

# Fabio Ricci

*E-mail:* fabioricci@ucsb.edu \* *Telephone number:* 805-284-3607 \* *Website:* hal9009math.github.io

## Research Interest

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

## Education

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<b>University of California Santa Barbara</b> <i>PhD in Mathematics</i>	<i>Santa Barbara, USA</i> <i>September 2019 - July 2026</i>
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<b>University of California Santa Barbara</b> <i>Master of Arts in Mathematics</i>	<i>Santa Barbara, USA</i> <i>September 2019 - 2021</i>
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<b>La Sapienza University, Department of Mathematics Guido Castelnuovo</b> <i>B.Sc in Pure Mathematics</i> <i>The Grade achieved is 110 with honors/110</i> <i>Thesis title: "Infinite divisible distributions and the Levy-Khintchine Formula" with Prof. Faggionato</i>	<i>Rome, Italy</i> <i>September 2011 - April 2014</i>
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## Published Academic Papers

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**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

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<b>Direct Reading Program Mentor's Choice Award</b> <i>UC Santa Barbara, Department of Mathematics,</i>	<i>May 2025</i> <i>Santa Barbara, USA</i>
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<b>Academic Senate Outstanding Teaching Award.</b> <i>UC Santa Barbara, Academic Senate,</i>	<i>June 2024</i> <i>Santa Barbara, USA</i>
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<b>Direct Reading Program Mentor's Choice Award</b> <i>UC Santa Barbara, Department of Mathematics,</i>	<i>May 2024</i> <i>Santa Barbara, USA</i>
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<b>UCSB Grad Slam Finals People Choice Award.</b> <i>UC Santa Barbara, Graduate division,</i>	<i>May 2023</i> <i>Santa Barbara, USA</i>
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<b>UCSB Grad Slam Preliminary Round Winner and Finalist.</b> <i>UC Santa Barbara, Graduate division,</i>	<i>March 2023</i> <i>Santa Barbara, USA</i>
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<b>Outstanding Teaching Assistant Award.</b> <i>UC Santa Barbara, Department of Mathematics,</i>	<i>June 2021</i> <i>Santa Barbara, USA</i>
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<b>Nomination for Academic Senate Outstanding Teaching.</b> <i>UC Santa Barbara, Academic Senate,</i>	<i>January 2021 and January 2022</i> <i>Santa Barbara, USA</i>
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## Invited Talks

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<b>Isoperimetric and sobolev problems under various curvature conditions</b> <i>Joint Mathematical Meeting 2025,</i>	<i>January 2025</i> <i>Seattle, USA</i>
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<b>Isoperimetric and sobolev problems under various curvature conditions</b> <i>AMS Special Session: Topics in Geometric Analysis</i>	<i>October 2024</i> <i>UC Riverside, USA</i>
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<b>Log-Sobolev inequalities under intermediate curvature conditions</b> <i>Geometry Seminar, Department of Mathematics,</i>	<i>September 2023</i> <i>UT Dallas, USA</i>
<b>Log-Sobolev Inequalities via the ABP method</b> <i>Geometry Seminar, Department of Mathematics,</i>	<i>November 2023</i> <i>UC Santa Barbara, USA</i>
<b>Log-Sobolev inequalities under intermediate curvature conditions</b> <i>BIRS Workshop: A Unified View of Quasi-Einstein Manifolds.</i>	<i>April 2023</i> <i>Banff Institute, Canada</i>
<b>Why earth is (almost) flat, understanding curvature.</b> <i>Math Matters Series.</i>	<i>February 2024</i> <i>Bakersfield College, USA</i>
<b>Optimal Transport and Isoperimetric inequalities.</b> <i>UC Santa Barbara Donor Event.</i>	<i>June 2023</i> <i>Los Angeles, USA</i>
<b>Optimal Transport and Isoperimetric inequalities.</b> <i>UC Santa Barbara Donor Event.</i>	<i>June 2023</i> <i>Santa Barbara, USA</i>

### *Summer Schools*

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

### *Conferences Attended*

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<b>Washington D.C., 2026.</b>	Joint Mathematical Meeting
<b>UT Dallas, 2025.</b>	Texas Geometry and Topology
<b>UC Irvine and UC San Diego, 2023-2024-2025.</b>	Southern California Geometric Analysis
<b>Seattle, 2025.</b>	Joint Mathematical Meeting
<b>SL Math (former MSRI), 2024.</b>	Recent progress on geometric analysis
<b>University of California, Santa Cruz, 2024.</b>	Frontiers in Geometric Analysis
<b>Banff Institute, Banff, 2023.</b>	A Unified View on Quasi Einstein metrics
<b>Boston, 2023.</b>	Joint Mathematical Meeting

### *Travel Grants Awarded*

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<b>UC Santa Barbara, 2024.</b>	Academic Senate Award
<b>UC Santa Barbara, 2025.</b>	Doctoral Travel Grant
<b>UC Santa Barbara, 2024.</b>	Graduate Student association
<b>Joint Mathematical Meeting</b>	Travel Support

### *Direct Reading Program - Undergraduate Mentoring*

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

## Teaching Experience

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### Summer 2025 Session A

University of California Santa Barbara

*Instructor of Record, Department of Mathematics*

*Santa Barbara, USA*

- MATH 6A Vector Calculus and Applications.

### September 2019 - present

University of California Santa Barbara

*Teaching Assistant, Department of Mathematics*

*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

University of California Santa Barbara

*Instructor of Record, Department of Mathematics*

*Santa Barbara, USA*

- MATH 8 Introduction to logic.

### Summer 2024 Session A and B

University of California Santa Barbara

*Instructor of Record, Department of Mathematics*

*Santa Barbara, USA*

- MATH 6A Vector Calculus and Applications.

### Summer 2021 Session A and B

University of California Santa Barbara

*Instructor of Record, Department of Mathematics*

*Santa Barbara, USA*

- MATH 4B Differential Equations and Applications.

## Organized Seminars

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<b>Seminar</b>	I organize together with Prof Wei this seminar for all graduate students interested in Geometric Analysis here at UC Santa Barbara.
<b>Topic 1:</b>	The classic Isoperimetric inequality in the Euclidean space, a proof by Gromov using the Knothe map.
<b>Topic 2</b>	Sobolev inequalities in manifolds with nonnegative curvature” by Brendle
<b>Seminar</b>	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.
<b>Topic 1:</b>	On the geometry of metric measure spaces I and II” by Sturm.
<b>Topic 2:</b>	Sharp geometric inequalities in spaces with nonnegative Ricci curvature and Euclidean volume growth” by Balogh and Kristály

## Other Research Experiences

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

### *Other Skills and Achievements*

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

### *Very Applied Fluid Dynamics Seminar*

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