

Lorenzo Miani

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Personal Information

Born: 11/04/1997

Citizenship: Italy

Languages: Italian (Mother tongue), English (IELTS BAND 8 – C1)

Work positions

01/01/2025 – ongoing

Post-doc grant at the University of Bologna

Supervisor: Prof. Oliva Levrini

“Ruolo della fisica per l'educazione alla sostenibilità: Analisi dati e realizzazione di materiali didattici”,
finanziato sul progetto: "Erasmus Plus CLIMADEMY CUP J33C22002590005"

Formation and academic studies

01/01/2022 – 31/12/2024

PhD in Physics at the University of Bologna

Supervisor: Prof. Oliva Levrini

Thesis title (provisional): The role of uncertainty in Climate Change Education for developing sustainability competences

09/2019 – 07/2021

Master's Degree in Physics at the University of Bologna

Final degree mark: 110/110 cum Laude

Curriculum: Physics Education and History of Physics

Thesis title: “Highlighting interdisciplinarity between physics and mathematics in historical papers on Special Relativity: design of blended activities for pre-service teachers”

Thesis supervisor: Prof. Olivia Levrini

Thesis co-supervisor: Prof. Stavrou Dimitris

09/2016 – 09/2019

Bachelor's Degree in Physics at the University of Bologna

Final degree mark: 104/110

Thesis title: Understanding the key concepts of basic kinematics: a case study with students in the biological sciences degree program

Thesis supervisor: Prof. Olivia Levrini

Thesis co-supervisor: Prof. Campari Enrico

International collaborations

08/2024 – 10/2024

Visiting PhD at University of Helsinki (Finland)

Faculty of Educational Sciences

Supervisor: Antti Laherto

22/04/2024 – 03/05/2024

Visiting PhD at University of Oxford (United Kingdom)

Department of Education

Supervisor: Prof. Steven Puttick

22/01/2024 - 21/04/2024

Visiting PhD at University of Southampton (United Kingdom)

Southampton Education School

08/01/2024 – 21/01/2024	Supervisor: Prof. Wonyong Park Visiting PhD at University College London (UCL) (United Kingdom) Institute of Education (IOE) Supervisor: Prof. Justin Dillon
03/2021 – 06/2021	ERASMUS+ Traineeship for Development of Master Thesis University of Crete, Department of Primary Education Supervisors: Prof. Dimitris Stavrou, Prof. Constantinos Tzanakis
09/2019 – 08/2022	IDENTITIES project Part of the research group

Collaborations with enterprises/companies

10/2023 – 11/2023	Fondazione Golinelli Big Data & Climate Change School Program
16/06/2023	Fondazione Golinelli Summer Camp “Big Data & Climate Change”
01/2023 – 06/2023	Research activity for CONAI Consorzio Nazionale Imballaggi, Milano Analysis of training and educational activities in terms of their capacity to build sustainability competencies

Teaching/Tutoring activities

11/2024 – 12/2024	Tutor PLS “Verso Nuovi Scenari Futuri: Il ruolo della fisica nelle sfide dei cambiamenti climatici” – 2nd edition University of Bologna Supervisor: Prof. Olivia Levrini
10/2023 – 12/2023	Tutor PLS “Verso Nuovi Scenari Futuri: Il ruolo della fisica nelle sfide dei cambiamenti climatici” University of Bologna Supervisor: Prof. Olivia Levrini
03/2022 – 06/2022	Tutor of MINOR VAST (Viaggio Attraverso Spazio e Tempo) – Course “Paradossi dello Spazio Tempo” and “Origine, Evoluzione, Destino dello Spazio-Tempo” at the University of Bologna Supervisor: Prof. Alessia Cattabriga
07/2019 – 06/2020	Study tutor in Mathematics and Physics for undergraduate students with Specific Learning Disorders at the University of Bologna Supervisor: Sportello di supporto allo studio
03/2019 – 06/2019	Tutor of Physics Laboratory for 1 st -year Biological Sciences degree at the University of Bologna Supervisor: Prof. Federico Marulli

Research Interests

Physics Education, Climate Change, Sustainability, Uncertainty, Interdisciplinarity, Futures Studies.

Award and Honours

- **Award “Cartacci” for the best Master Thesis on Physics Education and History of Physics in Italy for graduates of 2021 class**
Firenze, 16th June 2022
- **Winner of the IDENTITIES research grant “Didattica Blended Per La Formazione Iniziale Degli Insegnanti Di Matematica In Prospettiva Interdisciplinare (Stem Education)”**
Parma, 5th October 2021, Declined
- **Award for the 2nd best communication at SIF 107th National Congress of the Italian Physical Society in Section 7 “Didactic and History of Physics” with the work “Highlighting interdisciplinarity between physics and mathematics in historical papers on Special Relativity: design of blended activities for pre-service teachers”**
Online, 13th-17th September 2021

Thesis supervision or Co-supervision

- **Co-Supervision of Matteo Maranzano’s Master Thesis** on Interdisciplinarity between Mathematics, Physics, and Philosophy during the course VAST (Maranzano, M. 2023)
- **Co-Supervision of Lucia Modica’s Master Thesis** “Highlighting Interdisciplinarity between Physics and Mathematics in Historical Papers on Special Relativity: Development of an Analytical Tool for Characterising Boundary Crossing Mechanisms” (Modica, L. 2022)

Participation at Conferences and Summer/Winter Schools

- **EGU General Assembly - 2025**
Wien (Austria), 28 April – 2 May 2025
Presentation: Exploring The Potential Of Data-driven Educational Tools To Engage Students With Climate Change Complexity
- **SciCarr Final Project Meeting**
Tallinn (Estonia), 24-26 September 2024
- **ANTICIPATION Conference**
Lancaster (United Kingdom), 11-14 September 2024
Presentation: “How uncertainty can help in envisioning sustainable futures to address Climate Change” (Miani, De Zuani Cassina, Levrini)
- **WCPE 2024 – 4TH WORLD CONFERENCE ON PHYSICS EDUCATION**
Kraków (Poland), 26-30 August 2024
Presentation: “The role of uncertainty in developing sustainable futures scenarios” (Miani, De Zuani Cassina, Levrini)
- **CLIMADEMY summer school**
Bologna (Italy), 26-28 June 2024
Implementation of the game “FyouTURES”
- **ASE2024 – ASSOCIATION OF SCIENCE EDUCATION**
Northampton (UK), 4-6 January 2024
- **ONSCI2023 – 3rd “Officina di Narrazione della Scienza” Summer School**
Bologna (Italy), 7-13 September 2023
- **EARLI2023 – 20th Biennial Conference of the European Association for Research on Learning and Instruction**
Thessaloniki (Greece), 22-27 August 2023
Presentation of “Future-oriented science education building sustainability competencies” (Laherto, A., Rasa, T., Miani, L., Levrini, O., Erduran, S.)

- **JURE2023 – 27th Conference of the Junior Researchers of EARLI**
Thessaloniki (Greece), 20-21 August 2023
Poster presentation of “Generating active hope through uncertainty Design of a future-oriented course on Climate Change” (Miani, L., Levrini, O.)
- **ESERA Summer School 2023**
Neustadt an der Weinstraße (Germany), 3-7 July 2023
- **MESE1 – Measurement in STEM education**
Napoli (Italy), 30-31 January, 1 February 2023
- **Transformational Leadership for Sustainability**
Oslo (Norway) & Online, September-November 2022
- **SIF 108th National Congress of the Italian Physical Society,**
Milano (Italy), 12-16 September 2022
Presentation of “Crossing boundaries between disciplines - Analysis of an interdisciplinary course about spacetime between physics, mathematics, and philosophy” (Miani, L., Maranzano., Cattabriga, A., Levrini, O., Moruzzi, S.)
- **ESU9 – 9th European Summer University on the History and Epistemology in Mathematics Education,**
Fisciano (Italy), 18-22 July 2022
Presentation of “Highlighting Interdisciplinarity Between Physics And Mathematics In Historical Papers On Special Relativity: Design Of Blended Activities For Pre-Service” Teachers” (Miani, L., Modica, L., Levrini, O.)
- **GIREP Conference 2022 “Effective Learning in Physics: From Contemporary Physics to Remote Settings”**
Ljubljana (Slovenia), 4-8 July 2022
Poster presentation of “Changing the narrative in Climate Change: design of a storyline-based approach for PER” (Miani, L., Levrini, O.)
- **2nd International Summer School of the project IDENTITIES,**
Barcelona (Catalunya, Spain), June 27th to July 1st, 2022
- **SIF 107th National Congress of the Italian Physical Society,**
Online, 13-17 September 2021
Presentation of “Highlighting Interdisciplinarity Between Physics And Mathematics In Historical Papers On Special Relativity: Design Of Blended Activities For Pre-Service Teachers” (Miani, L., Levrini, O.)
- **1st International Summer School of the project IDENTITIES,**
Online, June 28th to July 2nd, 2021
- **Piano Lauree Scientifiche Winter School on “Quantum Technologies: a new challenge for teaching”**
Online, 10-19 February 2021
- **ESERA19 – 13th Conference of the European Science Education Research Association**
Bologna, Italy, 26-30 August 2019

Publications

Miani, L., Bitsaki, C., Metaxas, G., Stavrou, D., Levrini, O. (2025). Embracing Complexity and Uncertainties to Deal with Climate Change Challenges: An Interdisciplinary Module for Preservice Teacher Education. *Science & Education*. <https://doi.org/10.1007/s11191-025-00658-9>

Miani, L., De Zuani Cassina, F., & Levrini, O. (2025). Raising Awareness on the Complexity of Decision-making through Climate Change Education. *Research in Science Education*, 1-25. <https://doi.org/10.1007/s11165-025-10266-w>

Miani, L., & Levrini, O. (2024). Analysing the storyline approach's competence-developing potential for climate change in science education. In S. Faletič & J. Pavlin (Eds.), *Teaching and learning physics effectively in challenging times* (pp. 253–266). Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-031-72541-8_17

Laherto, A., Rasa, T., Miani, L., Levrini, O. & Erduran, S. (2023). Future-Oriented Science Education Building Sustainability Competences: An Approach to the European GreenComp Framework. In: Fazio X. (Ed.), *Science Curriculum for the Anthropocene*, Volume 2. Curriculum Models for our Collective Future, London, Palgrave MacMillan, pp. 83 – 105. https://doi.org/10.1007/978-3-031-37391-6_5

Miani, L., Modica, L., Levrini O. (2023). [Interdisciplinarity in special relativity: development of activity for pre-service teacher education](#). In Barbin, E., Capone, R., Fried, M.N., Menghini, M., Pinto, H., Tortoriello, F.S. (Eds.), *History and Epistemology in Mathematics Education. Proceedings of the 9th European Summer University*, Roma, Edizioni Nuova Cultura, 2023, pp. 484 – 489.

Miani, L. (2022). The Interdisciplinarity of Special Relativity: A Historical Analysis, // *Nuovo Cimento C*, 45(4). <http://dx.doi.org/10.1393/ncc/i2022-22090-y>

Manuscripts under review or in progress

Miani, L. and Levrini, O. (in press). Changing the narrative in climate change: design of a storyline based approach for PER. Poster presentation at GIREP-ICPE-EPEC-MPTL 2022, 4th – 8th July 2022, Ljubljana - Slovenia. Selected by the Editors and the GIREP Board for inclusion in the book of selected papers titled "Effective Learning in Physics: from Contemporary Physics to Remote Settings"

De Zuani Cassina, Miani, L. & Levrini, O. (submitted). Questioning harmful hopes and supporting systemic thinking through a scenario-making board game.

Reviewer activity

- Conference “ESERA2025”
Copenhagen (Denmark), 25-29 August 2025
- Journal “Research in Science Education”, Springer
Impact Factor: 2.2 (2023)
- Journal “Science & Education”, Springer
Impact Factor: 2.1 (2023)
- Conference “JURE2023”
Thessaloniki (Greece), 20-21 August 2023