Fabio Ricci

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Research Interest

Geometric Analysis, Comparison Geometry, Geometric inequalities and Optimal transport.

Education

University of California Santa Barbara *Santa Barbara, USA*
PhD in Mathematics *September 2019 - July 2026*

University of California Santa Barbara *Santa Barbara, USA*
Master of Arts in Mathematics *September 2019 - 2020*

La Sapienza University, Department of Mathematics Guido Castelnuovo *Rome, Italy*
B.Sc in Pure Mathematics *September 2011 - April 2014*
The Grade achieved is 110 with honors/110
Thesis title: Infinite divisible distributions and the Levy-Khintchine Formula" with Prof. Faggionato

Published Academic Papers

The Log-Sobolev inequality for a submanifold in manifolds with asymptotic non-negative intermediate Ricci curvature, joint with J. Lee.
J Geom Anal 34, 141, `https://doi.org/10.1007/s12220-024-01581-1` *2024*

Isoperimetric profile function comparisons with Integral Ricci curvature bounds, joint with J. Lee.
To appear in Proceedings of AMS, `https://arxiv.org/abs/2403.15973` *2025*

Log-Sobolev inequality with positive intermediate Ricci curvature, joint with J. Lee.
In Preparation *2025*

Awards and Achievements

Direct Reading Program Mentor's Choice Award *May 2025*
UC Santa Barbara, Department of Mathematics, *Santa Barbara, USA*

Academic Senate Outstanding Teaching Award. *June 2024*
UC Santa Barbara, Academic Senate, *Santa Barbara, USA*

Direct Reading Program Mentor's Choice Award *May 2024*
UC Santa Barbara, Department of Mathematics, *Santa Barbara, USA*

UCSB Grad Slam Finals People Choice Award. *May 2023*
UC Santa Barbara, Graduate division, *Santa Barbara, USA*

UCSB Grad Slam Preliminary Round Winner and Finalist. *March 2023*
UC Santa Barbara, Graduate division, *Santa Barbara, USA*

Outstanding Teaching Assistant Award. *June 2021*
UC Santa Barbara, Department of Mathematics, *Santa Barbara, USA*

Nomination for Academic Senate Outstanding Teaching. *January 2021 and January 2022*
UC Santa Barbara, Academic Senate, *Santa Barbara, USA*

Invited Talks

Isoperimetric and sobolev problems under various curvature conditions *January 2025*
Joint Mathematical Meeting 2025, *Seattle, USA*

Isoperimetric and sobolev problems under various curvature conditions *October 2024*
AMS Special Session: Topics in Geometric Analysis *UC Riverside, USA*

Log-Sobolev inequalites under intermediate curvature conditions *September 2023*
Geometry Seminar, Department of Mathematics, *UT Dallas, USA*

Log-Sobolev Inequalites via the ABP method *November 2023*
Geometry Seminar, Department of Mathematics, *UC Santa Barbara, USA*

Log-Sobolev inequalites under intermediate curvature conditions *April 2023*
BIRS Workshop: A Unified View of Quasi-Einstein Manifolds. *Banff Institute, Canada*

Why earth is (almost) flat, understanding curvature. *February 2024*
Math Matters Series. *Bakersfield College, USA*

Optimal Transport and Isoperimetric inequalities. *June 2023*
UC Santa Barbara Donor Event. *Los Angeles, USA*

Optimal Transport and Isoperimetric inequalities. *June 2023*
UC Santa Barbara Donor Event. *Santa Barbara, USA*

Summer Schools

Northwestern University, 2025.	Optimal Transport in honor of Luigi Ambrosio.
VISM, Hanoi 2023.	Summer School in Differential Geometry.
MSRI, Greece 2022.	Geometric Flows.

Conferences Attended

Washington D.C., 2026.	Joint Mathematical Meeting
University of California, Irvine, 2025.	Southern California Geometric Analysis
Seattle, 2025.	Joint Mathematical Meeting
SL Math (former MSRI), 2024.	Recent progress on geometric analysis
University of California, Santa Cruz, 2024.	Frontiers in Geometric Analysis
University of California, San Diego, 2024.	Southern California Geometric Analysis
Banff Institute, Banff, 2023.	A Unified View on Quasi Einsten metrics
University of California, Irvine, 2023.	Southern California Geometric Analysis
Boston, 2023.	Joint Mathematical Meeting

Monetary Grants Awarded

UC Santa Barbara, 2024.	Academic Senate Award
Northwestern University. 2025	Travel Support
UC Santa Barbara, 2025.	Doctoral Travel Grant
Souther California Geometric Analysis, UCI 2025.	Travel Support
UC Santa Barbara, 2024.	Graduate Student association
Souther California Geometric Analysis, UCSD 2024.	Travel Support
University of California, Santa Cruz, 2024.	Travel Support
VISM, Vietnam 2023.	Travel Support
MSRI, Greece 2022.	Travel Support

Direct Reading Program - Undergraduate Mentoring

Hyperbolic Land, DRP 2025.	With Maria Segall, Kevin Petersen, Sarah Sault
Curvature Done Optimally, DRP 2024.	With Merrick Hua
Earth is (locally) Flat, DRP 2023.	With Jeremy Lauro

Teaching Experience

Summer 2025 Session A — *Instructor of Record, Department of Mathematics*
University of California Santa Barbara — *Santa Barbara, USA*

- MATH 6A Vector Calculus and Applications.

September 2019 - present — *Teaching Assistant, Department of Mathematics*
University of California Santa Barbara — *Santa Barbara, USA*

- 17 quarters of MATH 8 (Introduction to proof writing/discrete mathematics).
- 2 quarters MATH 4B (Differential equations).
- 1 quarter MATH 4A (Linear Algebra).
- 1 quarter MATH 3B (Integral calculus).
- 2 quarter MATH 124A (Partial Differential equations)

Winter 2025 — *Instructor of Record, Department of Mathematics*
University of California Santa Barbara — *Santa Barbara, USA*

- MATH 8 Introduction to logic.

Summer 2024 Session A and B — *Instructor of Record, Department of Mathematics*
University of California Santa Barbara — *Santa Barbara, USA*

- MATH 6A Vector Calculus and Applications.

Summer 2021 Session A and B — *Instructor of Record, Department of Mathematics*
University of California Santa Barbara — *Santa Barbara, USA*

- MATH 4B Differential Equations and Applications.

Organized Seminars

Seminar	I organize together with Prof Wei this seminar for all graduate students interested in Geometric Analysis here at UC Santa Barbara.
Topic 1:	The classic Isoperimetric inequality in the Euclidean space, a proof by Gromov using the Knothe map.
Topic 2	Sobolev inequalities in manifolds with nonnegative curvature" by Brendle
Seminar	I organize together with Dorde Nikolic and Gunhee Cho this seminar to explore the connection between optimal transport and geometry. We are interested in OMT and Ricci Curvature, isoperimetric inequalities and Ricci flow.
Topic 1:	On the geometry of metric measure spaces I and II" by Sturm.
Topic 2:	Sharp geometric inequalities in spaces with nonnegative Ricci curvature and Euclidean volume growth" by Balogh and Kristály

Other Research Experiences

MIT-LIGO	Summer undergraduate Research at MIT-LIGO data analysis under the supervision of Prof. Katsavounidis (2014).
CRNS Plymouth	Summer undergraduate Research at CRNS in Plymouth University under the supervision of Prof. Cangelosi (2013).

Other Skills and Achievements

Conservatorio "Santa Cecilia"	Diploma at Conservatorio "Santa Cecilia" of Rome in Classical Guitar and Solfeggio (2016).
Walden Technology	I worked as an algorithm developer for assistive technologies in disability at Walden Technology (2013-2018).
FIV	FIV Sailing assistant instructor at Circolo Velico Ventotene.
Associazione Italiana Sommelier	Certified Sommelier.

Very Applied Fluid Dynamics Seminar

UC Santa Barbara	Founder of this social event organized weekly for grad students from many different departements, both in STEM and Social Sciences, to connect and create research collaborations.