Federico Glaudo

Curriculum Vitae

Princeton, New Jersey, US
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glaudo.github.io

Personal information

Birth Rome (Italy), April 29, 1994
Languages Italian (native), English (fluent)
Citizenship Italian

Academic positions

2022-2023 **Postdoctoral member**, *Institute for Advanced Study, Princeton*

Education

2018-2022 **Phd**, *ETH Zürich*
Advisor: Alessio Figalli
Doctoral thesis: *Quantitative Stability of Sobolev and Isoperimetric-type Inequalities*

2013-2018 Student of mathematics at *Scuola Normale Superiore di Pisa*.

2016-2018 **Master degree**, *Università di Pisa*, *110/110 cum laude*
Advisor: Luigi Ambrosio
Degree thesis: *A New Approach to the Random Matching Problem*

2013–2016 **Bachelor degree**, *Università di Pisa*, *110/110 cum laude*
Advisor: Roberto Frigerio
Degree thesis: *Quasi-isometrie di gruppi iperbolici indotte da omeomorfismi dei bordi*

Publications

9) On the determination of sets by their subset sums (with A. Ciprietti), *Preprint* (2022)

8) Expansion of the fundamental solution of a second-order elliptic operator with analytic coefficients (with F. Franceschini), *Preprint* (2021), arXiv:2110.15104

7) Minkowski inequality for nearly spherical domains, *Advances in Mathematics 408* (2022)

6) Sharp quantitative stability for isoperimetric inequalities with homogeneous weights (with E. Cinti, A. Pratelli, X. Ros-Oton, J. Serra), *Transactions of the American Mathematical Society 375* (2022), 1509–1550

5) An Invitation to Optimal Transport, Wasserstein Distances, and Gradient Flows (with A. Figalli), *EMS Textbooks in Mathematics* (2021), vi + 136

4) On the sharp stability of critical points of the Sobolev inequality (with A. Figalli), *Archive for Rational Mechanics and Analysis 237* (2020), 201–258

3) On the optimal map in the 2-dimensional random matching problem (with L. Ambrosio, D. Trevisan), *Discrete and Continuous Dynamical Systems. Series A 39* (2019), 7291–7308.

2) Finer estimates on the 2-dimensional matching problem (with L. Ambrosio), *Journal de l"Ecole polytechnique – Math'ematiques 6* (2019), 737–765.

1) On the c-concavity with respect to the quadratic cost on a manifold, *Nonlinear Analysis 178* (2019), 145–151.

Invited Speaker

Mar 2023 "Analysis Seminar" of University of Texas at Austin (Austin, Texas)

Oct 2022 "Analysis and Mathematical Physics seminar" of Institute for Advanced Study (Princeton, New Jersey)

Sep 2022 "Short Talks by Postdoctoral Members" at Institute for Advanced Study (Princeton, New Jersey)

Jun 2022 Conference "Regularity for nonlinear diffusion equations. Green functions and functional inequalities" at Universidad Autónoma de Madrid - ICMAT (Madrid, Spain)

May 2022 Workshop "Calculus of Variations and Functional Inequalities" at FAU Erlangen-Nürnberg (Erlangen, Germany)

Mar 2022 Conference "Quantization, location, sampling and matching" at Lagrange Center (Paris, France)

Mar 2022 "Competitive Programming Workshop" at ETH Zürich (Zürich, Switzerland)

Dec 2021 "Geometry Seminar" of Stanford University (Stanford, California)

Oct 2021 Conference "A Pisan workshop in Geometric Analysis" of Centro di Ricerca Matematica De Giorgi (Pisa, Italy)

Jun 2021 "Analysis Seminar" of Universitat Autònoma de Barcelona and Universitat de Barcelona (Barcelona, Spain)

Mar 2021 "Groupe de Travail modélisation stochastique del LPSM" of Univ. Paris Diderot and Sorbonne Université (Paris, France)

Jun 2020 "Analysis and PDE Seminar" of the Instituto de Matemática Pura e Aplicada (Rio de Janeiro, Brazil)

Feb 2020 "Stochastic analysis seminar" of the Imperial College (London, United Kingdom)

Jun 2019 Conference "Optimal Transport in Analysis and Probability" (Vienna, Austria)

Jun 2018 One-day meeting "Non-smooth Geometry and Optimal Transport" (Pisa, Italy)

Advising

Jun 2022-Oct 2022 Advisor of A. Ciprietti (together with M. D'Adderio) for his bachelor thesis at Univesità di Pisa.

Oct 2020-Feb 2021 Supervised A. Shrey for a Reading Course at ETH Zürich.

Jan-Jun 2019 Co-supervised (with A. Figalli) L. Silini for an Semester Project at ETH Zürich (equivalent to a bachelor thesis).

Teaching

Sep-Dec 2021 Mathematics III - PDE, *Coordinator* (creating exercise sheets, coordinating exercise classes)

Sep-Dec 2020 Analysis III - PDE, *Coordinator* (creating exercise sheets, coordinating exercise classes)

Sep-Dec 2019 Optimal Transport, *Exercise class* (creating exercise sheets, solving them in class)

Feb-May 2019 Measure theory, *Exercise class*

Sep-Dec 2018 Introduction to Optimal Transport, *Students seminars*

Organization

Sep 2022-Feb 2023 Chief scientific organizer for the competitive programming contest SWERC 2022/23, in Milan.

Dec 2021-Apr 2022 Chief scientific organizer for the competitive programming contest SWERC 2021/22, in Milan.

Oct 2020 Minicourse for graduate students on *Young measures* taught by F. Franceschini (Zürich, Switzerland).

Oct-Dec 2019 Graduate reading seminar on the *Inverse Mean Curvature Flow* following the work of Huisken–Ilmanen (Zürich, Switzerland).

Participation

Sep 2019 CIME summer school "Geometric Measure Theory and Applications: From Geometric Analysis to Free Boundary Problems" (Cetraro, Italy)

Jan 2019 Conference "Alessio Figalli, Fields medallist 2018" (Pisa, Italy)

Nov 2018 Conference "Optimal Transport and Applications" (Pisa, Italy)

Oct 2018 Conference "PDEs and geometric measure theory" (Zürich, Switzerland)

Feb 2018 Conference "Convegno Nazionale di Calcolo delle Variazioni" (Levico, Italy)

Sep 2017 Conference "Harmonic Analysis and Geometric Measure Theory" (Marseille, France)

Awards

Mathematics

2009-2013 *National Olympiad*, one bronze and four gold medals (two first places)

2010-2013 *International Mathematical Olympiad*, one bronze and three silver medals

Informatics

2012 *National Olympiad*, gold medal (first place)

2012-2013 *International Olympiad in Informatics*, one bronze and one gold medal

Work experience

Aug 2016-Jan 2017 Software Engineer Intern at Google (Zurich, Switzerland)

Programming skills

I am proficient in C++, python and LaTeX.
I was one of the 25 finalists of the global programming competition *Google Codejam 2018* (in Toronto). I participated, with the the team of Scuola Normale Superiore, to the *ACM-ICPC 2018* world finals (in Bejing). I have organized many major programming competitions (*AtCoder Grand Contest 44*, *Codeforces Global Round 11*, *Codeforces Global Round 14*, *SWERC 2021/22*, *SWERC 2022/23*).