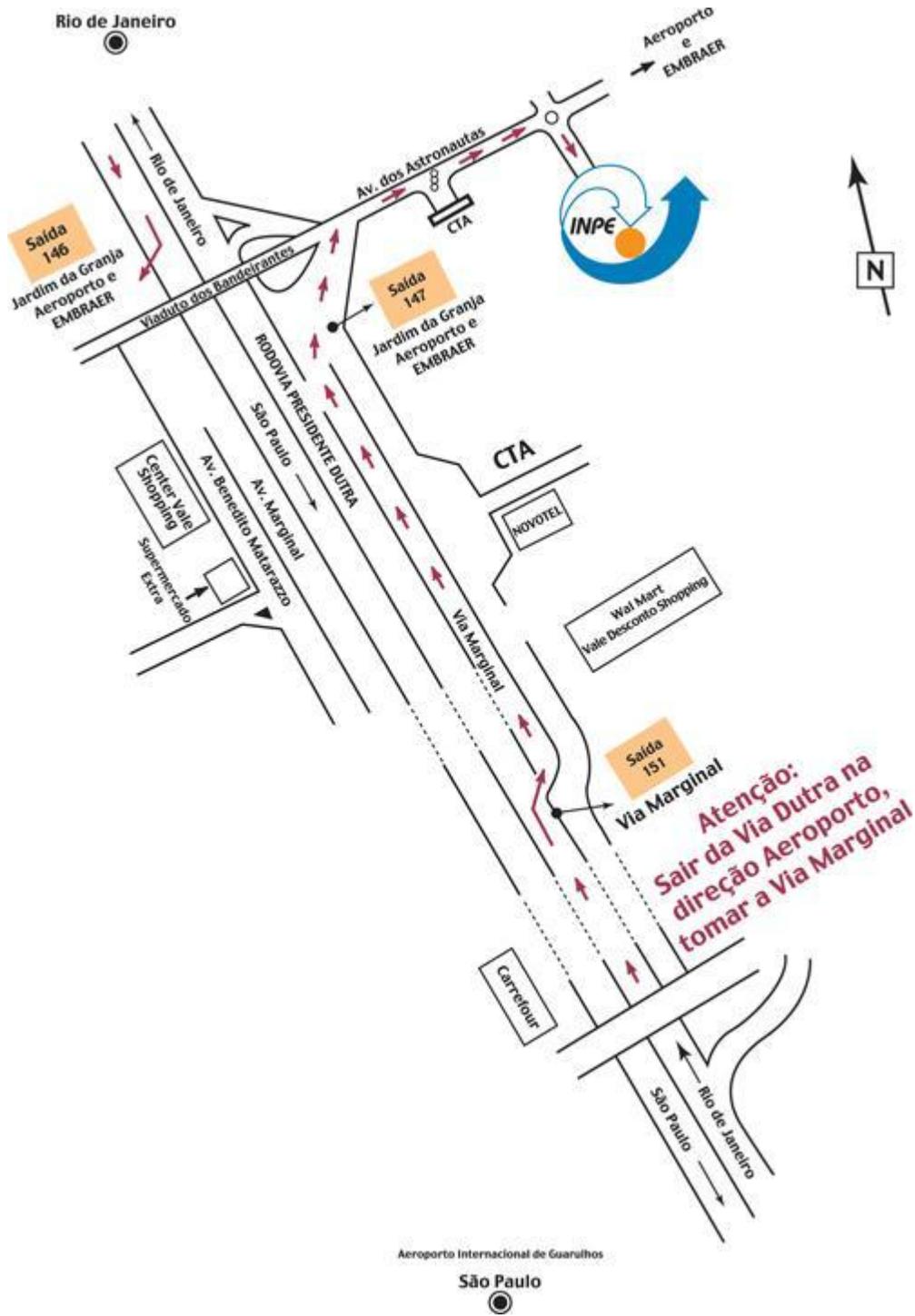
Coffee-Breaks

All coffee-breaks will be served in in the LIT / Fernando de Mendonça Auditory atrium.

Ground transportation for São Paulo / Guarulhos International Airport to São José dos Campos Main Bus Terminal:

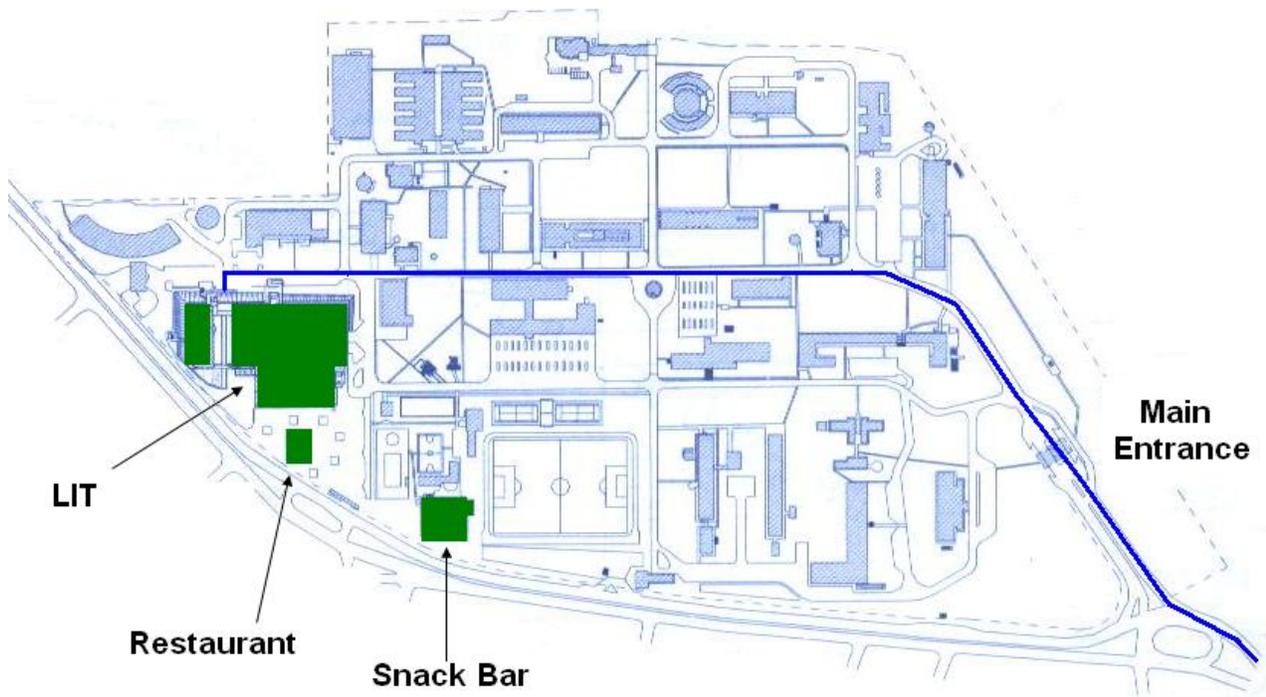


How to get INPE from Rio de Janeiro or São Paulo



INPE Campus

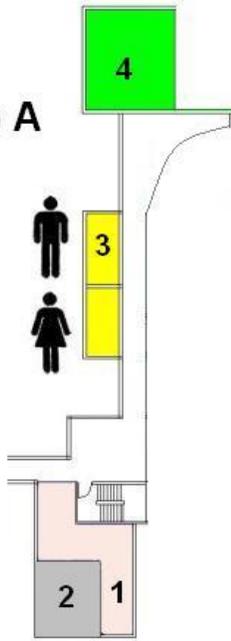
MAP of INPE Area



LIT Auditoriums

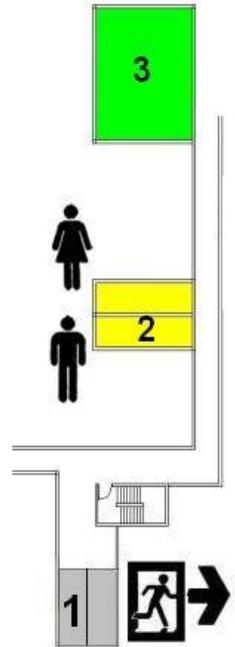
Ground Floor - Torre A

- 1 - Building Entrance
- 2 - Elevator
- 3 - Toilets
- 4 - S1 Auditorium



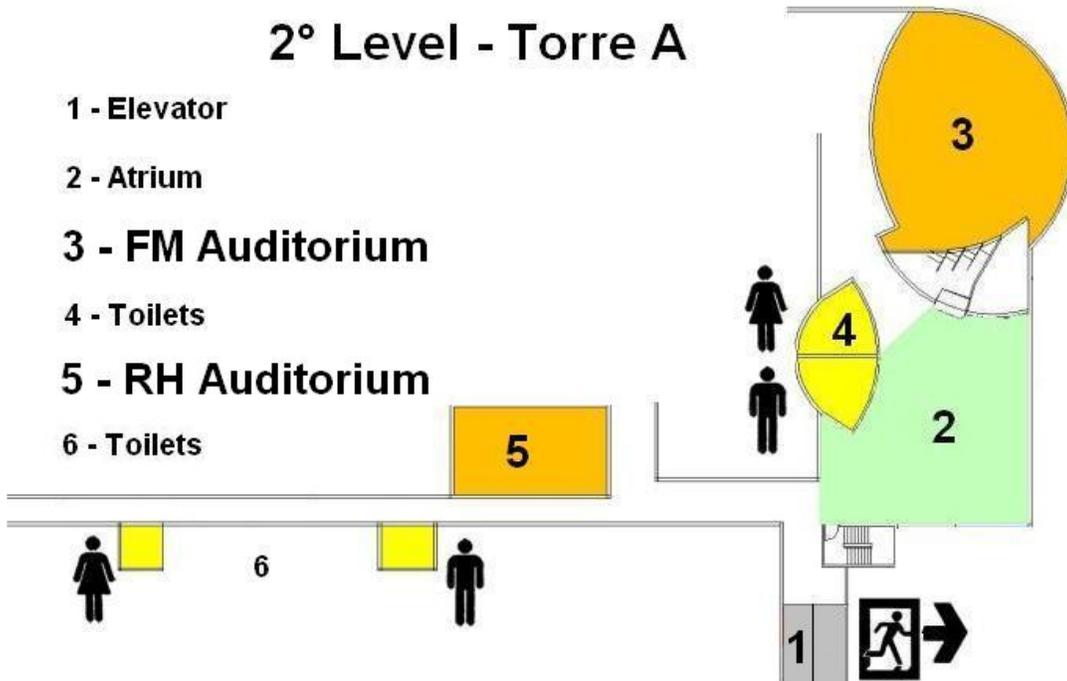
1° Level - Torre A

- 1 - Elevator
- 2 - Toilets
- 3 - SC Auditorium



2° Level - Torre A

- 1 - Elevator
- 2 - Atrium
- 3 - FM Auditorium
- 4 - Toilets
- 5 - RH Auditorium
- 6 - Toilets



General Program – Sessions

TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIEDAY
08:30 – 08:45	Registration	P9 (L. Pecora)	P18 (A. Motter)	P27 (J. Kurths)	P36 (Ying-Cheng Lai)
08:45 – 09:05	Open				
09:05 – 09:35	P1 (E. Ott)	P10 (A. Ozorio)	P19 (S. Cannas)	P28 (M. Baptista)	P37 (R. Stoop)
09:35 – 10:05	P2 (E. Rosa)	P11 (P. Cincotta)	P20 (M. Chevrollier)	P29 (P. Morrison)	PT_3
10:05 – 10:35	P3 (L. Torres)	P12 (C. Giordano)	P21 (C. Otto)	P30 (P. McClintock)	
10:35 – 11:00	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
11:00 – 12:40	S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20	Lunch	Lunch	Lunch	Lunch
12:40 – 14:30	Lunch	Lunch	Lunch	Lunch	Lunch
14:30 – 15:05	P4 (A. Colman_Lerner)	P13 (R. Meucci)	P22 (H. Weber)	P31 (L. Mariconi)	P38 (M. Parrilo)
15:05 – 15:35	P5 (G. Mindlin)	P14 (F. Barra)	P23 (R. Egydio)	P32 (I. János)	S21 C17 C18
15:35 – 16:05	P6 (F. Ghezzi)	P15 (J. Castaño)	P24 (K. Krisher)	P33 (C. Masoller)	
16:05 – 16:25	Coffee break	Coffee break	Coffee break	Coffee break	16:40 Coffee break
16:25 – 17:25	C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16				17:00 Closing Section
17:25 – 18:00	P7 (S. Sinha)	P16 (C. Salazar)	P25 (C. Anteneodo)	P34 (M. Aguiar)	
18:00 – 18:30	P8 (J. Tredicce)	P17 (M. Copelli)	P26 (P. Mendes)	P35 (M. Clerc)	
18:30 – 20:30			PT_1	PT_2	

P: Plenary talk; S: Minisymposium; C: Contributive talk; PT: Poster Session

Monday – July, 26th

Morning

8:30 – 8:45 **Registration**

8:45 – 9:05 **Open Ceremony**

9:05 – 10:35 **Plenary Sessions**

Auditorium FM

Chair: Jason Gallas

9:05 – 9:35 **P_01: Edward Ott**

Emergent Behavior in Large Systems of Coupled Phase Oscillators

9:35 – 10:05 **P_02: Epaminondas Rosa**

Alternating Synchronization in Coupled Chaotic Oscillators

10:05 – 10:35 **P_03: Leonardo A. B. Torres**

Energy Based Analysis of Dynamical Systems Synchronization

10:35 – 11:00 **Coffee-Break**

11:00 – 12:40 **Parallel Sessions / Mini-Symposia**

S01 – The Brain and its Functioning

Auditorium S1

S02 – The Structure of Dynamics Networks

Auditorium FM

S03 – Synchronization and Collective Behavior in Network

Auditorium RH

S04 – Nonlinear Aeroelasticity

Auditorium SC

12:40 – 2:30 PM – Lunch

Afternoon

2:30 PM – 4:05 PM **PM Plenary Sessions**

Auditorium FM

Chair: Silvina P. Dawson

2:30 PM – 3:05 PM **P_04: Alejandro Colman-Lerner**

Signal propagation, information transmission and cell to cell variation during the activation of the *S. cerevisiae* pheromone response pathway,

3:05 PM – 3:35 PM **P_05: Gabriel B. Mindlin**

Physiology and dynamics of birdsong production,

3:35 PM – 4:05 PM **P_06: Flavio Ghezzi**

Loops, mesostructures and fractals

4:05 PM – 4:25 PM **Coffee Break**

4:25 PM – 5:25 PM **Parallel Sessions / Contributive Talks**

4:25 PM – 5:25 PM **C_01 Neuronal Dynamics**

Chair: Hilda Cerdeira

Auditorium: RH

Fabio Schittler – “Computation by heteroclinic switching”

Everton Agnes – “Model architecture for pattern recognition and discrimination in a neural network of spiking neurons”

Jaime Cisternas – “Bifurcations of smooth and lurching waves in a thalamic neuronal network”

Fabiano Ferrari – “The Skew Tent Map Entropy Production”

4:25 PM – 5:25 PM **C_02 Complex Network**

Chair: Tiago Pereira

Auditorium: FM

Tiago Pereira – “Hub Synchronization in Large Scale-Free Networks”

Luiz Felipe R. Turci – “Adaptive Node-to-Node Pinning Control of Complex Networks”

Rodrigo Pereira – “Effective dynamics for chaos synchronization in networks with time-varying topologies”

Vadas Gintautas – “Identification of functional information subgraphs in complex networks”

4:25 PM – 5:25 PM C_03 Population and Dynamics

Chair: Marcus Aguiar

Auditorium: SC

Marcus de Aguiar – “Neutral Speciation in Spatially Distributed Populations”

Evaldo de Oliveira – “Solving the Levins' paradox in the logistic map of population growth”

Juliana Kodaira – “The basic reproduction number in SI staged progression model: a probabilistic approach”

Fabiola Angulo – “Sustainable Development Through Complex Networks”

4:25 PM – 5:25 PM C_04 Applications in Nonlinear Sciences ()

Chair: Murilo Baptista

Auditorium S1

Carlos Pando – “Isolas of periodic orbits in a molecular model of a laser with a saturable absorber”

Carrera – “Influence of damping in the long term behavior of a cardanically suspended body”

Bruno Batista – “The effect of poisoning species on the oscillatory dynamics of a surface catalyzed reaction”

Gerard Gomes – “A note on the dynamics of ferroelectric liquid crystals”

5:25 PM – 6:30 PM Plenary Sessions

Auditorium FM

Chair: Hilda Cerdeira

5:25 PM – 6:00 PM P_07: Sudeshna Sinha

Logical Stochastic Resonance

6:00 PM – 6:30 PM P_08: Jorge Tredicce

From Vortices to Localized Structures in Optics

Tuesday – July, 27th

Morning

8:30 – 10:35 Plenary Sessions

Auditorium FM

Chair: Carlos L. P. Lambruschini

8:30 – 9:05 P_09: Lou Pecora

Regularization of Tunneling Rates with Chaos.

9:05 – 9:35 P_10: Alfredo Ozorio

Threshold for generating quantum interferences in open chaotic systems.

9:35 – 10:05 P_11: Pablo Cincotta

Chaotic diffusion in multidimensional Hamiltonian systems.

10:05 – 10:35 P_12: Claudia M. Giordano

Chaotic diffusion in multidimensional conservative systems.

10:35 – 11:00 Coffee-Break

11:00 – 12:40 Parallel Sessions / Mini-Symposia

S05 – Chaos and Transport in Hamiltonian Systems

Auditorium S1

S06 – Neuronal Dynamics

Auditorium FM

S07 – Bifurcations of Non-Smooth Systems

Auditorium S1

S08 – Clock Distribution Systems

Auditorium SC

12:40 – 2:30 PM – Lunch

Afternoon

2:30 PM – 4:05 PM

Plenary Sessions

Auditorium FM

Chair: Edson Denis Leonel

2:30 PM – 3:05 PM

P_13: Riccardo Meucci

Chaotic dynamics in class B-lasers past and future perspectives.

3:05 PM – 3:35 PM

P_14: Felipe Barra

Propagating Modes in a Diffusive Periodic Waveguide.

3:35 PM – 4:05 PM

P_15: Jose Daniel Muñoz Castaño

Modeling with Cellular Automata and Lattice Boltzmann.

4:05 PM – 4:25 PM Coffee Break

4:25 PM – 5:25 PM Parallel Sessions / Contributive Talks

4:25 PM – 5:25 PM

C_05 Synchronization

Chair: Luiz Felipe R. Turci

Auditorium: FM

Gonzalo Marcelo Ramírez Ávila – “Transients and Arnold tongues for synchronized electronic fireflies”.

Hassan El-Nashar – “The role of periodic boundary conditions on the synchronization of coupled oscillators in a ring”.

Armando Ticona – “Synchronization conditions in two coupled pendulums”.

Josue Fonseca – “Instabilities in coupled Huygens pendula”.

4:25 PM – 5:25 PM

C_06 Bifurcation Theory and Applications

Chair: Iberê Caldas

Auditorium: RH

Eulo Balvedi Jr. – “Bifurcation Analysis of a Typical Section with Control Surface Freeplay”.

Gerard Olivar – “A Novel Non-Smooth Bifurcation in a Chemical Process DAEs System”.

Caroline Martins – “Robust Tori in a Double-Waved Hamiltonian Model”.

Ian Ford – “Entropy generation (and reduction) in a thermomechanically driven simple harmonic oscillator”.

4:25 PM – 5:25 PM C_07 Hamiltonian Systems and Billiards

Chair: Ricardo Egidio de Carvalho

Auditorium: SC

Alexander Loskutov – “Superdiffusion in time-dependent open horizon billiards”.

Edson Denis Leonel – “Suppressing Fermi acceleration in oval like driven billiards”.

Jose Salas – “Dividing surfaces and reaction rates in the $H+H_2 \rightarrow H_2+H$ chemical reaction”.

Turgay Uzer – “Intense-Laser Double Ionization: Insights from Nonlinear Dynamics”.

4:25 PM – 5:25 PM C_08 Time Series Analysis

Chair: Reinaldo Roberto Rosa

Auditorium S1

Marcus Silva – “Decentralized observer for a class of nonlinear norm bounded systems”.

Lucas Uzal – “Optimal irregular delay embeddings”.

Sebastián Quiroga Lombard – “A simple conceptual model to interpret the 100000 years dynamics of paleo-climate records”.

5:25 PM – 6:30 PM Plenary Sessions

Auditorium: FM

Chair: Luiz de Siqueira Martins

5:30 PM – 6:00 PM P_16: Carlos Enrique Mejia Salazar

Stable coefficient identification by mollification.

6:00 PM – 6:30 PM P_17: Mauro Copelli

Physics of Psychophysics: contributions from Statistical Mechanics to Neuroscience.

Wednesday – July, 28th

Morning

8:30 – 10:35 Plenary Sessions

Auditorium FM

Chair: Iberê Luiz Caldas

8:30 – 9:05 P_18: Adilson E. Motter

Network Compensatory Perturbations: The Key to Rescue and Control the Dynamics of Complex Systems.

9:05 – 9:35 P_19: Sergio Alejandro Cannas

Emergent complexity in natural networks out of stability selection pressure.

9:35 – 10:05 P_20: Martine Chevrollier

Radiation trapping and Lévy flights of photons in atomic vapors.

10:05 – 10:35 P_21: Christian Otto

Complex Dynamics of Semiconductor Quantum-Dot Lasers subjected to.

10:35 – 11:00 Coffee-Break

11:00 – 12:40 Parallel Sessions / Mini-Symposia

S09 – Challenges in Autonomous Learning

Auditorium S1

S10 – Astrodynamics – Part I

Auditorium FM

S11 – Dynamics Suspensions Part I - Coagulation and

Trapping

Auditorium S1

S12 – Nonlinear Vibrations Elastic Structures

Auditorium SC

12:40 – 2:30 PM – Lunch

Afternoon

2:30 PM – 4:05 PM

Plenary Sessions

Auditorium FM

Chair: Hamilton Varela

2:30 PM – 3:05 PM

P_22: Hans Ingo Weber

Nonlinear Dynamics and Multibodies Rotating in Space.

3:05 PM – 3:35 PM

P_23: Ricardo Egydio

Dynamical Transport Barriers.

3:35 PM – 4:05 PM

P_24: Katharina Krischer

Globally coupled oscillators: An experimental approach towards an associative memory device.

4:05 PM – 4:25 PM Coffee Break

4:25 PM – 5:25 PM Parallel Sessions / Contributive Talks

4:25 PM – 5:25 PM

C_09 Control

Chair: Luiz Felipe R. Turci

Auditorium: FM

Benjamin Toledo – “Optimal Control in Noisy Chaotic Systems”.

Viviana Csota – “Stabilizing equilibrium by linear feedback for controlling chaos in Chen system”.

Everton Souza – “The controlling role of envelope mismatches in intense inhomogeneous charged beams”.

Wolfgang Hanke – “Control of the Belousov-Zhabotinsky reaction by small external forces, especially gravity”.

4:25 PM – 5:25 PM

C_10 Celestial Mechanics

Chair: Vivian M. Gomes

Auditorium: RH

Ashok Mittal – “Intriguing structures in iterative maps motivated by N-body problem”.

Maria Espindola – “Direct Hamiltonization - The Generalization of the Alternative Hamiltonization”.

Gustavo Correa – “Homoclinic Chaos in Axisymmetric Bianchi-IX

cosmological models with an "ad hoc" quantum potential".

4:25 PM – 5:25 PM C_11 Self-organization and Collective Phenomena

Chair: Juan Valdivia

Auditorium: SC

Juan Valdivia – "Chaos and criticality in city traffic under resonant conditions".

Nelson Lammoglia – "Description of realistic wealth distributions by kinetic trading models".

Priscila Favero – "The role of dipole surface at CdS nanoparticle self organization".

Rosse Quiroz – "Phase transition liquid-gas simulation in a bi-dimensional net".

4:25 PM – 5:25 PM C_12 Fluid Dynamics and Turbulence

Chair: Abraham Chian

Auditorium S1

Rodrigo Miranda – "Amplitude-phase synchronization in intermittent turbulence and spatiotemporal chaos".

Abraham Chian – "Edge of chaos in the GOY shell model of fully-developed turbulence".

Giseli Lima – "Two upwinding schemes for nonlinear problems in fluid dynamics".

Breno Silva – "Turbulence and Cascades on Geodynamo",

5:25 PM – 6:30 PM Plenary Sessions

Auditorium FM

Chair: Mario Consenza

5:30 PM – 6:00 PM P_25: Celia Anteneodo

Lyapunov exponents of many particle systems.

6:00 PM – 6:30 PM P_26: Paulo R. de Souza Mendes

A Novel Approach For Modeling the Thixotropic Elastoviscoplastic.

6:30 PM – 20:30 PM Poster Session (PT_1)

Chair: Rodolfo Maduro Almeida

Atrium

PT1: Francisco Marcus

Nonlinear Bidimensional Sloshing Suppressor Model.

PT2: Leonardo Santos

Heat stress estimation as an inverse problem: variational approach..

PT3: Clóves Rodrigues

Nonlinear electronic transport behavior in Indium Nitride.

PT4: Claudio Cesar Silva Freitas

Using Matlab as a Tool for the Teaching of Nonlinear Systems in Engineering: The Case of the Inverted Pendulum.

PT5: Everton Medeiros

Multistability in Systems with Impacts.

PT6: Everton Medeiros

Weak perturbation to control chaos in an impact oscillator.

PT7: Pedro Curto-Risso

Mono and multifractal analysis of simulated heat release fluctuations in a spark ignition heat engine.

PT8: Leandro Neves

Fractal Dimension as a Marker of Cellular Rejection in Myocardial Biopsies from Patients Submitted to Heart Transplantation.

PT9: Leandro Neves

Lacunarity as a Descriptor of Cellular Rejection in Myocardial Biopsies from Patients Submitted to Heart Transplantation.

PT10: Victoria Salazar Herrera

Detection and Alert of muscle fatigue considering surface electromyography chaotic model.

PT11: Noah Levine-Small

Accounting for Complexes of Nodes in a Vulnerability Assessment of Proteins in the Human DNA Damage Response Interaction Network.

PT12: Dionis Teshler

Dynamic Analysis Of Neural Networks.

PT13: Andres Finkelsteyn

Dynamics of compartmental epidemic models with saturated treatment and prophylaxis functions.

PT14: Jorge Ferreira

On a Asymptotic Behaviour of the Solution for a Stochastic Coupled System of Reaction-Difusion of Nonlocal Type.

PT15: Denny Garcia

Multiscale entropy analysis of spontaneous blinking time series.

PT16: Thomas Bartlett

Periodic Quantum Walks.

PT17: Klaus Kramer

Cellular automata with inertia.

PT18: Daniel Escaff

Pattern formation and non-local interaction: continuous versus discrete models.

PT19: Martine Chevrollier

Model for neural signaling leap statistics.

PT20: Diogo Soriano

An evolutionary approach to the search for periodic and chaotic oscillations in Hodgkin-Huxley model.

PT21: Bruno Medeiros

Excitable Electronic Circuit as a Sensory Neuron Model.

PT22: Fernanda Matias

Pseudo-Anticipated Synchronization in a Biologically Plausible Model of a Ubiquitous Neuronal Motif.

PT23: Raymundo Azevedo

Modelling immunisation against cytomegalovirus infection.

PT24: Marcos Amaku

Modelling vaccination against bovine brucellosis.

PT25: Marat Rafikov

Controlling the interaction between sugarcane borer and its parasitoid.

PT26: Luigi Renna

A Discrete SIRS Model with Kicked Infection Probability.

PT27: Leonardo Maia

Evolution and drug resistance: a computational study.

PT28: Marcelo Araujo

Solution for anomalous diffusion equation with source term.

PT29: Diogo Vieira

Dynamical Systems Analysis of a Cortical Neuron Model.

PT30: El-Haffaf Amir

Upper and Lower solutions for fourth nonlinear boundary value problem.

PT31: Hernan Piragua-Ariza

Studying the topological stability of the $\lambda\Phi^4$ kink..

PT32: Eduardo Mazzutti

Mathematical modeling and numerical simulations of a constrained double pendulum.

PT33: Gabriel Slade

Influence of energy changes in breathers.

PT34: Marcus Vinicius Bianchi dos Santos

Comparison between linear and nonlinear control for the double pendulum using the minimum energy criterion.

PT35: Cristiane Stegemann

Periodic, Chaotic, and Hyperchaotic States in Parameter-Spaces of a Four-Dimensional Chua's System.

PT36: Sabrina Camargo

Extreme fractal structures in chaotic mechanical systems: riddled basins of attraction.

PT37: Henrique Carli

Improving the forecasting capabilities in time series analysis.

PT38: Emilson Ribeiro Viana Junior

High Resolution parameter spaces for a forced Chua's Circuit.

PT39: Priscilla Silva

Biparametric Investigation of the Phase Space Structures of the General Standard Map in Dissipative Regime.

PT40: Robson Pessoa

Generalizing the logistic map through the q-product.

PT41: Helaine Furtado

Neural networks for emulation variational method for data assimilation in nonlinear dynamics.

Thursday – July, 29th

Morning

8:30 – 10:35 Plenary Sessions

Auditorium FM

Chair: Edson Denis Leonel

8:30 – 9:05 P_27: Jürgen Kurths

Dynamical System and Complex Networks: Are such Theories Useful for Neuroscience and Geoscience.

9:05 – 9:35 P_28: Murilo Baptista

Communication in complex networks.

9:35 – 10:05 P_29: Philip Morrison

Chaos in Nontwist Hamiltonian Systems.

10:05 – 10:35 P_30: Peter McClintock

Wave Turbulence in Superfluid ^4He : Energy Cascades, Rogue Waves & Kinetic Phenomena in the Laboratory.

10:35 – 11:00 Coffee-Break

11:00 – 12:40 Parallel Sessions / Mini-Symposia

S13 – Communication with Chaos Part I

Auditorium S1

S14 – Astrodynamics – Part II

Auditorium FM

S15 – Dynamics Suspensions Part II - Turbulence

Auditorium S1

S16 – Nonlinear Analysis Simulation Space Physics

Auditorium SC

12:40 – 2:30 PM – Lunch

Afternoon

2:30 PM – 4:05 PM Plenary Sessions

Auditorium FM

Chair: Ricardo Luiz Viana

2:30 PM – 3:05 PM **P_31: Luca Moriconi**

Turbulent Boundary Layer Fluctuations and Horseshoe Vortices.

3:05 PM – 3:35 PM **P_32: Imre M. Jánosi**

Chaotic advection of passive tracers in the atmosphere: laboratory models and numerical tests with reanalysis wind fields.

3:35 PM – 4:05 PM **P_33: Cristina Masoller**

Quantifying complexity via information theory measures.

4:05 PM – 4:25 PM Coffee Break

4:25 PM – 5:25 PM Parallel Sessions / Contributive Talks

4:25 PM – 5:25 PM **C_13 Control in Complex Systems**

Chair: Marcio Dantas

Auditorium: FM

André Steklain – “Stability of a Restricted Three-Body Problem with the Spherical Plummer Potential”.

Daniel Cajueiro – “Controlling self-organized criticality in complex networks”.

Marcio Dantas – “Stabilization due to Singular Perturbations in a Wind Model”.

Adriano Batista – “Squeezing of thermal noise in a parametrically-driven Duffing oscillator”.

4:25 PM – 5:25 PM **C_14 Communication with chaos and Coding**

Chair: Marcio Eisencraft

Auditorium: SC

Larissa Ribeiro – “Digital Modulation using High Period Unstable Periodic Orbits”.

Diogo Soriano – “Blind extraction and separation of chaotic sources - results and perspectives”.

Semiconductor Lasers”.
Damien Rontani – “Multiplexed Chaos-Based Communications with

Flows”.
Daniel Chaves – “Properties of a Aithmetic Code for Geodesic

4:25 PM – 5:25 PM C_15 Dynamics of Granular Materials

Chair: Adriana Tufaile

Auditorium: S1

Ignacio Ortega – “Subharmonic wave transition in a quasi-one-dimensional noise fluidized shallow granular bed”.

Laurent Ponson – “Soliton and disorder: wave propagation in elastic spin chains”.

Sergio Andres Galindo Torres – “Minkowski Spheropolyhedra for the simulation of Granular Materials”.

Orazio Descalzi – “Partial annihilation of counter-propagating pulses”.

4:25 PM – 5:25 PM C_16 Plasma and Turbulence

Chair: Ricardo Luiz Viana

Auditorium RH

Erico Rempel – “Lagrangian Coherent Structures in a Nonlinear MHD Dynamo”.

Luca Moriconi – “Time Dependent Shocks and Forcing Effects in the Velocity Probability Distribution Functions of Burgers Turbulence”.

Cayo Francisco – “Dynamics of the Brazil-Malvinas Confluence”.

Carlos Breviglieri – “Spatial High Order Numerical Solution for Fluid Dynamics Applications”.

5:25 PM – 6:30 PM Plenary Sessions

Auditorium FM

Chair: Roland Korbele

5:30 PM – 6:00 PM P_34: Marcus A. M. de Aguiar

A Neutral Theory of Speciation and Diversity.

6:00 PM – 6:30 PM **P_35: Marcel Clerc**
Liquid–solid-like transition in quasi-one-dimensional driven.

6:30 PM – 20:30 PM **Poster Session (PT_2)**

Chair: Luiz Felipe Ramos Turci
Atrium

PT42: Denilson Paulo Santos

The Use the Flyby for Optimal Solutions.

PT43: Sheila Assis

Symmetry breaking effects in escape basin analysis.

PT44: Germano Amaral Monerat

Pre-Inflationary Oscillations of FRW Universes: Non-Linear Dynamics about Saddle-Center Points.

PT45: Caroline Martins

Magnetic field line escape: Comparison with mean free path.

PT46: Meirielen Sousa

Fully nonlinear maps and regular acceleration in magnetized relativistic systems.

PT47: Glaucius de Oliveira

Numerically Induced Chaos as a Consequence of Reduced Descriptions of the Nonlinear Schroedinger Equation.

PT48: Itzhack Dana

Kicked Hall Systems: Generic Super-Weak Chaos on a Universal Stochastic Web.

PT49: Diogo Costa

Describing a phase transition in the dynamics of a particle moving in a time-dependent potential.

PT50: Daniel Chave

Properties of a Arithmetic Code for Geodesic Flows.

PT51: Marcelo Silva Custódio

Intrinsic stickiness in open integrable billiards: border effects.

PT52: Adriane Schelin

Ratchet current in the Tokamap with mixed phase space.

PT53: Wilson Luiz Façanha

Chaotic Transport in Plasmas with Magnetic Shear.

PT54: Sandro Pinto

Shadowing of Trajectories in the Standard Map.

PT55: Cesar Manchein

Characterising the common behavior close to stickiness in Hamiltonian systems.

PT56: Júlio Fonseca

Chaotic Dynamics in Fusion Plasmas.

PT57: Adriana Tufaile

Hyperbolic kaleidoscopes and chaos in Hele-Shaw cells.

PT58: Jean Paulo dos S. Carvalho

Frozen orbits around the Europa satellite.

PT59: Fernando Cachucho

asteroid family.
Chirikov diffusion in the region of the (3556) Lixiaohua

PT60: Sonia Pinto de Carvalho

billiards.
Asteroseismology of rapidly rotating stars and optical

PT61: Saulo Bastos

System.
Dynamic Valid Models for the conservative Hénon-Heiles

PT62: Tiago Kroetz

Nontwis Bouncing Ball Mapp.

PT63: Alan Celestino

A Study Via Parameter Spaces of The Tokamap.

PT64: Cesar Manchein

Estimating hyperbolicity of chaotic bidimensional maps.

PT65: Camilo Neto

Scaling in the Helimac Plasma Electrostatic Turbulence.

PT66: Paulo Galuzio

regularized-long-wave equation.
Intermittent onset of turbulence in the damped and forced

PT67: Gustavo Zampier

High MHD Activity.
Evidence of Transport Barrier in Tokamak Discharge with

PT68: Michael Kholmyansky

Log-Poisson Cascade Description of Turbulent Velocity
Gradient Statistics.

PT69: Daniel Freire

Entrainment and mixing in fountains in stratified media.

PT70: Felipe Magalhaes

Defects decay and pattern switching on 1-D Swift-
Hohenberg equation.

PT71: Sérgio Lira

Stationary shapes of rotating magnetic fluid droplets.

PT72: Gustavo Zampier

Evidence of self-organized criticality behavior in TCABR
plasma edge.

PT73: Pablo Muñoz

Noise-induced intermittency in a mean-field dynamo.

PT74: Dennis Toufen

On the Plasma Turbulence Control in the Texas Helimak.

PT75: Breno Silva

Variations on the geomagnetic field dipole and the
fluctuation dissipation theorem.

PT76: Rodolfo Almeida

Percolation model for wildland fire spread dynamics.

PT77: Juliano de Oliveira

A Phase transition in a two dimensional Hamiltonian map.

PT78: Celso Abud

Energy Gain induced by crisis.

PT79: Jose Danilo Szezech Junior

Zonal flow influence in the generation of instability in four wave interaction.

PT80: Rosangela Nascimento

Detrended fluctuation analysis applied to cortical spreading depression: the malnutrition effect.

PT81: Renato Moraes

Detrended fluctuation analysis and parabolicity index in aged rats with status epilepticus elicited by pilocarpine acutely.

PT82: Alexandre Casagrande

Quantification of Chirp-like Structures of EEG Time-Series.

Frieday – July, 30th

Morning

8:30 – 10:35 **Plenary Sessions**

Auditorium FM

Chair: Elbert E. N. Macau

8:30 – 9:05 **P_36: Ying-Cheng Lai**

Relativistic quantum scars..

9:05 – 9:35 **P_37: Ruedi Stoop**

Shrimps and their relation to perception.

9:35 – 10:35 **Poster Session (PT_3)**

Chair: Vivian Gomes

Atrium

PT83: David Ciro

A novel cell-coupling leading to nonlocal interactions.

PT84: Diego Ortiz

Community detection in a sociodynamic model of conflict.

PT85: Mauro F. Calabria

Automatic optimization of an experiment in noise-enhanced propagation.

PT86: Renato Fanganiello

Synchronization conditions for a bandlimited discrete-time chaotic system.

PT87: Hazael Serrano

Synchronization in perturbed complex networks with star coupling configuration.

PT88: Raphael Nagao

Empirical Stabilization of Transient Time-Series in an Electrochemical System.

PT89: Cristiane Oliveira

Kinetic instabilities during glycerol electro-oxidation on platinum.

PT90: Fábio A. S. Silva

Spatial patterns in oscillator lattices with non-local coupling: application to an activator-inhibitor auto-catalytic model.

PT91: Edgar Landinez

Supersymmetric Langevin Dynamics To find Reaction Paths.

PT92: Gilberto Corso

Degree Distribution and Nestedness in Bipartite Networks from Community Ecology.

PT93: Claudia Patricia Cruz

Measuring Asymmetry in Insect-plant Networks.

PT94: Ricardo Ferreira

Growth dynamics for protein association network: Comparing Model Simulation and Data.

PT95: Jose Grisi-Filho

Different Methods to generate Scale-Free Networks and their effects on the Network Shape.

PT96: Alejandro Carrillo

Self-organization and pattern formation in coupled Lorenz oscillators under a discrete symmetric transformation.

PT97: Bilzã Araújo

Identifying abnormal nodes in protein-protein interaction networks.

PT98: Johnatan Aljadeff

Functional Phase Synchronization Structures in Mice Neural Networks.

PT99: Roberto Santos

Estimating Chaos Control Parameters from Time Series.

PT100: Kenzo Sasaki

Analysis of the Ginzburg-Landau equation with non-local coupling.

PT101: Cristhiane Goncalves

Electrical implementation of a complete synchronization dynamic system.

PT102: Cecilia Cabeza

Synchronization of fireflies using a model of Light Controlled Oscillators.

PT103: Rero Marques Rubinger

Mutual information and synchronism on a network of four chaotic circuits.

PT104: Ghasem Asadi Cordshooli

Statistical Study Of Nonlinear Return Maps In Regular And Chaotic Conditions.

PT105: Luciano Camargo Martins

The initial inhomogeneity and halo formation in intense charged particle beams.

PT106: Romeu Szmoski

Spatiotemporal Features of a Coupled Map Lattice.

PT107: Nicolas Rubido

Transient dynamics and synchronization regions of pulse-coupled piecewise linear oscillators in T^2 .

PT108: André Timpanaro

Study of the attractor structure in an agent-based sociological model.

PT109: Ezequiel Arneodo

An electronics syrnix to explore mechanisms of birdsong production.

PT110: Gabriela Casas

Parameter Modulation in the Hénon Map.

PT111: Marcos Correia

Characterization of hyperchaotic states in parameter-space.

PT112: Julio D'Amore

Lyapunov Exponent Diagram for a Driven Chaotic Oscillator with Complex Variable.

PT113: José Vieira

Numerical Bifurcation Analysis of the Watt Governor System.

PT114: Flavio Prebianca

On The Effect of a Parallel Resistor in The Chua's Circuit.

PT115: Melke Nascimento

High-resolution phase diagrams of a generic electrochemical oscillator.

PT116: Jose Luevano

The method of separation of variables for the Frobenius-Perron operator for a class of two dimensional chaotic maps.

PT117: Marla Heckler

Transport Properties in an open system.

PT118: Cristhiane Gonçalves

The electronic bouncing ball circuit in a communication system.

PT119: Cleber Oliveira

Cryptography with chaos using Chua's attractor.

PT120: J. Alexis Andrade-Romero

Acoustic signal characterization of a ball milling machine model.

PT121: Roja Norouzie

Statistical Study of logistic Map Orbits In None Chaotic And Chaotic Orbits.

PT122: Enver Ramirez

Asymptotic approach for the nonlinear equatorial long wave interactions.

PT123: André Livorati

Scaling properties for a family of stadium-like billiards with parabolic boundaries.

10:35 – 11:00 Coffee-Break

11:00 – 12:40 Parallel Sessions / Mini-Symposia

S17 – Communication with Chaos Part II

Auditorium S1

S18 – Astrodynamics – Part III

Auditorium FM

S19 – Turbulence in Fluids and Plasma

Auditorium RH

S20 – Zero Average Dynamics - ZAD

Auditorium SC

12:40 – 2:30 PM – Lunch

Afternoon

2:30 PM – 3:05 PM Plenary Sessions

Auditorium FM

Chair: Antonio F. Bertachini de Almeida Prado

2:30 PM – 3:05 PM P_38: Marcelo Barreiro Parrilo

Climate predictability over South America.

3:05 – 4:05

Parallel Sessions / Mini-Symposia

S21 – Astrodynamics – Part IV

Auditorium FM

3:05 PM – 4:05 PM Parallel Sessions / Contributive Talks

3:05 PM – 4:05 PM C_17 Chaotic Dynamics

Chair: Rene Medrano

Auditorium: FM

Ued Maluf – “Chaos and complexity: a non-ordinary route - II”.

Rene Medrano-T. – “Periodic windows distribution: A quantitative description in the two-parameter space”.

Elinei Santos – “The chaotic Dynamics of Watt regulator generated from map and differential equations”.

Pablo Muñoz – “Chaotic saddles in a numerical model of Pierce diode”.

Hiroyuki Yoshida – “Chaotic Dynamics in Mathematical Economics: A Duopoly Model”.

3:05 PM – 4:05 PM C_18 Dynamics of Byosystems and Health Applications

Chair: Moacir F. de Godoy

Auditorium: RH

Delali Adiamah – “Generic dynamic modeling of metabolic systems”.

Daniel Schultz – “Deciding fate in adverse times: sporulation and competence in *Bacillus subtilis*”.

Mati Goldberg – “Propagation of calcium pulses in astrocyte networks by nonlinear gap junctions”.

Rennie Machado – “A Minimalist Model Of Calcium-Voltage Coupling In GnRH Cells.”.

Alexander Loskutov – “May suppression of the spatio-temporal chaos in cardiac tissue be a method for controlling the fibrillation phenomenon?”.

4:40 – 11:00 Coffee-Break

5:00 PM Closing Section