



Luca Martinoia

POSTDOCTORAL RESEARCHER IN THEORETICAL PHYSICS

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Experience

Postdoctoral researcher

Padova, Italy

UNIVERSITY OF PADOVA, LABORATORY OF INTERDISCIPLINARY PHYSICS (LIPH)

September 2024 – to date

- I am working on Dynamical Mean Field Theory for neuroscience applications.
- Supervisors: Samir Suwais, Amos Maritan and Sandro Azaele

Postdoctoral researcher

Genoa, Italy

UNIVERSITY OF GENOA, PHYSICS DEPARTMENT

February 2024 – September 2024

- I worked on the hydrodynamics of active matter.
- Supervisors: Nicodemo Magnoli and Andrea Amoretti

Visiting Researcher

Bruxelles, Belgium

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October 2022 – December 2022

- I worked on the gauge theories of fracton quasiparticles.
- Visiting Ph.D. student. Supervisor: Riccardo Argurio

Education

Ph.D. in Theoretical Physics

Genoa, Italy

UNIVERSITY OF GENOA, PHYSICS DEPARTMENT

October 2020 – March 2024

- Advisor: Andrea Amoretti
- Thesis title: *Developments in quasihydrodynamics – Theory and applications*
- Participation in schools and conferences:
 - Postgraduate school (online): *SFT 2021 – Lectures on Statistical Field Theories*, GGI – Florence, Italy – 8 to 19/02/21
 - Workshop (online): *Emergent Hydrodynamics in Condensed Matter and High-energy Physics*, Max Planck Institute for the Physics of Complex Systems – Dresden, Germany – 2 to 6/05/22
 - Workshop: *Holographic perspectives on chiral transport*, ECT* – Trento, Italy – 13 to 17/03/23
 - Workshop: *Hydrodynamics at all scales*, NORDITA – Stockholm, Sweden – 16 to 23/09/23

Master's degree in Theoretical Physics

Genoa, Italy

UNIVERSITY OF GENOA, PHYSICS DEPARTMENT

2014 – 2020

- Grade: 110/110
- Thesis title: *Anomalous hydrodynamic description of thermoelectric transport in a Weyl semimetal*

Bachelor's degree in Physics

Genoa, Italy

UNIVERSITY OF GENOA, PHYSICS DEPARTMENT

2011 – 2014

- Grade: 110/110 *cum laude*

Publications – Google Scholar – INSPIRE

The authors are listed alphabetically. Titles are DOI links.

A note on the canonical approach to hydrodynamics and linear response theory

August 2024

ARXIV PREPRINT

L. Martinoia and R. Singh

Dissipative electrically driven fluids

July 2024

ARXIV PREPRINT

A. Amoretti, D.K. Brattan, L. Martinoia and J. Rongen

Thermodynamic constraints and exact scaling exponents of flocking matter

November 2024

PHYS. REV. E 110, 5 (2024)

A. Amoretti, D.K. Brattan and L. Martinoia

Developments in quasihydrodynamics

March 2024

ARXIV PREPRINT

L. Martinoia

Relaxation terms for anomalous hydrodynamic transport in Weyl semimetals from kinetic theory

September 2023

JOURNAL OF HIGH ENERGY PHYSICS 02, 071 (2024)

A. Amoretti, D.K. Brattan, L. Martinoia, I. Matthaiakakis and J. Rongen

Restoring time-reversal covariance in relaxed hydrodynamics

September 2023

PHYSICAL REVIEW D 108, 5 (2023)

A. Amoretti, D.K. Brattan, L. Martinoia and I. Matthaiakakis

Leading order magnetic field dependence of conductivities in anomalous hydrodynamics

PHYSICAL REVIEW D 108, 1 (2023)

July 2023

A. Amoretti, D.K. Brattan, *L. Martinoia* and I. Matthaiaakakis

Non-dissipative electrically driven fluids

JOURNAL OF HIGH ENERGY PHYSICS 05, 218 (2023)

May 2023

A. Amoretti, D.K. Brattan, *L. Martinoia* and I. Matthaiaakakis

Destroying superconductivity in thin films with an electric field

PHYSICAL REVIEW RESEARCH 4, 3 (2022)

September 2022

A. Amoretti, D.K. Brattan, N. Magnoli, *L. Martinoia*, I. Matthaiaakakis and P. Solinas

Hydrodynamic magneto-transport in holographic charge density wave states

JOURNAL OF HIGH ENERGY PHYSICS 11, 011 (2021)

November 2021

A. Amoretti, D. Areán, D.K. Brattan and *L. Martinoia*

Seminars and Posters

Chirality, vorticity and magnetic field in quantum matter

Timișoara, Romania

WEST UNIVERSITY TIMIȘOARA

22 – 26 July 2024

- Talk title: *Relaxation terms for anomalous hydrodynamic transport in Weyl semimetals*

CMD30-FisMat2023 joint conference

Milan, Italy

UNIVERSITY OF MILAN, PHYSICS DEPARTMENT

4-8 September 2023

- Talk title: *On Frames and Magneto-Transport in Anomalous Hydrodynamics*

Department Retreat seminar

Bruxelles, Belgium

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8 November 2022

- Talk title: *A new class of hydrostatic theories*

Cortona Young 2021

Florence, Italy

GALILEO GALILEI INSTITUTE

9 – 11 June 2021

- Video-poster: *Thermoelectric conductivities in Charge Density Waves states from hydrodynamics*

Memberships

Associate Researcher

Genoa, Italy

ISTITUTO NAZIONALE FISICA NUCLEARE

2020 – to date

- Associate Researcher with the Italian Institute for Nuclear Physics (INFN), Statistical physics program

Associate Researcher

Trento, Italy

EUROPEAN CENTER FOR THEORETICAL STUDIES IN NUCLEAR PHYSICS AND RELATED AREAS

2023 – to date

- Associate Researcher with the European Center for Theoretical Studies in Nuclear Physics and Related Areas (ECT*)