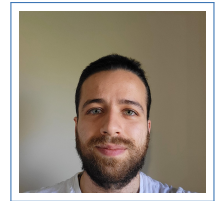


Nicola Paddeu

PhD student in Mathematics

Département de mathématiques
Université de Fribourg
Chemin du Musée 23
1700 Fribourg, Suisse
✉ [nicola.paddeu \[at\] unifr.ch](mailto:nicola.paddeu[at]unifr.ch)
🌐 perso.unifr.ch/nicola.paddeu/
ORCID: 0009-0002-7329-8891



Education

- September 2020 **Scuola Normale Superiore**, II level University Master's degree
July 2023 100/100 cum laude
- September 2020 **Università di Pisa**, Laurea Magistrale in Matematica (Master's degree)
February 2022 110/110 cum laude
- September 2021 **Swiss European Mobility Program**
February 2022 University of Fribourg
- September 2017 **Università di Pisa**, Laurea Triennale in Matematica (Bachelor's degree)
July 2020 110/110 cum laude
- September 2017 **Scholarship granted by Istituto Nazionale di Alta Matematica**
July 2020
- September 2012 **Liceo scientifico E. Fermi**, Diploma di maturità
July 2017 100/100 cum laude

Career

- April 2022 **PhD Student**, Université de Fribourg
Today Under the supervision of **Enrico Le Donne**
- September 2025 **Outreach responsible**, Université de Fribourg
Today
- December 2022 **IT Technician**, Université de Fribourg
August 2025
- April 2022 **Diploma assistant**, Université de Fribourg
July 2022

Publications

- 2025 **Strictly abnormal geodesics with a degeneracy point in the interior of their domain**, with *Alessandro Socionovo* and *Enrico Le Donne*, to appear in *SIAM Journal on Control and Optimization*
- 2024 **Escape from compact sets of normal curves in Carnot groups**, with *Enrico Le Donne*, *ESAIM: Control, Optimisation and Calculus of Variations*
- 2024 **Symplectic reduction of the sub-Riemannian geodesic flow for metabelian nilpotent groups**, with *Alejandro Bravo-Doddoli* and *Enrico Le Donne*, *Geometric Mechanics*

Preprints

- 2025 **Normal curves in sub-Finsler Lie groups: Branching for strongly convex norms and face stability for polyhedral norms**, with *Enrico Le Donne* and *Sebastiano Nicolussi Golo*, *Preprint*: Available at [arXiv:2510.26261](https://arxiv.org/abs/2510.26261)
- 2025 **Hypergenerated Carnot groups**, with *Enrico Le Donne*, *Luca Nalon* and *Simone Verzellesi*, *Preprint*: Available at [arXiv:2503.24161](https://arxiv.org/abs/2503.24161)
- 2024 **Metabelian distributions and sub-Riemannian geodesics**, with *Enrico Le Donne* and *Alessandro Socionovo*, *Preprint*: Available at [arXiv:2405.14997](https://arxiv.org/abs/2405.14997)

Grants

- 2024 **Suisse European Mobility Program (grant 42962)**, *Université de Fribourg*

Scientific talks

- November 2025 **PGMO DAYS 2025**, *EDF Lab Paris-Saclay*
Chattering in Homogeneous Linearly Controlled Systems
- September 2025 **Cuso Graduate Colloquium**, *University of Basel*
Zermelo navigation problem and Jacobi Maupertis principle
- May 2025 **Optimal control and sub-Riemannian geometry**, *Sorbonne Université*
Normal curves in sub-Finsler Lie groups
- November 2024 **Brèves de Cages**, *Sorbonne Université*
Metabelian distributions and sub-Riemannian geodesics
- November 2024 **Cuso Graduate Colloquium**, *Universität Bern*
Metabelian distributions and sub-Riemannian geodesics
- July 2024 **Seminari di Equazioni Differenziali e Applicazioni**, *Università di Padova*
Metabelian distributions and sub-Riemannian geodesics
- June 2024 **13th School on Analysis and Geometry in Metric Spaces**, *Università di Trento*
Metabelian distributions and sub-Riemannian geodesics
- May 2024 **SMS Doctoral Day**, *University of Basel*
Periodic geodesics in self-similar spaces
- February 2024 **EUSCOTHA 2024**, *Università di Trento*
Periodic locally optimal trajectories for non-holonomic systems

- November 2023 **Maspin day**, *Université Franche-Comté*
SubRiemannian geodesics and magnetic fields
- November 2023 **Cuso Graduate Colloquium**, *Université de Fribourg*
Normal geodesics in nilpotent metabelian groups
- March 2023 **AGMS Fribourg seminar**, *Université de Fribourg*
Escape from compact sets of normal extremals in Carnot groups
- February 2023 **Graduate Colloquium**, *University of California, Santa Cruz*
Almost length-minimizing property of projections of geodesics in Carnot groups
- November 2022 **Graduate student Seminar**, *Université de Fribourg*
Open mapping theorems for Lipschitz maps

Teaching experience

Exercise classes

- 2025 **Introduction à l'analyse numérique I**, *Université de Fribourg*
- 2025 **Introduction à l'analyse numérique II**, *Université de Fribourg*
- 2025 **Algèbre et géométrie**, *Université de Fribourg*
- 2024 **Introduction à l'analyse numérique II**, *Université de Fribourg*
- 2023 **Analyse III**, *Université de Fribourg*
- 2023 **Analyse IV**, *Université de Fribourg*
- 2022 **Analyse III**, *Université de Fribourg*
- 2022 **Thematical seminar**, *Université de Fribourg*

Reading courses

- 2024 **Armonic analysis on Lie groups**, organizer of the reading course.

Visiting periods

- November 2025 **ENSTA Paris**
Collaboration with Frédéric Jean
- February 2025 **University of Padova**
Collaboration with Roberto Monti and Alessandro Socionovo
- November 2024 **Université Sorbonne**
Collaboration with Alessandro Socionovo
- July 2024 **University of Padova**
Collaboration with Roberto Monti and Alessandro Socionovo
- February 2022 **University of California, Santa Cruz**
Collaboration with Alejandro Bravo-Doddoli and Richard Montgomery

Other Activities

- 2025 **Media courses for researchers**
Atelier sur les médias sociaux by *Microplume*
- 2025 **Outreach events**
Perspectiva (Fribourg), TecDay (Bern), Explora (Fribourg), Future en tous genres (Fribourg).
- 2024 **Outreach events**
TecDay (Payerne), Science for Youth (Fribourg), Future en tous genres (Fribourg).
- 2024 **Member of advisory committee, for the hiring of a Professor in Mathematics**,
Université de Fribourg
- 2023 **Outreach events**
Science for Youth (Fribourg), Future en tous genres (Fribourg), Explora (Fribourg), Info days (Fribourg).
- 2022 **Outreach events**
Mathweek (Fribourg), Future en tous genres (Fribourg), TecDay (Mendrisio).
- 2021 **Outreach events**
Explora (Fribourg).

Languages

- Italian** Native speaker
- English** Advanced
- French** Advanced
- German** Intermediate
- Spanish** Beginner