



**CIMPA School Recife - Jan. 19-30, 2026**

**PARALLEL RESEARCH TALKS**

**WEEK 1 - Friday - Jan. 23**

**Algebra**

**S.D. - Room 314**

Organizers: Bárbara Costa (UFRPE) & Rodrigo Gondim (UFRPE)

**9am**

**Gorenstein ideals, Newton duality and Macaulay inverse systems**

Dayane Santos de Lira (UFERSA/Brazil)

**9:45am**

**Lefschetz properties and Stanley Reiner algebras**

João Paulo Costalonga (UFES/Brazil)

**10:45am**

**An invitation to study Lefschetz properties**

Rodrigo Gondim (UFRPE/Brazil)

**Combinatorics, graph theory  
and network sciences**

**P.D. - Room A**

Organizers: Gabriel Coutinho (UFMG) & Luiz Paulo Freire Moreira (UFPE)

**9am**

**Computational social science and social networks**

Peter Törnberg (UVA/Netherlands)

**10:45am**

**Combinatorics of laplacian matrix and its application**

Gabriel Coutinho (UFMG/Brazil)

**Mathematical analysis**

**S.D. - Auditorium**

Organizers: Eudes Mendes (UFRPE), Felipe W. Cruz (UFPE) & João Marcos Bezerra do Ó (UFPB)

**9am**

**On the well-posedness of a generalized doubly parabolic Keller-Segel system with fractional diffusion**

Anne Caroline Bronzi (UNICAMP/Brazil)

**9:45am**

**Theoretical insights into second-grade fluids**

Marko Antonio Rojas Medar (UTA/Chile)

**10:45am**

**Quasilinear elliptic problems with exponential growth via the Nehari manifold method: existence of nonnegative and nodal solutions**

Sandra Imaculada Moreira Neto (UEMA/Brazil)

**11:30am**

**Existence and multiplicity of solutions for a class of Dirac equations**

Alânnio Barbosa Nobrega (UFCG/Brazil)

**2:15pm**

**Global multiplicity of positive solutions for a sublinear elliptic equation in  $\mathbb{R}^n$**

Jefferson Abrantes dos Santos (UFCG/Brazil)

**3pm**

**Singular solutions to k-Hessian equations with fast-growing nonlinearities**

Evelina Shamarova (UFPB/Brazil)

**4pm**

**Positive ground state for integrodifferential Schrödinger-Poisson systems**

Diego Ferraz (UFRN/Brazil)

**P. D.:** Physics department 1st floor

**S. D.:** Statistics department 2nd floor





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**WEEK 1 - Friday - Jan. 23**

**Complex systems in Physics and Statistics**

**P.D. - Auditorium**

Organizers: Viviane Oliveira (UFRPE) & Paulo Duarte Neto (UFRPE)

**9am**

**Mathematical and computational foundations: topological data analysis: a computer scientific POV**

Wilson de Oliveira (UFRPE/Brazil)

**9:30am**

**Mathematical and computational foundations: wheighed permutation entropy**

Borko Stosic (UFRPE/Brazil)

**10am**

**Mathematical and computational foundations: generalized solving differential equations via neural networks**

Tiago A. E. Ferreira (UFRPE/Brazil)

**10:45am**

**Modeling and pattern recognition in natural systems: from structure to pattern: modeling and quantifying complexity in sargassum morphology and distribution**

Paulo Duarte Neto (UFRPE / Brazil)

**11:15am**

**Modeling and pattern recognition in natural systems: Use of statistical tools for developing and exploiting ocean color satellite data for marine environmental purposes**

Vincent Vantrepotte (CNRS, IRD – LOG, Univ. Littoral Côte d'Opale, Univ. Lille / France)

**11:45am**

**Modelling and pattern recognition in natural systems: stochastic dynamics in complex systems: from quantum chaos to optical turbulence**

Iván R. R. Gonzalez (U. Mayor/Chile)

**2:15pm**

**Collective behavior, pattern emergence and complex interactions: complexity of climate dynamics**

Tatijana Stosic (UFRPE/Brazil)

**2:45pm**

**Collective behavior, pattern emergence and complex interactions: an introductory toolkit for analyzing animal groups**

Francisco C. B. Leal (UFRPE/Brazil)

**3:15pm**

**Collective behavior, pattern emergence and complex interactions: mixed-phase space of an active particle in experimental lemon billiards**

Tiago Araújo Lima (UFRPE/Brazil)

**4pm**

**Population and collective dynamics in natural systems: movement bias in asymmetric landscapes and its impact on population distribution and critical habitat size**

Pablo de Castro (UNESP/Brazil)

**4:30pm**

**Population and collective dynamics in natural systems: persistence of small populations facing seasonal resource variability**

Viviane Moraes de Oliveira (UFRPE/Brazil)

**5pm**

**Population and collective dynamics in natural systems: evolutionary rescue**

Paulo Roberto de Araújo Campos (UFRPE/Brazil)

**P. D.:** Physics department 1st floor

**S. D.:** Statistics department 2nd floor