

Academic Appointments

Visiting Researcher

Univeristy of North Dakota

Supervisor: Professor Dr. Diego Fregolent Mendes de Oliveira

Grand Forks ND, USA

07/2025 - 01/2026

Visiting Researcher

Università degli Studi di Palermo

Supervisor: Francesca Dalbono

Palermo, Italy

01/2018 - 03/2018

Education

São Paulo State University (UNESP)

Ph.D. in Physics

2022 – 2026

Rio Claro, Brazil

São Paulo State University (UNESP)

M.S in Mathematics

2022 – 2024

Rio Claro, Brazil

University of São Paulo (USP)

M.S. in Physics

2020 – 2022

São Carlos, Brazil

São Paulo State University (UNESP)

Physics Teacher Degree

2016 – 2022

Rio Claro, Brazil

São Paulo State University (UNESP)

B.S. in Physics

2016 – 2020

Rio Claro, Brazil

Teaching

» EMA980015 – Introduction to Computer Science

2025/1

São Paulo State University (UNESP)

» EMA986215 – Computational Numerical Calculus

2025/1

São Paulo State University (UNESP)

» EMA96141604T – Basic Concepts of Statistics

2024/2

São Paulo State University (UNESP)

» EMA96141603T – Basic Concepts of Statistics

2024/2

São Paulo State University (UNESP)

» EMA96141602T – Basic Concepts of Statistics

2024/2

São Paulo State University (UNESP)

» EMA96141601T – Basic Concepts of Statistics

2024/2

São Paulo State University (UNESP)

» EMA969615 – Applied Mathematics for Engineering

2024/1

São Paulo State University (UNESP)

» FSI227815 – Electronics for Computing

2024/1

São Paulo State University (UNESP)

» EMA967115 – Probability and Statistics

2023/2

São Paulo State University (UNESP)

» EMA96141604T – Basic Concepts of Statistics

2023/2

São Paulo State University (UNESP)

» EMA96141603T – Basic Concepts of Statistics

2023/2

São Paulo State University (UNESP)

» MAT008315 – Differential and Integral Calculus I

2023/1

São Paulo State University (UNESP)



Honors and Awards

Career prizes:

- Recognition for academic performance in the Bachelor's Degree in Physics, Institute of Geosciences and Exact Sciences (IGCE), UNESP - São Paulo State University 'Júlio de Mesquita Filho'. 2020
- Recognition for academic performance in the Physics Teaching Degree, Institute of Geosciences and Exact Sciences (IGCE), UNESP - São Paulo State University 'Júlio de Mesquita Filho'. 2022

Personal scholarships:

- Research Internship Abroad (RIA) - supported by São Paulo Research Foundation (FAPESP) at University of North Dakota, USA. 2025-2026
- Doctoral Fellowship - São Paulo Research Foundation (FAPESP). 2022-2026
- Master Fellowship - Brazilian Federal Agency for Support and Evaluation of Graduate Education (CAPES). 2020-2022
- Research Internship Abroad (RIA) - supported by São Paulo Research Foundation (FAPESP) at Università degli Studi di Palermo, Italy. 2018
- Undergraduate Fellowship - São Paulo Research Foundation (FAPESP). 2017-2020



Research Publications

- Matheus Rolim Sales et al. "dynamicalsys: A Python toolkit for the analysis of dynamical systems". In: *Chaos Solitons and Fractals* 201, 117269 (Dec. 2025), p. 117269. [DOI: 10.1016/j.chaos.2025.117269](#). arXiv: 2506.14044 [nlin.CD].
- Daniel Borin**, José Danilo Szezech, and Matheus Rolim Sales. "Characterizing and quantifying weak chaos in fractional dynamics". In: *Chaos Solitons and Fractals* 200, 117137 (Nov. 2025), p. 117137. [DOI: 10.1016/j.chaos.2025.117137](#). arXiv: 2504.03007 [nlin.CD].
- André Luís Prando Livorati, André Paganotti Faber, and **Daniel Borin**. "Asymptotic convergence for the dynamics of a Duffing-like oscillator under scaling analyses". In: *Chaos* 35.1, 013108 (Jan. 2025), p. 013108. [DOI: 10.1063/5.0233700](#).
- Daniel Borin**. "Hurst exponent: A method for characterizing dynamical traps". In: *Physical Review E* 110.6, 064227 (Dec. 2024), p. 064227. [DOI: 10.1103/PhysRevE.110.064227](#).
- Matheus Rolim Sales et al. "Ratchet current and scaling properties in a nontwist mapping". In: *Chaos Solitons and Fractals* 189, 115614 (Dec. 2024), p. 115614. [DOI: 10.1016/j.chaos.2024.115614](#). arXiv: 2406.06175 [nlin.CD].
- Daniel Borin** et al. "Buzz pollination: A theoretical analysis via scaling invariance". In: *Physical Review E* 110.5, 054201 (Nov. 2024), p. 054201. [DOI: 10.1103/PhysRevE.110.054201](#).
- Matheus Rolim Sales et al. "An investigation of escape and scaling properties of a billiard system". In: *Chaos* 34.11, 113122 (Nov. 2024), p. 113122. [DOI: 10.1063/5.0222215](#). arXiv: 2406.04479 [nlin.CD].
- Daniel Borin**. "Caputo fractional standard map: Scaling invariance analyses". In: *Chaos Solitons and Fractals* 181, 114597 (Apr. 2024), p. 114597. [DOI: 10.1016/j.chaos.2024.114597](#). arXiv: 2312.00524 [nlin.CD].
- Daniel Borin**, André Luís Prando Livorati, and Edson Denis Leonel. "An investigation of the survival probability for chaotic diffusion in a family of discrete Hamiltonian mappings". In: *Chaos Solitons and Fractals* 175, 113965 (Oct. 2023), p. 113965. [DOI: 10.1016/j.chaos.2023.113965](#).



- 1 Exploring the survival probability for chaotic diffusion in a family of discrete Hamiltonian mappings.
XXII Conference on Non-equilibrium Statistical Mechanics and Nonlinear Physics - MEDYFINOL 2024, Caraguatatuba, Brazil, May 2024.
- 2 Buzz Pollination Dynamics Through a Billiard Approach.
Tópicos em Astronomia Dinâmica e Dinâmica Não-Linear, Rio Claro, Brazil, Dec 2024.
- 3 Diffusion Equation: A Mixed Between Fourier Analysis and Chaos.
I Encontro do Programa de Pós-Graduação em Matemática - IGCE/UNESP, Rio Claro, Brazil, Jan 2023.
- 4 The Poisson Equation: Application to Physics.
XI Congress GAFEVOL - Evolution Equations and Functional Analysis Group, Brasília, Brazil, Oct 2017.



Press Coverage

Our paper “*pynamicalsys: A Python toolkit for the analysis of dynamical systems*” was featured in:

- Brazilian Physics Society - Um novo “kit” em Python para estudar o caos (“A Python toolkit for studying chaos”) - 13 Nov 2025
<https://www.sbfisica.org.br/v1/sbf/um-novo-kit-em-python-para-estudar-o-caos/>



Services

Organized conferences

- Tópicos em Astronomia Dinâmica e Dinâmica Não-Linear
São Paulo State University (UNESP), Brazil.
<https://toadunesp.github.io/topicosemastronomia/>

2024



Skills

Programming: Python, Fortran, Mathematica

Other scientific tools: Pynamicalsys, LaTeX, git, slurm, cloud computing, website development.

Languages: English (Advanced), Italian (Basic), Portuguese (native).



References

References available upon request.