

# Pina Elisa Marques Fernandes

Ph.D. Candidate - Teacher Training Researcher



Nationality: Italian

## SUMMARY

As a final-year Ph.D. candidate in Science specializing in Physics Teaching, I bring a unique academic journey. I completed the qualification exam for a master's degree in Physics Teaching with honors, demonstrating equivalence to a master's degree under international standards. I also serve as an editorial board member for the BALBÚRDIA Journal, which disseminates research in Science Teaching, and as a reviewer for the Science & Education journal.

With extensive experience in teacher training, I have focused on developing and implementing teaching strategies for pre-service science and mathematics educators. I am completing a doctoral internship at the University of Bologna's Department of Physics and Astronomy (DIFA - UNIBO). My research centers on innovative approaches to Science Teaching and Teacher Training, mainly focusing on the role of scientific education in addressing complex challenges within the framework of the Risk Society.

## EDUCATION

Visiting Ph.D. Student

10/2024 - Present | Bologna, Italy

*Dipartimento di Fisica e Astronomia (DIFA), Università di Bologna, Bologna - Italia*

Doctorate in Science (Physics Teaching)

09/2023 - Present | São Paulo, Brazil

*Programa de Pós Graduação Interunidades em Ensino de Ciências da Universidade de São Paulo (PIEC-USP), São Paulo - Brazil*

- Thesis theme at the doctorate qualification exam (14/October/2024): *Scientific Education in the Risk Society: Developing Competencies of Undergraduate Pre-service Teachers for Managing Complex Problems in Times of Uncertainty.*
- Disciplines include Scientific Education in the Risk Society and one cycle of seminars about science teaching.

## Master in Science (Physics Teaching) 01/2020 - 09/2023 | São Paulo, Brazil

*Programa de Pós Graduação Interunidades em Ensino de Ciências da Universidade de São Paulo (PIEC-USP), São Paulo - Brazil*

- Successful completion with honors of the qualification exam on 11/September/2023 with the dissertation theme: *Scientific Education in the Risk Society: Developing Competencies of Undergraduate Pre-service Teachers for Managing Complex Problems in Times of Uncertainty.*
- Disciplines include Introduction to Research, Preparation for the Teaching Improvement Program (PAE), which focuses on remote pedagogical mediation, Environmental Education, Equity, Diversity, and Inclusion in STEM, and one cycle of seminars about science teaching.
- Organization of academic events: EPIEC-2021 and EPIEC-2022

## Degree in Physics 02/2018 - 09/2019 | São Paulo, Brazil

*Instituto Federal de Educação Ciências e Tecnologia de São Paulo (IFSP), São Paulo - Brazil*

- Disciplines include beyond the Physics curriculum, didactics, educational foundations, Science education and teaching practices, and teaching project workshops.

## DIDACTICS EXPERIENCE

### Visiting Teacher 02/2024 - 09/2024 | São Paulo, Brazil

*Instituto Federal de Educação Ciências e Tecnologia de São Paulo (IFSP)*

- Delivered a course on *Risk* as part of a 6th-semester subject in the Physics undergraduate pre-service teacher training program of IFSP — 44 hours.

### Assistant Teacher 08/2020 - 07/2022 | São Paulo, Brazil

*Universidade de São Paulo (USP)*

- Developed and taught a course on *Risk* as part of an 8th-semester subject in Chemistry and Mathematics undergraduate pre-service teacher training program at the Faculty of Education - USP — Dedication of 6 hours per week.

### Teacher 09/2020 - 12/2020 | São Paulo, Brazil

*Mentes Notáveis e-learning*

- Participated in developing and implementing a continuing education project for in-service teachers in the municipal and state public schools in the interior of the State of São Paulo, Brazil — Dedication of 6 hours per week. Target audience: 300 public school teachers.

## Visiting Teacher

08/2019 - 12/2019 | São Paulo, Brazil

*Instituto Federal de Educação Ciências e Tecnologia de São Paulo (IFSP)*

- Created and conducted the course *The Kitchen as a Science Laboratory: a proposal to promote science education and social inclusion in Public schools* for pre-service and in-service teachers as part of an Extension Program of IFSP — 44 hours.

## Tutoress

04/2018 - 07/2019 | São Paulo, Brazil

*Instituto Federal de Educação Ciências e Tecnologia de São Paulo (IFSP)*

- Calculus, classical mechanics, and didactics tutoring for pre-service Physics teachers training — Dedication of 6 hours per week.

## RESEARCH EXPERIENCE

### Reviewer

11/2024 - present | Online

*Science & Education Journal*

- Reviews of academic articles requested by official journal editors.

### Editor

08/2020 - present | Online

*Revista Balbúrdia* (ISSN 2763-8499) — Available at <<https://sites.usp.br/revistabalburdia/>>

- General editorial activities of the journal, conceptualization and conducting of interviews, and reviews of scientific dissemination articles.

### Reviewer

02/2023 - 04/2023 | Online

*ESERA 2023 at Oxford Abstracts*

- Abstract reviews requested by ESERA co-chairs.

## FELLOWSHIPS

### Teaching Enhancement Program (PAE)

02/2022 - 07/2022

*Faculdade de Educação (FE-USP), São Paulo/SP, Brazil*

- Monitored students and supported teachers in preparing and implementing the course.

### Teacher Training Program

10/2021 - 12/2021

*Pró Reitoria de Graduação da USP, São Paulo/SP, Brazil*

- Assisted in planning, developing, and evaluating supervised internships. Guided students in school visits, project development, pedagogical material creation, and fostering partnerships between public schools and the University.

**Santander Universities: Education Scholarships** **04/2021 - 10/2021**

*Banco Santander and Pró Reitoria de Graduação da USP, São Paulo/SP, Brazil*

- Collaborated in training teachers and supporting teaching activities for students in USP undergraduate courses.

**Teaching Enhancement Program (PAE)** **02/2021 - 07/2021**

*Faculdade de Educação (FE-USP), São Paulo/SP, Brazil*

- Monitored students and supported teachers in preparing and implementing course activities.

## PUBLICATIONS

Sollero, P. D. N., & Pietrocola, M. (2025). Approaching complex problems in science and mathematics pre-service teachers' initial training using DBR. *EDeR - Educational Design Research*. (Accepted). ISSN: 2511-0667.

Sollero, P. D. N., & Pietrocola, M. (2024). Education of complex problems in pre-service science and mathematics teachers' initial training in a risk society. In *Proceedings Book Series-III of the ESERA 2023 Conference*. Nobel Bilimsel Eserler. ISBN: 978-625-393-906-9. <https://www.researchgate.net/publication/385192664> [The 15th Conference of the European Science Education Research Association ESERA Proceedings Book Series-III](https://www.researchgate.net/publication/385192664)

Souza, C., Pietrocola, M., & Fagionato, S. (2023). *Conexões e vivências - Ciências*. Editora do Brasil S. A. Editorial support in producing teaching material for elementary school (6th, 7th, 8th, and 9th grades). Elaboration and review of texts and activities. <https://pnl-danos-finais.editoradobrasil.com.br/livros/conexoes-vivencias-ciencias/>

Silva, L., Sollero, P., Bernardes, J., & Pietrocola, M. (2021). Risk perception concerning the COVID-19 pandemic, global warming, and food and nutrition security by preservice science teachers. In *Proceedings of ESERA 2021* (pp. [page range, if available]). CIEC University of Minho. ISBN: 978-972-8952-82-2.

Sollero, P. E. D. N. F., & Schmiedecke, W. G. (2020). Física na cozinha: Um espaço didático para discussões de temáticas da educação científica. In J. Camillo et al. (Orgs.), *Anais do XVIII Encontro de Pesquisa em Ensino de Física [livro eletrônico]: A pesquisa em ensino de física e as*

*tensões político-democráticas da atualidade: Para onde vamos?* (pp. 626–633). Sociedade Brasileira de Física.

## CONFERENCE PRESENTATIONS

Preparing future educators for a *Risk Society*: Building skills for teaching complex problems management in times of uncertainty

*Università di Bologna, Bologna-BO, Italy, 10/2024*

Science education in the *Risk Society*: Approach to complex problems in pre-service science and mathematics teachers' initial training

*Instituto de Estudos Avançados (IEA) - Universidade de São Paulo (USP), São Paulo/SP - Brazil, 02/2024*

Education within a society in peril: Facing the uncertainties of climate change

*Université d'Ottawa, Ottawa - Canada, 11/2023*

The Importance of Scientific Dissemination in School Education for Participatory Citizenship

*EACH - Universidade de São Paulo (USP), São Paulo/SP - Brazil, 11/2021*

The Kitchen as a Science Lab for Pre-service Teachers

*Universidade Estadual de Campinas (UNICAMP), Campinas/SP - Brazil, 2020*

## PARTICIPATION IN EVENTS

CLIMADEMY's Autumn School

*University of Crete, Agios Nikolaos, Greece, 11/2024*

- Participation in the autumn school included in-person training in teaching and learning about climate change, its drivers and impacts, and mitigation and adaptation strategies.

International Collaborative Research on Risk and Science Education

*IEA-USP and UFABC, São Paulo/SP, Brazil, 02/2024*

- Participation in the symposium included an oral presentation.

## ESERA 2023 Conference

*Hacettepe University, Gazi University and Nevşehir Hacı Bektaş Veli University, Cappadocia, Türkiye, 08/2023*

- Participation in the ESERA conference included a poster presentation of the article *Education of Complex Problems in Initial Training for Risk Management by Pre-Service Science and Mathematics Teachers*.

## ESERA 2021 Conference

*Moinho University, Braga, Portugal, 08/2021*

- Participation in the ESERA conference included an oral presentation of the article *Risk Perception Concerning COVID-19 Pandemic, Global Warming, and Food and Nutrition Security by pre-service science teachers*.

## EPEF 2020 Conference

*Encontro de Pesquisa em Ensino de Física (EPEF), Florianópolis/SC - Brazil, 11/2020*

- Participation in the EPEF conference included an oral presentation of the article *Physics in the Kitchen: A Didactic Space for discussions on science education topics*.

## VOLUNTEERING

**Application Assistant for Political Asylum with the French organization OFPRA**      2022 - 2023 | Paris, France

Provided monitoring and translation support throughout the asylum application process of a Brazilian journalist from *Coluna de Terça*.

**Culinary Teacher and Trainer of New Teachers at Chef Aprendiz**      2015 - 2018 | São Paulo, Brazil

Facilitated professional insertion in the gastronomy industry and personal growth programs for young people facing social vulnerability.

## PASSIONS

### Gastronomy

I am passionate about exploring the intersection of science and cooking, delving into the scientific principles that influence culinary processes, and how gastronomy is a powerful tool for teaching scientific concepts.

## **Continuous Learning at Teaching**

My passion for continuous learning while teaching is a driving force in my career. Every research project and life experience allows me to expand my knowledge, refine my teaching methods, and grow personally and professionally. I want to inspire others with my dedication to lifelong learning.

## **LANGUAGES**

**Portuguese** - Native | **English** - Fluent | **French** - Fluent | **Italian** - Proficient |  
**Spanish** - Proficient