

DR. PATRICIA TERNES

RESEARCH FELLOW

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PROFILE

Dr Ternes is an Urban Analytics Researcher at the School of Geography, University of Leeds, UK. Most of her research focuses on the development of computer models that help to understand different complex systems. More recently, she has become interested on understand and explain social systems, like flows of people around cities, in particular using agent-based modelling and data assimilation techniques.

Dr Ternes also has extensive teaching experience. She worked as an undergraduate Substitute Professor at Federal Institute Catarinense (Brazil). She did three teaching internships, working with non-traditional science education and tutoring students who have disabilities. She also took five short courses related with online teaching.

RESEARCH EXPERIENCE

Research Fellow

School of Geography, University of Leeds, Leeds, UK

- **Co-Investigator:** Data Assimilation for Agent-Based Models (DUST): Develop a cutting-edge simulation of a city that can be dynamically optimised with streaming Big data. Nov 2019 - Present

TEACHING EXPERIENCE

Substitute Professor

Federal Institute Catarinense, São Bento do Sul, Brazil

- **Undergraduate teaching:** Basic Physic I, Basic Physic II, Basic Physic III, Experimental Physics I, Experimental Physics I, Experimental Physics II, Experimental Physics III Mar 2018 - Oct 2019

Workshop Tutor

Federal Institute Catarinense, São Bento do Sul, Brazil

- A brief introduction to LaTeX Nov 2018

Internship

Inclusive Education Sector, Federal University of Santa Catarina, Florianópolis, Brazil

- **Teaching:** pedagogical supervision and tutoring students who have disabilities Aug 2011 - June 2012

Internship

Science Room, Social Service of Commerce (SESC), Florianópolis, Brazil

- **Material and methodology development:** interdisciplinary science activities for children, youth and adults; Mar 2010 - Dec 2010
- **Teaching:** workshops, lectures, and seminars

Internship

Science Park, Federal University of Santa Catarina, Florianópolis, Brazil

- **Project:** Science Chest - Experimental Activities in Science Teaching Mar 2009 - Dec 2009
- **Material and methodology development:** guided tours in the Science Park for people over 10 years old
- **Teaching:** pedagogical experiments for students from primary and secondary school.

EDUCATION

PhD in Science: Theoretical Physics, Physics Institute, Federal University of Rio Grande do Sul, Brazil (2018).

MSc. in Physics, Physics Department, Federal University of Santa Catarina, Brazil (2014).

Licenciatura in Physics, Physics Department, Federal University of Santa Catarina, Brazil (2012).

AWARDS & FUNDING

Awards

2014 - 2018
Doctoral Scholarship Brazilian National Council for Scientific and Technological Development (CNPq)

2012 - 2014
Masters Scholarship Brazilian National Council for Scientific and Technological Development (CNPq)

Research funding as principal investigator: Total BRL 117,450

2019
BRL 58,600 Nanoconfined water diffusion: the role of friction and the effects of temperature and density water. Brazilian National Council for Scientific and Technological Development (CNPq), Grant no. 157758/2019-2, Brazil

2019
BRL 58,850 Agents with psychological characteristics: the impact of network topology on an artificial stock market. Brazilian National Council for Scientific and Technological Development (CNPq), Grant no. 170380/2018-1, Brazil

JOURNAL ARTICLES

Published

Mendonça, Bruno HS, **Patricia Ternes**, Evy Salcedo, Alan B de Oliveira, and Marcia C Barbosa (2020). "Water diffusion in rough carbon nanotubes". In: *The Journal of Chemical Physics* 152.2, page 024708.

Fonseca, Tássylla O, Marcia M Szortyka, **Patricia Ternes**, Cristina Gavazzoni, Alan B de Oliveira, and Marcia C Barbosa (2019). "Dewetting in associating lattice gas model confined by hydrophobic walls". In: *SCIENCE CHINA Physics, Mechanics & Astronomy* 62.10, page 107009.

Ternes, Patricia, Evy Salcedo, and Marcia C Barbosa (2018). "Relation between boundary slip mechanisms and waterlike fluid behavior". In: *Physical Review E* 97.3, page 033104.

Fonseca, Tassylla O, **Patricia Ternes**, and Marcia C. Barbosa (2017). "Freezing suppression in confined water". In: *Physicae Organum* 3.2, pages 128–138.

Ternes, Patricia, Alejandro Mendoza-Coto, and Evy Salcedo (2017). "Single-file mobility of water-like fluid in a generalized Frenkel-Kontorova model". In: *The Journal of chemical physics* 147.3, page 034510.

Under Review

Ternes, Patricia, Jon Ward, Alison Heppenstall, Vijay Kumar, Le-Minh Kieu, and Nick Malleson. "Using data assimilation to reduce uncertainty in an agent-based pedestrian simulations in real time"

CAMPUS AND INVITED TALKS

Ternes, P & Barbosa, M. Slip boundary conditions and the behaviour of nanoconfined water. VIII Workshop in Complexity of Water, Other Liquids and Science Education. UFSC, Brazil. November 2017.

Ternes, P & Torres, E. S. Single-file mobility of waterlike fluid in a generalized Frenkel-Kontorova model. Complex Systems Seminars. UFRGS, Brazil, May 2017.

Ternes, P & Barbosa, M. Flow of a nanoconfined water-like liquid. VII Workshop in Complexity of Water, Other Liquids and Science Education. UFSC, Brazil. November 2016.

Ternes, P & Barbosa, M. Friction in an effective water-wall system. Complex Systems Seminars. UFRGS, Brazil, December 2015.

Ternes, P & Barbosa, M. Slip mechanism for a water-like liquid. VI Workshop in Complexity of Water and Other Liquids. Slip mechanism for a water-like liquid. UFSC, Brazil. November 2015.

Ternes, P & Torres, E. S. Mobility of a water-like fluid in a generalized Frenkel-Kontorova model. Complex Systems Seminars. UFRGS, Brazil, July 2015.

Ternes, P & Torres, E. S. Mobility of waterlike fluid with a confining potential. V Workshop of Water and Other Complex Liquids. UFSC, Brazil. November 2014.

Ternes, P & Torres, E. S. Mobility analysis of a water-like fluid confined in carbon nanotubes. Complex Systems Seminars. UFRGS, Brazil, September 2014.

SKILLS

- Team-management
- Working to deadlines and under pressure
- Public speaking
- Teaching and mentoring
- Multiple coding languages
- Code reading and debugging

PROFESSIONAL TRAINING

2020 - Java Programming: Solving Problems with Software, Duke University.

2020 - Java Basic Programming III, Federal Institute of Rio Grande do Sul.

2020 - Java Basic Programming II, Federal Institute of Rio Grande do Sul.

2020 - Java Basic Programming I, Federal Institute of Rio Grande do Sul.

2019 - Creating Educational Videos, Federal Institute of Rio Grande do Sul.

2019 - Personalizing Teaching through Active Methodologies, Federal Institute of Rio Grande do Sul.

2018 - Use of technologies to support teaching, Federal Institute Catarinense.

2015 - Programming in CUDA, Federal University of Rio Grande do Sul.

2011 - Initial Training of Tutors for distance education, Federal University of Santa Catarina.

ADMIN & SERVICES

2018 - 2019 Commission Member	Course Board of the Bachelor of Control and Automation Engineering, Federal Institute Catarinense
2018 - 2019 Commission Member	Course Board of the Bachelor Computational Engineering, Federal Institute Catarinense
2018 - 2019 Commission Member	Structuring Teaching Nucleus (NDE) of the Bachelor of Control and Automation Engineering, Federal Institute Catarinense
2018 - 2019 Commission Member	Structuring Teaching Nucleus (NDE) of the Bachelor Computational Engineering, Federal Institute Catarinense
2018 Organising committee	XI National Interdisciplinary Scientific and Technological Initiation Conference, Brazil (6th-8th November, 2018)



*I hereby certify that all the information provided in this CV is true and correct.
Referees would be available upon your request.*