

CURRICULUM VITAE ET STUDIORUM

MICHELE CECCARDI

MAIL: _____

Phone: _____

Date of Birth:

Nationality:

EDUCATION

- 11/2024 – 10/2024 **PhD student** at the **Physics department** of the **University of Genova, Italy**.
Supervisors: Prof. **Daniele Marré**, Dr. **Federico Caglieris**.
- 02/2024 – 07/2024 **Guest period at the IFW Dresden, Germany**.
Supervisors: Prof. **Bernd Büchner**, Dr. **Joseph Dufouleur** and Prof. **Andy Thomas**.
- 2021 September **Master degree in Physics at the University of Genova, Italy**.
Thesis title: “*Transport properties of materials with non-trivial topology*”.
Final grad: **110/110 cum laude**.
Supervisors: Prof. **Daniele Marré**, Dr. **Federico Caglieris**.
- 2019 October **Bachelor degree in Physics at the University of Genova, Italy**.
Final grade: **110/110 cum laude**.
- 2016 July **Scientific High school certificate** at Liceo Scientifico Leonardo da Vinci of Genova, Italy.
Final grade: **100/100**.

CONFERENCES and SCHOOLS

- 1/10/2024 – 11/10/2024 **MesoSchool 2024: 2D materials, superconductivity and superconducting circuits, quantum transport and hybrid systems. Theory and experiments**, doctoral school in Cargèse, France. (**Poster**, Field effect tuning of the transport properties of the Weyl semimetal candidate $MnBi_2Te_4$)
- 10/06/2024 – 12/06/2024 **Superconducting and topological materials**, joint workshop IFW Dresden -University of Genoa in Genoa, Italy. (**Oral contribution**, “*Transport investigation of $t-PtBi_2$* ” on behalf of Dr. Joseph Dufouleur (IFW)).
- 17/03/2024 – 22/03/2024 **DPG spring meeting 2024 in Berlin, Germany** (**Oral contribution**: “*Anomalous Nernst effect in topological and magnetic material $MnBi_4Te_7$* ”).
- 30/11/2022 – 01/12/2022 **Superconducting and topological materials**, joint workshop IFW Dresden -University of Genoa in Dresden, Germany. (**Oral contribution**, “*Transport properties of $(W_{1-x}Mo_x)Te_2$ semimetals under uniaxial strain*”).
- 22/11/2022 – 24/11/2022 **Workshop on magnetic topological materials** in Herzberg, Swiss. (**Poster**, “*Weyl cones induce anomalous Nernst effect in a magnetic topological material $MnBi_4Te_7$* ”).
- 28/03/2022 – 04/04/2022 **Topological Quantum Matter: Theory and Applications**, doctoral school in Santa Margherita Ligure, Italy.
- 13/10/2021 - 15/10/2021 **iWOE27** (“*International Workshop on Oxide Electronics*”) in Genova, Italy.

TEACHING EXPERIENCES

09/2024 to now	Tutor of the course of “Mechanics and Thermodynamics” at Material Science and Technology faculty of the university of Genova, <i>Italy</i> .
09/2024 to now	Tutor of the course of “Electromagnetism and Optics with laboratory” at Material Science and Technology faculty of the university of Genova, <i>Italy</i> .
09/2024 to now	Tutor of the course of “ <i>General Physics with laboratory</i> ” at Chemistry faculty of the university of Genova, <i>Italy</i> .
09/2021 – 09/2024	Tutor of the course of “ <i>General Physics 1</i> ” at Physics faculty of the university of Genova, <i>Italy</i> .
09/2022 – 01/2023	Tutor of the course of “ <i>General Physics 3</i> ” at Material Science and Technology faculty of the university of Genova. <i>Italy</i> .

SPOKEN LANGUAGES

- **Italian:** mother tongue
- **English:** fluent. I have been doing a top level **Wall street English** language course.

LIST OF PUBLICATIONS (peer reviewed)

Publications

- **M. Ceccardi**, A. Zeugner, L. C. Folkers, C. Hess, B. Büchner, D. Marré, A. Isaeva and F. Caglieris. *Anomalous Nernst effect in magnetic and topological material MnBi₂Te₄*. npj Quantum Materials, 8, 76 (2023)
- I. Pallecchi, F. Caglieris, **M. Ceccardi**, N. Manca, D. Marre, L. Repetto, M. Schott, D. I. Bilc, S. Chaitoglou, A. Dimoulas and M. J. Verstraete. *Investigation and field effect tuning of thermoelectric properties of SnSe₂ flakes*. Physical Review Materials, 7, 5 (2023)
- M. Mödlinger, A. Provino, P. Solokha, F. Caglieris, **M. Ceccardi**, D. Macciò, M. Pani, C. Bernini, D. Cavallo, A. Cicciooli and P. Manfrinetti. *Uncommon Crystallographic Features, Low-Temperature Phase Transitions, Thermodynamic and Physical Properties*. Materials, 16, 2501 (2023)
- A. Martinelli, G. Lamura, P. Solokha, A. Provino, C. Bernini, **M. Ceccardi**, M. Pani, M. Ferretti, S.K. Dhar, P. Manfrinetti. *Crystal structure and physical properties of the new AcNi₆Si₆ compounds (Ac: Th, U)*. Journal of Alloys and Metallurgical Systems, 5, 100051 (2024)
- M. Mödlinger, A. Provino, P. Solokha, S. De Negri, F. Caglieris, **M. Ceccardi**, C. Bernini and P. Manfrinetti. *Crystallochemistry, Thermodynamic and Physical Properties of the novel intermetallic compound Cu_{3-x}(As,Sb)*. Intermetallics, 176, 108526 (2025)
- S. Shokri, **M. Ceccardi**, T. Confalone, C. N. Saggau, Y. Lee, M. Martini, G. Gu, V. M. Vinokur, I. Pallecchi, K. Nielsch, F. Caglieris and N. Poccia. *Evolution of dissipative regimes in atomically thin Bi₂Sr₂CaCu₂O_{8+x} superconductor*. The Accepted for printing in Advanced Electronic Materials

Submitted:

- F. Caglieris, **M. Ceccardi**, D. Efremov, G. Shipunov, S. Aswartham, A. Veyrat, J. Dufouleur, D. Marré, B. Büchner and C. Hess. *Multi-component Nernst effect in superconducting Weyl semimetal t-PtBi₂*. The manuscript has passed the editorial step in Physical Review Letters.
- A. Veyrat, K. Koepernik, L. Veyrat, G. Shipunov, S. Aswartham, J. Qu, A. Kumar, **M. Ceccardi**, F. Caglieris, N. P. Rodriguez, R. Giraud, B. Büchner, J. van den Brink, C. Ortix and J. Dufouleur. *Dissipationless transport signature of topological nodal lines*. The manuscript has passed the editorial step in Nature Physics.

Patents:

- **M. Ceccardi**, I. Pallecchi, F. Cagliaris, S. Shokri, T. Confalone, K. Nielsch, N. Poccia and V. M. Vinokur. *Method and contact layer for measuring a voltage induced by a temperature difference between different positions along a sample*. Submitted as: European patent (application's reference Q7 - 7823, application date 18/09/2024)

MAIN TECHNICAL CAPABILITIES

- **Sample fabrication:** Mechanical exfoliation of van der Waals materials down to monolayer; Deterministic viscoelastic stamping of exfoliated flakes onto a substrate.
- **Sample characterization:** AFM
- **Microfabrication:**
 - Optical lithography
 - thermal scanning probe lithography (proficient user of the NANOFRAZOR by Heidelberg instruments)
- **Measurements:**
 - Vacuum and cryogenic techniques
 - Design and realization of experiments to measure the **electric and thermoelectric transport properties** of samples both in form of bulk single crystals and exfoliated flakes in cryo-magnetic systems (proficient user of the system Quantum Design PPMS).
 - Creation of **field effect devices** to control the transport properties of exfoliated flakes.
 - Application of **uniaxial strain/stress** on bulk samples using piezoelectric devices.
 - Measurements of the **magnetic properties** of bulk crystals (beginner user of the SQUID system Quantum Design MPMS)

COMPUTER SKILLS

- **Windows and Linux** environments.
- **Office** and **Latex**
- **Programming:**
 - High level: **Python, C++, MatLab, Mathematica** and **LabView**
 - Low level: **verilog** for an **FPGA**.
- **Professional scientific programs:**
 - Data analysis: **OriginLab, Root** and **KolXPD**
 - Hardware's simulation: **LTSpice** and **Quartus**
- **Physics simulations:**
 - **Molecular Dynamics simulations**
 - **Monte Carlo simulations**

PASSIONS AND ACTIVITIES

I have been playing the **violin** since I was a child. This passion has allowed me to have many exciting experiences growing up. On the one hand, I have played both orchestral and chamber music, and this activity let me to expand my boundaries, going, among other activities, twice to perform in **Washington D.C.**, USA, at the Connelly School of the Holy Child. On the other hand, my passion for music has always driven me to travel extensively in **Europe** to listen to great musicians and orchestras. Moreover, few years ago, I have also made my own instrument in a **liuther lab** in Genova, supervised by award-winning craftsman Galileo Pietropaolo.

In addition to the passion for music, I also enjoys going to the **mountains** and, during the high school, I have participated to **cross-country skiing races**. Competitive activities have allowed me to enhance the organization and patience developed through my music studies.

Finally, during last years, I have also worked a lot for the **parish** in my neighborhood, for **youths's education** and **children's animation**. The activity has improved my communication and team working capabilities