Emilio Corso

Curriculum Vitae

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Biographical data

Place of birth	Trebisacce, Italy
Date of birth	23 April 1994

Education

2023-present	**S. Chowla Research Assistant Professor**, *Pennsylvania State University*, University Park, State College (PA), United States
2022-2023	**Postdoctoral Fellow**, *University of British Columbia*, Vancouver, Canada
2017-2022	**PhD in Mathematics**, *ETH*, Zürich, Switzerland
2016-2017	**Master 2 Mathématiques Fondamentales**, *Université Paris 13*, Paris, France, Mention Très Bien
2015-2016	**Master 1 Mathématiques Fondamentales**, *Université Paris 13*, Paris, France, Mention Très Bien
2012-2015	**Laurea Triennale in Matematica**, *Università degli Studi*, Padova, Italy, 110/110 cum laude
2007-2012	**Maturità scientifica**, *Liceo Scientifico "Enrico Fermi"*, Padova, Italy, 100/100 cum laude

Languages

Italian	Mothertongue
English	Proficient
French	Proficient
German	Upper intermediate (attained B2 level in Goethe Zertificat)

Publications and preprints

Preprints

1. S. Cantrell, P. Carrasco, E. Corso and F. Rodriguez Hertz, *The moduli space of quasimorphisms on subshifts and its pressure geometry*, arXiv:2610.26778 [math.DS] (2026).
2. E. Corso, *Large deviations for random walks generated by countable groups: a unified approach*, arXiv:2610.39033 [math.PR] (2026).
3. E. Corso, F. Rodriguez Hertz, *Unboundedness of shapes of unit lattices in totally real cubic fields*, arXiv:2502.16338 [math.NT] (2025).
4. E. Corso, P. Shmerkin, *Dynamical self-similarity, L^q-dimensions and Furstenberg slicing in $\mathbb{R}^d$*, arXiv:2409.04608 [math.CA] (2024).
5. E. Corso, M.W. Luethi, *Disjointness of higher rank diagonalizable actions on semisimple and solvable quotients*, preprint (2021), available at https://www.emiliocorso.com/research/.

6. E. Corso, *Large deviations for irreducible random walks on relatively hyperbolic groups*, arXiv:2107.02090 [math.PR] (2021).

Published/accepted

1. E. Corso, D. Ravotti, *Large hyperbolic circles* Boll. Unione Mat. Ital. **18** (2025), 507–560.
2. E. Corso, *The distribution of dilating sets: a journey from Euclidean to hyperbolic geometry*, Ergodic theory and dynamical systems, 57-97. De Gruyter Proc. Math. De Gruyter, Berlin, 2024.
3. E. Corso, *Large deviations for random walks on free products of finitely generated groups*, Electron. J. Probab. **26** (2021), Paper No. 134, 22 pp.

Other publications

1. D. Ravotti, *Asymptotics and limit theorems for horocycle ergodic integrals à la Ratner* (with an appendix by E. Corso), J. Éc. polytech. Math. **10** (2023), 305–334.
2. E. Corso, *Uniform exponential mixing: the case of convex cocompact manifolds*, Oberwolfach Rep. **18** (2021), no. 4, pp. 2721–2790.

Talks and seminars

Research seminars

October 2026 **Large deviations for random walks induced by isometric group actions**, *KTH*, Stockholm, Sweden
Dynamics Seminar

October 2026 **L^q-spectra of statistically self-similar measures in Euclidean spaces**, *Institute Mittag-Leffler*, Djursholm, Sweden
Program "Interactions between fractal geometry, harmonic analysis, and dynamical systems"

June 2026 **Around rigidity in projection and dimension theory, and the role of additive combinatorics**, *Institute Mittag-Leffler*, Djursholm, Sweden
Conference "Smooth Dynamics, Random Walks, and Fractal Geometry: New Connections and Directions"

March 2026 **Large deviations for random walks with weak hyperbolicity features**, *University of Maryland*, College Park (MA), United States
Dynamics seminar

May 2025 **Higher rank Furstenberg slicing**, New England Dynamics and Number Theory Seminar (online seminar)

April 2025 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case**, *University of Michigan*, Ann Arbor (MI), United States
Geometry Seminar

April 2025 **Closed geodesics, periodic torus orbits and the distribution of shapes of unit lattices in number fields**, *University of Maryland*, College Park (MA), United States
Workshop on Dynamical Systems and Related Topics

March 2025 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case**, *Chinese Academy of Sciences*, Beijing, China
Dynamics Seminar

March 2025 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case**, *Fudan University*, Shanghai, China
Dynamics Seminar

February 2025 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case**, *University of Chicago*, Chicago (IL), United States
Dynamical Systems Seminar

February 2025 **Unboundedness of the set of shapes of unit lattices in totally real cubic fields**, *Pennsylvania State University*, University Park (PA), United States
Algebra and Number Theory Seminar

February 2025 **Large deviations for random walks with hyperbolicity features**, *Pennsylvania State University*, University Park (PA), United States
Dynamical Systems Working Seminar

December 2024 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case**, *University of Illinois, Chicago*, Chicago (IL), United States
Dynamical Systems Seminar

November 2024 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case**, *Ohio State University*, Columbus (OH), United States
Dynamics Seminar

March 2024 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case**, *Northwestern University*, Evanston (IL), United States
Dynamics Seminar

February 2024 **Statistical limit theorems for geodesic and horocycle flows on negatively curved surfaces**, *Pennsylvania State University*, University Park (PA), United States
Dynamical Systems Seminar

November 2023 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case**, *University of Maryland*, College Park (MA), United States
Dynamics Seminar

October 2023 **L^q-spectra of dynamically driven self-similar measures: the multi-dimensional case.**, *Pennsylvania State University*, University Park (PA), United States
Dynamical Systems Seminar

September 2023 **The L^q-spectrum of dynamically driven self-similar measures in arbitrary dimension**, One World Fractals (online meeting)

March 2023 **Randomness of flows in negative curvature**, University of Victoria, Victoria, Canada
Probability and Dynamics seminar

March 2023 **Asymptotic behaviour of expanding circles on compact hyperbolic surfaces**, University of California San Diego Group Actions Seminar (online seminar)

March 2023 **Randomness of deterministic processes in negative curvature**, *University of British Columbia*, Vancouver, Canada, UBC Probability Seminar

February 2023 **Harmonic analysis and equidistribution: recent instances of a long-standing connection**, *University of British Columbia*, Vancouver, Canada, Harmonic Analysis and Fractal Geometry Seminar

November 2022 **Expanding homogeneous curves on compact surfaces: the exact equidistribution rate**, *Pennsylvania State University*, State College, US, Semi-annual workshop in Dynamical Systems and Related Topics, Fall meeting. Dedicated to 75th birthdays of Michael Brin and Yakov Pesin

September 2022 **Ergodic properties of large circles: from Euclidean to hyperbolic geometry**, *University of British Columbia*, Vancouver, Canada, Ergodic Theory Seminar

June 2022 **Folding dilating shapes: a journey from Euclidean to hyperbolic geometry**, *The Riemann International School of Mathematics*, Varese, Italy, DinAmici VII

April 2022 **Asymptotics of the equidistribution rate of expanding circles on compact hyperbolic quotients and applications**, New England Dynamics and Number Theory Seminar (online seminar)

March 2022 **Asymptotics of the equidistribution rate of expanding circles on compact hyperbolic surfaces and applications**, *Scuola Normale Superiore, Centro Ennio de Giorgi*, Pisa, Italy, Dynamics Seminar

February 2022 **A single-orbit central limit theorem for horocycle flows on compact hyperbolic surfaces**, *Queen's University*, Kingston, Canada, Dynamics, Geometry and Groups (online seminar)

December 2021 **Distributional limit theorems for geodesic and horocycle flows on compact hyperbolic surfaces**, *Imperial College*, London, UK, DynamIC Seminar (online seminar)

October 2021 **Uniform exponential mixing for congruence covers of convex cocompact hyperbolic manifolds**, *Mathematisches Forschungsinstitut Oberwolfach*, Oberwolfach, Germany, Arbeitsgemeinschaft: Thin Groups and Super-approximation

October 2021 **Asymptotics and limit theorems for horocycle ergodic integrals à la Ratner**, *University of Zürich*, Zürich, Switzerland, Ergodic theory and dynamical systems seminar

June 2021 **Spatial and temporal central limit theorems for flows on negatively curved hyperbolic surfaces**, *Universität Potsdam*, Potsdam, Germany, Probability and Mathematical Statistic Research Seminar

Colloquia and graduate seminars

October 2023 **A journey across homogeneous dynamics**, *Pennsylvania State University*, University Park (PA), United States
Dynamics Student Seminar

May 2021 **Statistical properties of geodesic and horocycle orbits for negatively curved surfaces**, *ETH*, Zürich, Switzerland, Geometry Graduate Colloquium

May 2021 **Large deviations of random walks on finitely generated groups**, *ETH*, Zürich, Switzerland, Zürich Graduate Seminar in Probability Theory

May 2020 **On the unreasonable effectiveness of ergodic theory in combinatorial number theory**, *ETH*, Zürich, Switzerland, Zürich Graduate Seminar in Probability Theory

December 2019 **What is...measure rigidity?**, *ETH*, Zürich, Switzerland, Zürich Graduate Colloquium

October 2019 **Thin groups and super approximation: local-to-global principles in circle packings and diophantine approximation**, *ETH*, Zürich, Switzerland, Geometry Graduate Colloquium

December 2018 **Fourier decay of stationary measures**, *ETH*, Zürich, Switzerland, Morning seminar "Ergodic theory and dynamical systems"

May 2018 **Rigidity of higher-rank actions on tori and solenoids**, *ETH*, Zürich, Switzerland, Seminar "Homogeneous dynamics and applications"

June 2016 **On self-similar sets with overlaps and inverse theorems for entropy**, *École Normale Supérieure*, Paris, France

Teaching and related activities

2024-present **Dynamical Systems Seminar, Dynamical Systems Working Seminar, Center for Dynamics and Geometry Colloquium**, *Anatole Katok Center for Dynamical Systems and Geometry, Pennsylvania State University*, University Park (PA), United States
Organizer

Spring semester, 2025-2026 **Matrices**, *Pennsylvania State University*, University Park (PA), United States
Instructor

Fall semester, 2025-2026 **Matrices**, *Pennsylvania State University*, University Park (PA), United States
Instructor

Spring semester, 2024-2025 **Graduate Real Analysis**, *Pennsylvania State University*, University Park (PA), United States
Instructor

Spring semester, 2024-2025 **Calculus with Analytic Geometry II**, *Pennsylvania State University*, University Park (PA), United States
Instructor

Fall semester, 2024-2025 **Ordinary and Partial Differential Equations**, *Pennsylvania State University*, University Park (PA), United States
Instructor

Spring semester, 2023-2024 **Multivariable calculus**, *Pennsylvania State University*, University Park (PA), United States
Instructor

Fall semester, 2023-2024 **Calculus with Analytic Geometry II**, *Pennsylvania State University*, University Park (PA), United States
Instructor

Spring semester, 2022-2023 **Integral Calculus with Applications**, *University of British Columbia*, Vancouver, Canada
Instructor

Fall semester, 2021-2022 **Geometry Graduate Colloquium**, *ETH*, Zürich, Switzerland
Organizer

Fall semester, 2021-2022 **Student seminar: Elementary Number Theory**, *ETH*, Zürich, Switzerland
Organizer

Fall semester, 2020-2021 **Algebraic Geometry I**, *ETH*, Zürich, Switzerland
Teaching Assistant

Fall semester, 2020-2021 **Differential Geometry I**, *ETH*, Zürich, Switzerland
Teaching Assistant

Fall semester, 2019-2020 **Student seminar: homogeneous dynamics and counting problems**, *ETH*, Zürich, Switzerland
Organizer

Fall semester, 2019-2020 **Analysis III: Partial Differential Equations**, *ETH*, Zürich, Switzerland
Organizer

Spring semester, 2018-2019 **Functional Analysis II**, *ETH*, Zürich, Switzerland
Teaching Assistant

Fall semester, 2018-2019 **Commutative algebra**, *ETH*, Zürich, Switzerland
Organizer

Fall semester, 2018-2019 — **Functional analysis I**, *ETH*, Zürich, Switzerland
Teaching Assistant

Fall semester, 2017-2018 — **Linear algebra I**, *ETH*, Zürich, Switzerland
Teaching Assistant

Fellowships and awards

2016-2017 **Master 2**, Paris Graduate School of Mathematics Fellowship

2015-2016 **Master 1**, "Laboratoire d'Analyse, Géométrie et Applications, Université de Paris 13" Fellowship

Other activities

2012 **Participation in "Spheres: Zero Robotics competition 2012"**, I was the mentor of my school-team, we reached 1st place in Europe

2011 **Participation in "Spheres: Zero Robotics competition 2011"**, international educational competition in aerospace engineering organised by National American Space Agency and Massachussets Institute of Technology: my school- team reached 2nd place in Europe

2011 **Participation in a one-week university guidance course for talented high-school**, *Scuola Normale Superiore*, Pisa, Italy