Program Book

DYNAMICS DAYS LATIN AMERICA AND THE CARIBBEAN 2026

December 6-11, 2026
Curitiba, Brazil



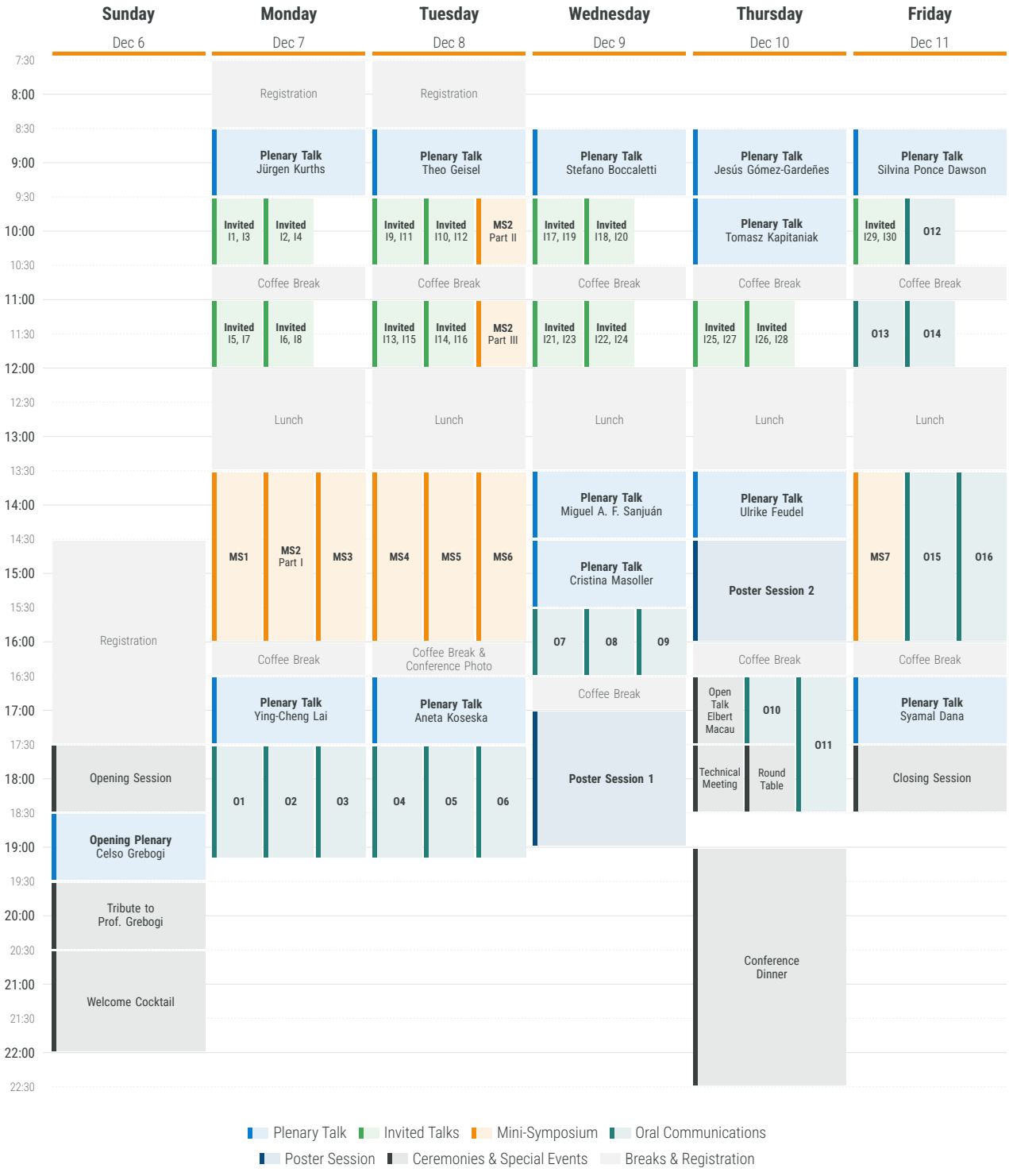
Universidade Estadual de Ponta Grossa

UFPR
UNIVERSIDADE FEDERAL DO PARANÁ

Program Overview

Week at a Glance

December 6–11, 2026. On Sunday all activities take place at the **Teatro da Reitoria**; from Monday to Friday, at the **Centro Politécnico** campus (UFPR). Split blocks indicate parallel sessions: **left** – Auditório da Administração do Centro Politécnico; **middle** – Auditório Léo Grossmann; **right** – Sala 108, Edifício de Ciências Exatas. Full-width blocks are held in the Auditório da Administração unless stated otherwise.



Sunday December 6, 2026

Teatro da Reitoria – UFPR · R. XV de Novembro, 1299, Centro, Curitiba

14:30 – 17:30 — **Registration** · Teatro da Reitoria lobby

17:30 – 18:30

OPENING SESSION

Opening Session

Chair: Ricardo Viana

18:30 – 19:30

OPENING PLENARY TALK

Celso Grebogi

University of Aberdeen, United Kingdom

Critical Transition with Machine Learning

Chair: Theo Geisel

19:30 – 20:30

TRIBUTE TO PROF. GREBOGI

Ying-Cheng Lai & Ulrike Feudel

Arizona State University, Tempe, United States · University of Oldenburg, Germany

Chair: Jürgen Kurths

20:30 – 22:00

SOCIAL EVENT

Welcome Cocktail

Teatro da Reitoria front lobby

Monday December 7, 2026

Centro Politécnico – UFPR

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
07:30 – 08:30	**Registration** · Centro Politécnico Hall		
08:30 09:30	**PLENARY TALK** **Jürgen Kurths** Humboldt University, Berlin, Germany *Climate Meets Complex Systems Science: Exploring Extreme Climate Events via a Complex Network Approach* *Chair: Thiago Prado*		
09:30 10:00	**INVITED TALK · I1** **Gabriela Castellano** State University of Campinas, Brazil *Complex networks and other measures for brain function biomarking: application to brain-computer interfaces, stroke rehabilitation, sports science, psychedelic effects and epilepsy* *Chair: Thiago Prado*	**INVITED TALK · I2** **Adilson Motter** Northwestern University, USA *Disorder-Promoted Stability* *Chair: Silvina Ponce Dawson*	
10:00 10:30	**INVITED TALK · I3** **Mauro Copelli** Federal University of Pernambuco, Brazil *Phenomenological Renormalization Group Reveals Critical Dynamics Underlying Successful Cortical Computation*	**INVITED TALK · I4** **Marcel Clerc** University of Chile, Santiago, Chile *Localized dissipative vortices in chiral nematic liquid crystal cells*	
10:30 – 11:00	**Coffee Break**		
11:00 11:30	**INVITED TALK · I5** **Claire Guerrier** Université Sorbonne Paris Nord, France *Multi-scale modeling and analysis of signal processing in neurons* *Chair: Mauro Copelli*	**INVITED TALK · I6** **Sabrina Araujo** Federal University of Paraná, Brazil *Competition or Cooperation? Effects of Sexual Selection on Male Behavior* *Chair: Jesús Gómez-Gardeñes*	
11:30 12:00	**INVITED TALK · I7** **Alexis Fauré** Université Paris-Saclay, France	**INVITED TALK · I8** **Sabrina Camargo** National University of San Martín, Argentina *Robustness of Scaling Correlation Functions Under Severe Subsampling: Theory, Simulations, and Experimental Data*	

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
12:00 – 13:30	**Lunch**		
13:30 16:00	MINI-SYMPOSIUM · MS1 **Neural Dynamics and Computational Neuroscience: From Brain Signals to Emergent Network Function** *Chair: Marcelo Tragtenberg & Fernanda Matias* *13:30* ***Marco Idiart*** *Formation of Artificial Neural Assemblies by Biologically Plausible Inhibition Mechanisms* *14:05* ***Claudia Vargas*** *Modeling EEG and TMS Activity Using Context Trees* *14:40* ***Silvio Ferreira*** *Fast Exact Gillespie Simulations of Critical-Mass Dynamics on Hypergraphs* *15:15* ***Fernanda Matias*** *Anticipated synchronization in brain signals*	MINI-SYMPOSIUM · MS2 (PART I) **Integrated Time Series Analysis and Machine Learning to Analyse Dynamical Complex Systems** *Chair: Elbert Macau & Cristina Masoller* *13:30* ***Juan Gancio*** *Anticipating explosive synchronization in networks of Kuramoto* *14:05* ***Claudia Lainscsek*** *Causal dynamic resonance and the interplay between synchronization, causality, and dynamical similarity* *14:40* ***Antonio Batista*** *Analyzing cardiac variability via machine learning* *15:15* ***Elbert Macau*** *Forecasting extreme events transitions*	MINI-SYMPOSIUM · MS3 **Dynamics in Hamiltonian Systems** *Chair: Michele Mugnaine* *13:30* ***Matheus Rolim*** *Directed transport induced by non-integer wavenumbers in a nontwist map* *14:00* ***Luis Fernando Bernardi de Souza*** *Guiding-center Hamiltonians for simultaneous electrostatic and magnetic helical perturbations in tokamak plasmas* *14:30* ***Leonardo Costa de Souza*** *Weak chaos leads to order in many-body Hamiltonian systems* *15:00* ***Iberê Caldas*** *Shearless Bifurcations in Tokamaks* *15:30* ***Michele Mugnaine*** *Phase-shift effects on isochronous bifurcation in two-harmonic standard maps*
16:00 – 16:30	**Coffee Break**		
16:30 17:30	PLENARY TALK **Ying-Cheng Lai** Arizona State University, Tempe, United States *Reservoir Computing: Machine Learning Meets Nonlinear Dynamics* *Chair: José Danilo Szezech*		
17:30 19:10	ORAL COMMUNICATIONS · O1 **Neuronal Dynamics, Synchronization and Epilepsy** *Chair: José Danilo Szezech Jr.* *17:30* ***Rosangela Follmann*** *Neuronal network dynamics of visually induced seizures* *17:50* ***Jaderson Guilherme Polli*** *Dynamical diversity in conductance-based neuron response to kilohertz electrical stimulation* *18:10* ***Pedro José Parra Rivas*** *Localized patterns in the FitzHugh–Nagumo model: from standard to collapsed homoclinic snaking* *18:30* ***Emanuel B. S. A. Cambraia*** *Unstable dimension variability as a key dynamical factor shaping neural network synchronization mechanisms*	ORAL COMMUNICATIONS · O2 **Theoretical Ecology, Chaotic Behavior and Evolution** *Chair: Kelly Iarosz* *17:30* ***Amanda Beatriz Loureiro*** *Hysteresis and evolutionary memory in dynamic landscapes: A microevolutionary model of species diversification* *17:50* ***Bruno Gabriel Melati*** *Cascading cost-benefit dynamics govern ecosystem service provision in mutualistic networks* *18:10* ***Lucas Massoni Pires*** *Optimum foraging area in a three-trophic food chain* *18:30* ***Francisco C. B. Leal*** *Avalanche dynamics of zebrafish schools: unveiling self-organization and phase transitions* *18:50* ***Natale Cavezzale Dias*** *The evolution of cooperative display coalitions: Insights from discrete-time equations*	ORAL COMMUNICATIONS · O3 **Active Matter, Diffusion and Stochastic Transport** *Chair: Sérgio Roberto Lopes* *17:30* ***Gabriel Henrique Braga Marinelo*** *Clustering of independent active particles under confinement* *17:50* ***Tiago Araújo Lima*** *Mixed-phase space of an active particle in experimental Lemon Billiards* *18:10* ***César Solano Cabrera*** *Active Brownian particles in a ring: diffusive and stationary properties* *18:30* ***Luiz Menon Jr*** *Stochastic resetting and the critical patch size problem* *18:50* ***Juan Alejandro Valdivia*** *Random Walks and Nontrivial Transport in Complex Networks*

Tuesday December 8, 2026

Centro Politécnico – UFPR

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
07:30 – 08:30	**Registration** · Centro Politécnico Hall		
08:30 09:30	**PLENARY TALK** **Theo Geisel** Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany *Empirical Musicology Using Tools of Nonlinear Dynamics* *Chair: Marcel Clerc*		
09:30 10:00	**INVITED TALK · I9** **Norbert Marwan** Potsdam Institute for Climate Impact Research, Germany *New perspectives in recurrence plot analysis* *Chair: Marcel Clerc*	**INVITED TALK · I10** **José Balthazar** São Paulo State University, Bauru, Brazil *On electromechanical and aeroservoelasticity system interactions through targeted nonlinear energy transfer* *Chair: Luis Aguirre*	**MINI-SYMPOSIUM · MS2 (PART II)** **Integrated Time Series Analysis and Machine Learning to Analyse Dynamical Complex Systems** *Chair: Elbert Macau & Cristina Masoller* *09:30* ***Thiago Prado*** *Data space transformation for classification using recurrence microstate features*
10:00 10:30	**INVITED TALK · I11** **Murilo Baptista** University of Aberdeen, United Kingdom *Chaos-Based Cryptography: From Nonlinear Dynamics to Secure Communications*	**INVITED TALK · I12** **Marcelo Savi** Federal University of Rio de Janeiro, Brazil *Nonlinear Dynamics, Chaos and Control of Smart Systems*	10:00 **Bruno Boaretto** Recurrence entropy-based characterization of spatial patterns
10:30 – 11:00	**Coffee Break**		
11:00 11:30	**INVITED TALK · I13** **Luis Aguirre** Federal University of Minas Gerais, Brazil *Revisiting Dynamical Observability* *Chair: Marcelo Avila*	**INVITED TALK · I14** **Edson Leonel** São Paulo State University, Rio Claro, Brazil *Characterizing a continuous phase transition in Hamiltonian dynamics* *Chair: José Balthazar*	**MINI-SYMPOSIUM · MS2 (PART III)** **Integrated Time Series Analysis and Machine Learning to Analyse Dynamical Complex Systems** *Chair: Elbert Macau & Cristina Masoller* *11:00* ***Adriane Brugnago*** *Early detection of epileptic seizures in excitable neural networks*
11:30 12:00	**INVITED TALK · I15** **Roberto Budzinski** University of Lethbridge, Canada *Exact mathematical description of computation with transient dynamics in oscillatory neural networks*	**INVITED TALK · I16** **Marcus Beims** Federal University of Paraná, Brazil *Survival of generic stable periodic structures in classical and quantum conservative systems*	11:30 **Junilane Moraes** Network-based characterization of extreme events in time series

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
12:00 – 13:30	**Lunch**		
13:30 16:00	MINI-SYMPOSIUM · MS4 **Nonlinear Dynamics and Complex Systems Across Physical, Biological, and Social Systems** *Chair: Fernanda Matias, Sabrina Araujo & Cristina Masoller* *13:30* ***Cecilia Stari*** *Emergence and Evolution of Peer Interaction Networks in Physics Laboratories and Their Relationship with Self-Efficacy* *14:00* ***Letícia Paiva*** *Complexity in termite dynamics* *14:30* ***Juliane Morais*** *Impact of temporal heterogeneity of social interactions on spreading processes* *15:00* ***Cristina Gavazzoni*** *Optimizing Oil–Water Separation Using Fractal Surfaces* *15:30* ***Salete Pienegonda*** *Speciation in a multiple-island system with migration*	MINI-SYMPOSIUM · MS5 **Nonlinear Dynamics Applied to Engineering Problems** *Chair: José Roberto Piqueira* *13:30* ***Paolo Ferrari*** *Direct parametrization of invariant manifolds for one-dimensional periodic lattices* *14:05* ***Guilherme Vernizzi*** *Parametric analysis for the application of wing flutter for energy harvesting using piezoelectric devices* *14:40* ***João Pedro Joaquim*** *Investigating the dynamics of marine risers under concomitant parametric excitation and vortex induced vibrations using reduced-order models* *15:15* ***Letícia Siqueira Madi*** *Numerical assessment of vortex-induced vibrations and galloping for flow-induced energy harvesting*	MINI-SYMPOSIUM · MS6 **Dynamics and Geometry in Effectively Low-Dimensional Systems** *Chair: Alfredo Grados Jara* *13:30* ***Antonio Mihara*** *Bifurcations of a Kuramoto network with high-order interactions that break rotational symmetry* *14:05* ***Rafael Vilela*** *A local method for computing the dimension of fractal boundaries* *14:40* ***Ulrike Feudel*** *On the role of state space geometry for tipping phenomena* *15:15* ***Alfredo Jara Grados*** *Dynamics of an on-off self-propelled particle in a cellular flow*
16:00 – 16:30	**Coffee Break & Conference Photo**		
16:30 17:30	PLENARY TALK **Aneta Koseska** Max Planck Institute for Neurobiology of Behavior, Bonn, Germany *Dynamical learning across scales* *Chair: Sérgio Lopes*		
17:30 19:10	ORAL COMMUNICATIONS · O4 **Synaptic Plasticity, Working Memory and Brain Networks** *Chair: Antonio Marcos Batista* *17:30* ***Gabriel Marghoti*** *Spectral Routing of Spike-Timing Signals Through Noise* *17:50* ***Kalel Rossi*** *Transients and computations for working memory in neural circuits* *18:10* ***Luan Martins Torres de Moraes*** *Dynamics of Non-Reciprocal Synaptic Plasticity in Two-Population Neural Networks* *18:30* ***Pedro Fellype Almeida Silva*** *Laplace Network Renormalization in functional brain Networks* *18:50* ***Luiza Lober de Souza Piva*** *Influence of topology on network reconstruction from dynamical time series*	ORAL COMMUNICATIONS · O5 **Recurrence Analysis, Entropy and Quantification of Complexity** *Chair: Sabrina Lino Araújo* *17:30* ***Gilberto Corso*** *Denoising time-series via Microstates Recurrence* *17:50* ***João Vitor Vieira Flauzino*** *Disorder Quantification in Complex Systems* *18:10* ***Sergio Roberto Lopes*** *Quantifying Disorder* *18:30* ***Robison José Santos da Silva*** *Detection of chaos and hyperchaos using recurrence microstates* *18:50* ***Marcos Gaudiano*** *Entropic characterization of complex systems becoming out of control*	ORAL COMMUNICATIONS · O6 **Mathematical Modelling in Epidemiology, Oncology and Public Health** *Chair: Edson Denis Leonel* *17:30* ***Ana Luiza Rodrigues de Moraes*** *Multistability, transients, and crises in a seasonally forced mathematical model for avian flu* *17:50* ***Nicolas Elias Amado*** *Agent-Based Generation of Temporal Contact Networks for Urban Epidemic Modeling* *18:10* ***Diego Samuel Rodrigues*** *Nonlinear Dynamics of Tumor Control under Combined Oncolytic Virotherapy and Radiotherapy* *18:30* ***Artur César Fassoni*** *The Physics of the Epigenetic Landscape: A Mechanistic Framework for Cellular Plasticity and Tumor Heterogeneity* *18:50* ***Gustavo de Brito Gomes*** *Estimating quantitatively the influence of suicide contagion*

Wednesday December 9, 2026

Centro Politécnico – UFPR

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
08:30 09:30	PLENARY TALK **Stefano Boccaletti** Institute of Complex Systems, Florence, Italy *Parenclitic hypergraphs and their application in personalized cancer therapy* *Chair: Gabriel Mindlin*		
09:30 10:00	INVITED TALK · I17 **Fernanda Matias** Federal University of Alagoas, Maceió, Brazil *Chair: Gabriel Mindlin*	INVITED TALK · I18 **Ana Amador** University of Buenos Aires, Argentina *Emergent neural dynamics underlying rhythmic vocal behavior in songbirds* *Chair: Arturo Martí*	
10:00 10:30	INVITED TALK · I19 **Azam Gholami** New York University Abu Dhabi, United Arab Emirates *Spontaneous flows and interfacial instabilities in oxygen-sensitive living active matter*	INVITED TALK · I20 **Epaminondas Rosa** Illinois State University, United States *Dynamical Transitions in Neuronal Systems*	
10:30 – 11:00	**Coffee Break**		
11:00 11:30	INVITED TALK · I21 **Arturo Martí** University of the Republic, Montevideo, Uruguay *Hidden order in chaos: antiperiodicity, parity rules, and anti-recurrence in driven symmetric oscillators* *Chair: Sabrina Camargo*	INVITED TALK · I22 **Gabriel Mindlin** University of Buenos Aires, Argentina *Learning to Sing in the Dark: Neural Networks, Vocal Dreams, and the Role of Sleep* *Chair: Tomasz Kapitaniak*	
11:30 12:00	INVITED TALK · I23 **Marcelo Avila** Universidad Mayor de San Andrés, La Paz, Bolivia *Astrocytes: Generalizing Arnol'd Tongues*	INVITED TALK · I24 **Nana Nbendjo** University of Yaoundé, Cameroon *Detection of crack on Euler–Bernoulli beam using recurrence quantification analysis*	
12:00 – 13:30	**Lunch**		
13:30 14:30	PLENARY TALK **Miguel A. F. Sanjuán** Rey Juan Carlos University, Madrid, Spain *Why Vibrational Resonance Matters* *Chair: Norbert Marwan*		
14:30 15:30	PLENARY TALK **Cristina Masoller** Polytechnic University of Catalonia, Terrassa, Spain *Phase synchronization dynamics of two mutually coupled lasers*		

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
15:30 16:30	**ORAL COMMUNICATIONS · O7** **Rumor Spreading, Social Dynamics and Cultural Systems** *Chair: Roberto Budzinski* *15:30* ***Daniel A. Gutierrez Pachas*** *On Controlling the spread of rumors in complex networks* *15:50* ***Camilo Rodrigues Neto*** *Nonlinear Dynamics of Fashionable Bar Attendance: Cycles and Stationary States* *16:10* ***Julia Stefano Finotti*** *The Memory of a Shock: Cycles and Hysteresis in Cultural Knowledge Dynamics among the Araweté and Kayapó*	**ORAL COMMUNICATIONS · O8** **Climate, Flying Rivers, and Extreme Events** *Chair: Epaminondas Rosa Jr.* *15:30* ***Marina Soares Bittencourt*** *Impact of timescale separation on coupled climate tipping elements* *15:50* ***Sandro Roberto Pauli Junior*** *Quantification of cascading connections in the moisture transport of the Amazonian Flying Rivers* *16:10* ***Arthur Valencio*** *Recurrence and reincidence patterns of emergency declarations in Brazil*	**ORAL COMMUNICATIONS · O9** **Celestial Mechanics, N-body Problems and Collisions** *Chair: Iberê Luiz Caldas* *15:30* ***Maria Helena Moreira Morais*** *Combining numerical and perturbative methods to study orbital resonances in the restricted 3-body problem* *15:50* ***Octavio Augusto Potalej*** *Numerical investigation of gravitational arrows of time in the N-body problem* *16:10* ***Florian Steffen Günther*** *From Instantaneous to Elastic Collisions: A New Framework for Collision-Based Nonlinear Systems*
16:30 – 17:00	**Coffee Break**		
17:00 19:00	**POSTER SESSION 1** **Poster Session 1** Centro Politécnico Hall *Chair: Sabrina Araujo*		

Thursday December 10, 2026

Centro Politécnico – UFPR

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
08:30 09:30	**PLENARY TALK** **Jesús Gómez-Gardeñes** University of Zaragoza, Spain *"Ruim com você, pior sem você": Adoption dynamics and the Tempo of social Groups* *Chair: Ricardo Viana*		
09:30 10:30	**PLENARY TALK** **Tomasz Kapitaniak** Technical University of Lodz, Poland *Complexity measures: Characterization of transition to extreme events in dynamical systems*		
10:30 – 11:00	**Coffee Break**		
11:00 11:30	**INVITED TALK · I25** **Iberê Caldas** University of São Paulo, Brazil *Chair: Marcelo Tragtenberg*	**INVITED TALK · I26** **Pablo de Castro** University of São Paulo, Brazil *Dynamics of Active Particles: From Clustering to Survival in Toxic Landscapes* *Chair: Paulo Protachevicz*	
11:30 12:00	**INVITED TALK · I27** **Mario Cosenza** Yachay Tech University, Ecuador *Collective Self-Control of Escape*	**INVITED TALK · I28** **Hilda Cerdeira** São Paulo State University, Brazil *Swarmalators and the flight of starlings*	
12:00 – 13:30	**Lunch**		
13:30 14:30	**PLENARY TALK** **Ulrike Feudel** University of Oldenburg, Germany *Permanent and chaos subjected to parameter drift* *Chair: Edson Leonel*		
14:30 16:00	**POSTER SESSION 2** **Poster Session 2** Centro Politécnico Hall *Chair: Fernanda Matias*		
16:00 – 16:30	**Coffee Break**		
16:30 17:30	**TALK OPEN TO THE COMMUNITY** **Elbert Macau** Federal University of São Paulo, Brazil	**ORAL COMMUNICATIONS · O10** **Nonlinear Optics, Structured Beams and Pattern Formation** *Chair: Marcelo Savi* *16:30* ***Manuel Díaz Zúñiga*** *Vortex-Phase Coupling and Nontrivial Bound States in a Forced Liquid Crystal Optical System* *16:50* ***Saliya Coulibaly*** *The Second Act of Modulation Instability* *17:10* ***Santiago Ocampo Inzunza*** *Dancing Poincaré Beams*	**ORAL COMMUNICATIONS · O11** **Resonators, Metamaterials, and Nonlinear Mechanical Oscillators** 16:30 – 18:30 *Chair: Pedro Haerter* *16:30* ***Adriano Albuquerque*** *On deep squeezing or cooling a parametric resonator using feedback* *16:50* ***Americo Cunha*** *Emergent Dynamics in Graded Waterbomb Origami Structures* *17:10* ***Gabriella de Oliveira Mendes Silva*** *Coupled Van der Pol oscillators: numerical and experimental simulation studies*

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
17:30 18:30	**TECHNICAL MEETING** **Latin American Consortium for Nonlinear Dynamics and Complex Systems**	**ROUND TABLE** **AI in the Scientific Communication**	**ORAL COMMUNICATIONS · O11** **Resonators, Metamaterials, and Nonlinear Mechanical Oscillators (cont.)** *Chair: Pedro Haerter* **17:30** **Zwinglio de Oliveira Guimarães Filho** Forced oscillations in a single-axis acoustic levitator **17:50** **Luís Guilherme Miranda Spengler** Crisis-like transitions, basin fractalization, and modal energy redistribution in a driven bistable cart-pendulum system **18:10** **César Abraham Torrico Chávez** Whirlpool-like structures, chaos and tricorns inside a rich multistability scenario due to simple Shil'nikov bifurcations in a quantum dot semiconductor laser with optical injection
19:00 22:30	**SOCIAL EVENT** **Conference Dinner** Associação dos Servidores da Universidade Federal do Paraná		

Friday December 11, 2026

Centro Politécnico – UFPR

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
08:30 09:30	**PLENARY TALK** **Silvina Ponce Dawson** University of Buenos Aires, Argentina *Frequency encoding and excitability in cell signaling* *Chair: Marcelo Savi*		
09:30 10:00	**INVITED TALK · I29** **Elbert Macau** Federal University of São Paulo, Brazil *Chair: Marcelo Savi*	**ORAL COMMUNICATIONS · O12** **Chaos-inspired Computations and Game Theory** *Chair: Ana Amador* 09:30 **Fabiano Ferrari** Chaos Based Computation: From Concept to Application 09:50 **Mauricio Diaz Raby** Chaotic Equilibria Games in Dynamical Systems via Furstenberg Families	
10:00 10:30	**INVITED TALK · I30** **Everton Medeiros** São Paulo State University, Rio Claro, Brazil *A control strategy for nonlinear resonance*	10:10 **Yago Emanoel Ramos Silva** Large language models exhibit distinct dominant behavioral phenotypes in human social dilemmas	
10:30 – 11:00	**Coffee Break**		
11:00 12:00	**ORAL COMMUNICATIONS · O13** **Quantum Systems, Hadron Dynamics, and Photonic Processors** *Chair: Eduardo Brugnago* *11:00* ***Wolfgang Paul*** *Quantum Hamilton Equations, Coherent States and an Application to Levitated Quantum Particles* *11:20* ***André Luis Prando Livorati*** *Exploring chaotic properties in the nonlinear Walecka Model* *11:40* ***Lucas Maquedano da Silva*** *Distance-Based Quantum Classification on Photonic Processors*	**ORAL COMMUNICATIONS · O14** **Chaotic Maps, Quasiperiodicity, and Ergodicity** *Chair: Giovane Vasconcelos* *11:00* ***Silvio L. T. de Souza*** *Beyond Periodic Shrimps: Emergence and Organization of Quasi-Periodic Domain* *11:20* ***Antônio João Fidélis*** *Algebraic Absolutely Continuous Invariant Measure for One-Dimensional Logistic-Like Maps* *11:40* ***Ricardo Luiz Viana*** *Ergodicity and shadowing: which is more important for Physics?*	

	AUDITÓRIO DA ADMINISTRAÇÃO	AUDITÓRIO LÉO GROSSMANN	SALA 108 – ED. CIÊNCIAS EXATAS
12:00 – 13:30	**Lunch**		
13:30 16:00	MINI-SYMPOSIUM · MS7 **Microstate-driven Machine Learning and High-Performance Architectures** *Chair: Eduardo Brugnago* *13:30* ***Eduardo Brugnago*** *Recurrence-guided reservoir computing for chaotic time series reconstruction* *14:05* ***Gabriel Ferreira*** *RecurrenceMicrostatesAnalysis.jl: A Julia library for analyzing dynamical systems with recurrence microstates* *14:40* ***Giovana Spezzatto*** *Dynamical systems classification using MMLP: Investigating classification accuracy and its relationship to internal network organization* *15:15* ***Leticia Coradin Milani*** *Feature Space Reduction for Machine Learning Algorithms using Recurrence Microstates*	ORAL COMMUNICATIONS · O15 **Hamiltonian Systems, Plasmas, and Fusion Control** *Chair: Leonardo Costa de Souza* *13:30* ***Pedro Haerter*** *Effects of the Internal Transport Barrier into the plasma confinement with Ressonant Magnetic Perturbations* *13:50* ***Jorge Vinicius Malosti Da Silveira*** *Implementation of an RZIp-Based Robust H-infinity Plasma Control System for the Upgraded TCABR* *14:10* ***Gabriel Cardoso Grime*** *Comparing chaos indicators in parameter-drift Hamiltonian systems* *14:30* ***Tamas Kovacs*** *Detecting Hamiltonian chaos from scalar time series via recurrence plot divergence* *14:50* ***Rafael Salandin Moraes*** *Beyond Naive Projections: Resolving Coordinate Ambiguities in Poincaré Maps of the Elastic Pendulum via Force-Line Sections*	ORAL COMMUNICATIONS · O16 **Analytical Methods, Complex Networks, and Spatial Organization** *Chair: Rafael Vitor Stezinger* *13:30* ***Higor Silva Ferreira*** *A linear Prelle–Singer method* *13:50* ***Celso Vieira Abud*** *Predicting Synchronization Delays in Neural Networks: An Analytical Approximation of Vital Node Suppression* *14:10* ***Takaaki Ohnishi*** *Scaling Exponents Reveal Scale-Dependent Transitions in the Spatial Organization of Urban Industries*
16:00 – 16:30	**Coffee Break**		
16:30 17:30	PLENARY TALK **Syamal Kumar Dana** Jadavpur University, Kolkata, India *Tipping in driven and coupled ecological systems* *Chair: José Danilo Szezech*		
17:30 18:30	CLOSING SESSION **Closing Session** *Chair: Ricardo Viana*		

Poster Sessions

Posters are displayed in the **Centro Politécnico Hall**. Presenters are expected to stand by their posters during their session. Poster numbers correspond to the numbered boards in the hall.

Poster Session 1 Wednesday, December 9, 2026

17:00 – 19:00 · Centro Politécnico Hall · *Chair: Sabrina Araujo*

NO.	PRESENTER	TITLE
1	João Vitor Tambasco Bosso	**On the implementation of the Fermi–Ulam Model with elastic collisions: exploiting system-specific properties for efficient use of standard numeric algorithms**
2	Michael Mekontchou Foudjio	**Collective escape and homoclinic bifurcation phenomena in a nonlinear oscillators chain**
3	Flavio Prebianca	**Bifurcation Structure and Noise Robustness in a Linearly Coupled van der Pol–Duffing Oscillator: Numerical and Experimental Approaches**
4	Gabriel Bertram Corrêa	**Uncovering the Parameter Space Organization of the Langford Model Using Local Maxima Diagrams and Lyapunov Spectra**
5	Raimunda Antonina Lopes Figueredo	**Dynamical Organization of a Nonlinear Semiconductor Model through Lyapunov and Kaplan–Yorke Parameter Planes**
6	Gustavo Accurso Lobo	**Beyond Classical Phase-Space Maps: A Quantum Study of the Fermi–Ulam Model**
7	Florian Steffen Günther	**How Coordinate Choices and Phase-Space Projections Distort Chaos Statistics in Hamiltonian Systems**
8	Rafael Salandin Moraes	**Beyond Naive Projections: Resolving Coordinate Ambiguities in Poincaré Maps of the Elastic Pendulum via Trajectory-Aligned Frenet–Serret Sections**
9	Conrado Bittencourt	**Role of size in stabilization of networks for two-dimensional maps**
10	Thainan Macedo Costa	**Bifurcation structures in a four-dimensional hyperchaotic financial system**
11	Fábio Scortegagna Ramos	**Subtle Effects in the Global Stabilization of a Duffing–Holmes Oscillator with Cubic Damping**
12	Helena Furtado Berger	**Influence of different nonlinear functions on the chaotic dynamics of memristor systems**
13	Nívea Daniele Bosco	**Hierarchical frequency-locking organization and quint points in a periodically driven FitzHugh–Nagumo neuron model**
14	Lais Brenda De Albuquerque Costa	**Influence of nonlinear dissipation on multistability in a driven van der Pol oscillator model**
15	Nelson José Peruzzi	**Bifurcation Scenarios and Stability Analysis in a Parametrically Excited Pendulum for High Forcing Amplitude ($a = 0.2$)**
16	Pedro Haerter	**Bayesian Basin Tracking: Efficient Global Continuation of Multistable Dynamical Systems**
17	Rafael Vitor Stenzinger	**Machine learning methods for spatiotemporal chaos forecasting and applications**
18	Gustavo da Silva dos Santos	**From Periodic Motion to Chaos in a Three-Dimensional Model of a Rubidium Magneto-Optical Trap**
19	Juan Alejandro Valdivia	**Prediction and Control of Chaos through History-Dependent Dynamical Invariants**
20	Yuri Assis Pinto	**Multistability in Chen-Ueta attractor**
21	Patrícia Lourenço Moreira	**Transient Times and Geometric Preference in a Periodic Orbit of the Logistic Map**
22	Cândido Gouvea Graciano	**Periodic structures in the parameter space of the Hindmarsh-Rose model**
23	Vagner dos Santos	**Collective dynamics in a network of coupled unstable Hénon maps**
24	Artur Brandolff Filho	**Synchronization Dynamics and Basin Topology in Non-Uniformly Coupled Lorenz System**
25	Derik William Gryczak	**Effect of inhibitory synapses on the modulation of brain waves**
26	Adriano Albuquerque	**Frequency comb generation in the forced van der Pol-Duffing oscillator**
27	Leonardo Fagundes Zanetti	**Particle Escape in the Parabolic Stadium Billiard**
28	Mauro Ignacio Riquelme	**Fractional Topological Defects in a Self-Coupled Liquid Crystal Light Valve**
29	Samuel Oliveira	**Impact of Symmetry on Quantum Properties of Irrational Triangular Billiards**
30	Isabela Antoniacomi	**Unveiling Data Structure**

31	Kauã Teixeira Broglio	**Emergent collective dynamics in the Ising model under Glauber dynamics**
32	Patricia Rodriguez	**Experimental observation of chaotic and multistable dynamics in a Duffing–Holmes-type analog circuit: Antiperiodicity and attractor-coexistence signatures**
33	Zwinglio de Oliveira Guimarães Filho	**Beating phenomena in damping oscillations of small objects in acoustic levitators**
34	Juliane Teixeira de Moraes	**Investigating the role of time delays and network symmetries in clustering synchronization**
35	David	**Classification of coherent turbulent structures in plasmas using Artificial Intelligence**
36	Luciano Carlos Toro	**Thermo-orientation in nematic liquid crystals: thermal control of domain walls and vortices**
37	Raul Vicente Maistro	**Correlation networks underlying the collective dynamics of self-organized states**
38	Caracé Gutierrez	**Non-trivial generation and transmission of information in electronically designed logistic-map networks**
39	Kevin Blass Hidalgo Castro	**Stochastic Web Map: Survival probability and escape frequency**
40	Vitor Hugo Alexandrino Fávaro	**Recurrence-based characterization of model shadowability in the presence of unstable dimension variability**
41	Beatriz Maetiasi de Oliveira	**Estimating Kolmogorov-Sinai Entropy using Recurrence Microstates Entropy**
42	Cesar Manchein	**Multistability and its influence on temperature-induced ratchet currents in inertial Brownian motors**
43	Eduardo Luís Brugnago	**Long-term predictor variables in chaotic systems**
44	Gabriel Vinicius Mufatto	**A simple model for parametric excitation of one object in a single-axis acoustic levitator**
45	Bruno Borges Leal	**Secondary shearless bifurcations for two isochronous resonant perturbations**
46	Arnold Alonso Alvarez	**Characterizing Turbulence in the TJ-II Stellarator Through Entropy–Complexity Analysis and Transfer Entropy**

Poster Session 2 Thursday, December 10, 2026

14:30 – 16:00 · Centro Politécnico Hall · *Chair: Fernanda Matias*

NO.	PRESENTER	TITLE
1	Ana Rita Martins	**Symbolic analysis of magnetoencephalography data associated with healthy cognitive aging**
2	Artur César Fassoni	**Nonlinear Dynamics and Predictive Modeling of CAR-T Cell Therapy: From Theory to Patient Data**
3	Fátima Elis Cruziniani	**Intraspecific competition in stochastic rock-paper-scissors dynamics**
4	José Danilo Szezech Junior	**Classification Metrics for Two-Dimensional Patterns in the Gray-Scott Model**
5	Eliana Maria dos Santos	**tDCS stimulation effects in post-stroke rehabilitation: A preliminary EEG LORETA study**
6	Lucas E. Alonso	**Modeling *Wolbachia* establishment in *Aedes aegypti* and its implications for dengue transmission**
7	Silvina Claudia Real	**Dynamic analysis of the local Wilson-Cowan model with modifications in the excitation–inhibition balance**
8	Maurício Girardi Schappo	**Coding near criticality in E-I networks: the role of threshold adaptation**
9	Teodoro Ferreira Gruenwaldt Ribeiro	**Applying stochastic models to understand *Amazona vinacea* population dynamics**
10	Matheus Jochem	**Mechanistic drivers for group size in cooperative display coalitions for Swallow-tailed manakins**
11	Lucas Massoni Pires	**Optimum foraging area in a three-trophic food chain**
12	Leonardo Costa	**Heavy-Tailed Distributions in EEG Functional Connectivity Motif Synchronization among Epilepsy Patients**
13	Ana Paula da Silva Koltun	**Frequency- and Amplitude-Dependent tACS Responses in Human Cortical Model**
14	João Meireles	**Nonlinear descriptors of scalp EEG as candidate markers in ADHD**
15	Joyce Machado Oliveira	**Parameter-space organization of a modified vortex creep model for pulsar spin dynamics**

16	Pedro Lucas Spengler dos Santos	**Quantum Tunneling in a Magnetic Field: A Stochastic Mechanics Approach**
17	Arthur Augusto Barizon Pessa	**Structural roles and gender disparities in corruption networks**
18	Danilo Fernando Schafaschek	**Quantifying Tunneling Times: A Stochastic Mechanics Perspective**
19	Ana Paula Perdigão Praxedes	**A Symbolic Information Approach to Characterize the Locomotor Behavior of *Caenorhabditis elegans***
20	Rafael Ribaski Borges	**Synchronization of firings in neural networks with synaptic plasticity**
21	Ana Luiza Braga de Almeida	**Temperature-induced dynamical transitions in the four-dimensional discrete Huber–Braun neuron model**
22	Nicolas Elias Amado	**Opinion Dynamics: A Model of Cluster Formation and Coexistence**
23	Hellen Cristina da Costa	**Effects of tDCS and Extended Reality on the Temporal Organization of EEG in Chronic Stroke Patients**
24	Lucas de Lazari e Ferreira	**Pattern and stability analysis for self-propelled particles**
25	Luan Martins Torres de Moraes	**Hierarchical Time-Scale Cascades in Complex Systems: From Financial Markets to Brain Dynamics**
26	Juan Alejandro Valdivia	**Congestion in the Complex City Street Network**
27	Ana Cristina de Paula	**Machine Learning-Assisted Honey Adulteration Detection Using Electrical Impedance Spectroscopy**
28	Pierina Mayte Milla Velasquez	**Modulation of the Paradox of Enrichment under nonlinear predator dynamics**
29	Danilo Fernando Schafaschek	**Multifractality and Turbulence-like Cascades in the Brazilian Foreign Exchange Market**
30	Mateus Nunes César Ferraz	**Fractional memory and cycle-bifurcation geometry in coupled self-excited Duffing–Van der Pol oscillators**
31	Lara Cristina	**The Role of Vital Nodes in the Synchronization Transition of Real Complex Networks**
32	Pedro Sartori Dias dos Reis	**A Differential Equation Formulation of the Johansen-Ledoit-Sornette Bubble Model**
33	Fernanda Batista Pretto	**Climate Change and Rainfall Disaster Risks in the Porto Alegre Metropolitan Area: A Historical and Probabilistic Analysis**
34	Michel Aguilera	**Same Equilibrium, Different Dynamics: Canonical Fluctuations in Dipolar Spin Systems**
35	Armand Delors Jiofack	**A Recurrence-Based Framework for Characterizing Collective States in Delayed Swarmalator Systems**
36	Philippe Valdes Ewane Ewane	**A spontaneous propelled chimera-like state in a locally coupled swarmalator system**
37	Diego Samuel Rodrigues	**Time-Varying Drivers and Uncertainty-Aware Forecasting of Tropospheric Ozone Exceedances from Empirical Dynamic Modeling**
38	Pierina Mayte Milla Velasquez	**Ergodicity Transition in the Tourist Walk with Memory in Two-Dimensional Disordered Media**
39	Lucía Pedraza	**Analytical insights from a model of opinion formation based on Persuasive Argument Theory**
40	Pedro Sartori Dias dos Reis	**Recurrent Neural Networks for Log-Periodic Power Law Parameter Estimation: Performance, Robustness and Limitations**
41	Thomas Andrew Tomberlin	**Computational Modeling of Neuronal Synchronization and Control in the Basal Ganglia**