Francesco Palmurella

About me

Matematician with professional expertise in partial differential equations, calculus of variations, differential geometry, probability.

I conducted research on Willmore surfaces and other gauge invariant variational problems.

I am currently interested in:
- **stochastic analysis**
- **quantitative finance**
- **data science–related programming**

Personal information

Citizenship: **Italy**

Languages:
Italian (native)
English (fluent)
German (good)

Experience

Postdoctoral Researcher at *Scuola Normale Superiore, Pisa* 2021–pres.
◇ Mentors: proff. Luigi Ambrosio and Andrea Malchiodi. Beside the research activity, I co–organized reading seminars on Analysis of Allen–Cahn equation, Yang–Mills theory, Einstein Manifolds

Scientific Assistant at *ETH Zürich, Switerland* 2015–2021
◇ Time evenly split between research and teaching. I organized exercise classes, prepared and corrected exams, checked assignments, provided support to students and maintained the website for the courses: Functional Analysis I & II (D-MATH), Mahematics III (D-CHEM), Analysis I & II (D-INFK), Measure and integration (D-MATH), Differential Geometry I & II (D-MATH).

Education

PhD in Mathematics *ETH Zürich, Switzerland* 2015–2021
◇ Thesis: *The Germain–Poisson Problem and Variational Aspects of the Willmore Lagrangian.* Advisors: Francesca Da Lio & Tristan Rivière

MSc Mathematics *Università degli studi di Padova* 2012–2014
◇ Thesis: *Length–Minimizing Curves on Sub–Riemannian Manifolds: Necessary Conditions Involving the End-Point Mapping.* Advisor: Roberto Monti

BSc Mathematics *Università degli studi di Padova* 2009–2012
◇ Thesis: *Coomologia di De Rham e dualità di Poincaré.* Advisor: Giuseppe De Marco

Computer Literacy

◇ Python (Numpy, Matplotlib, pandas, SciPy)
◇ Wolfram Mathematica
◇ Office suite

Scientific Pubblications

◇ with T. Rivière: *The Parametric Willmore Flow.* J. Reine Angew. Math. 811 (2024), 1–91

◇ with T. Rivière: *The Parametric Approach to the Willmore Flow.* Adv. Math. 400 (2022), 108257

◇ with F. Boarotto & R. Monti: *Third Order Open Mapping Theorems and Applications to the End-Point Map.* Nonlinearity 33 (2020), 4539–4567

◇ with F. Da Lio & T. Rivière: *A Resolution of the Poisson Problem for Elastic Plates.* Arch. Rational. Mech. Anal. 236 (2020), 1593–1676

◇ with F. Da Lio: *Remarks on Neumann boundary problems involving Jacobians.* Comm. Partial Differential Equations 42 (2017), no. 10, 1497–1509

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