Giacomo Colombo

PhD student in Mathematics, ETH Zurich

giacomo.colombo@math.ethz.ch
people.math.ethz.ch/~gcolom
0009-0001-1000-4078

Research Interests

My work has focused on regularity theory for partial differential equations and applications, in particular generic regularity in free boundary problems. The methods employed include techniques from geometric analysis, elliptic PDEs and geometric measure theory.

Employment and Education

2022–present **PhD student in Mathematics**, *ETH Zurich*, Zurich, Switzerland
Advisor: Alessio Figalli.

Sep. 2020–Jul. 2022 **MSc in Mathematics**, *University of Pisa*, Pisa, Italy
Department of Mathematics.

Master's-equivalent qualification, *Scuola Normale Superiore*, Pisa, Italy

Sep. 2017–Jun. 2020 **BSc in Mathematics**, *University of Pisa*, Pisa, Italy
Department of Mathematics.

Awards and Scholarships

2017–2022 Scholarship, Scuola Normale Superiore, Pisa, Italy.

Publications and Preprints

Published Articles

G. Colombo and A. Figalli, *Generic regularity of equilibrium measures for the logarithmic potential with external fields*. Comm. Math. Phys. (2026)

Submitted papers

G. Colombo, *Generic regularity in time for solutions of the Stefan problem in* $4+1$ *dimensions* (2025). Available at arXiv:2504.11876.

G. Colombo and F. Franceschini, *Mean curvature bounds for the obstacle problem* (2026). Available at arXiv:2608.19991.

G. Colombo and A. Figalli, *The generic structure of the singular set in the Stefan problem* (2026). Available at arXiv:2610.35780.

Talks and Seminars

2025 Bernoullis Tafelrunde, University of Basel.

2025 An Afternoon on Epiperimetric Inequalities, ETH Zurich.

2025 Seminari MAP, University of Pisa.

2026 Contributed talk, FBP26, Humboldt University, Berlin

Teaching and Mentoring

Teaching Assistant: Differential Geometry II, Partial Differential Equations.

Course organizer: Analysis II (D-INFK), Analysis I (D-MATH), Geometrie (D-MATH; twice), and Mathematik II (D-USYS).

2026 Bachelor thesis: Peize Hu, ETH Zürich. Co-advised with Alessio Figalli.

2026–present Semester project: Linus Hillenherms, ETH Zürich. Co-advised with Alessio Figalli.

Academic Service

Referee for: Trans. Amer. Math. Soc., Duke Math. J., and J. Funct. Anal.

Schools, Conferences, and Workshops

Schools

Jul. 3–7, 2023 Participant, *19th School on Interactions Between Dynamical Systems and Partial Differential Equations (JISD 2023)*, Centre de Recerca Matemàtica, Barcelona, Spain.

Jul. 22–26, 2024 Participant, *Summer School UIMP 2024 in Mathematics: The Laplacian and Beyond. Celebrating the Mathematics of Luis Caffarelli*, Universidad Internacional Menéndez Pelayo, Santander, Spain.

Conferences and Workshops

Jun. 23–27, 2025 Participant, *International Geometric Analysis Conference in Milan*, Bocconi University, Milan, Italy.

Jun. 30–Jul. 4, 2025 Participant, *Topics in Geometric Measure Theory*, Università di Pisa, Pisa, Italy.

Jun. 8–12, 2026 Participant, *International Geometric Analysis Conference in Milan II*, Bocconi University, Milan, Italy.

Jun. 15–19, 2026 Invited participant, *Regularity Theory for Free Boundary and Geometric Variational Problems VI*, Cervia, Italy.

Sept. 7–11, 2026 Contributed speaker, *17th International Conference on Free Boundary Problems*, Berlin, Germany.