Annina Iseli

Bernoulli Instructor

Institute of Mathematics
EPF Lausanne, Switzerland

annina.iseli@epfl.ch

My research interests and work are at the intersection of geometry and analysis, more precisely in complex and topological dynamics, fractal geometry, and geometric measure theory.

Website: https://sma.epfl.ch/~aiseli/
ORCID: https://orcid.org/0000-0002-7350-4408

Education: University of Bern, Switzerland.

2018   **PhD in Mathematics** (summa cum laude)
  Thesis: *Dimension and projections in normed spaces and Riemannian manifolds*,
  available at: https://biblio.unibe.ch/download/eldiss/18iseli_a.pdf

2014   **Master of Science in Mathematics** (summa cum laude)

2012   **Bachelor of Science in Mathematics and Philosophy** (insigni cum laude)

Appointments

Since 2023   **École Polytechnique Fédérale de Lausanne (EPFL), Switzerland**.
  Researcher and Lecturer (Bernoulli Instructor)

2021 – 2023   **University of Fribourg, Switzerland**.
  Postdoc (Doktorassistentin)

Spring 2022   **Mathematical Science Research Institute (MSRI), Berkeley, CA, USA**.
  Postdoctoral Fellow

2018 – 2021   **University of California (UCLA), Los Angeles, CA, USA**.
  Postdoc and Swiss National Science Foundation Mobility Fellow (2018-2020)

Publications and Preprints

9. **Models of random spanning trees**
   (with E. Babson, M. Duchin, P. Poggi-Corradini, D. Thurston, and J. Tucker-Foltz).
   Preprint: https://arxiv.org/abs/2407.20226

8. **Eliminating Thurston obstructions and controlling dynamics on curves**
   (with M. Bonk and M. Hlushchanka). Preprint: https://arxiv.org/abs/2105.06938
   To appear in Ergodic Theory and Dynamical Systems

7. **Projection theorems for linear-fractional families of projections** (with A. Lukyanenko)
   Math. Proc. Camb. Philos. Soc., Vol 175 no 3, (2023), 625–647

6. **An uncountable ergodic Roth theorem and applications** (with P. Durcik et al.)
   Discrete and Continuous Dynamical Systems, Series A, Vol. 42 no. 11 (2022), 5509–5540

5. **Marstrand-type projection theorems for linear projections and in normed spaces**
   Preprint: https://arxiv.org/abs/1809.00636

4. **Marstrand type projection theorems for normed spaces** (with Z. Balogh)
   Journal of Fractal Geometry, Vol. 6 no. 4 (2019), 367–392

3. **Projection theorems in hyperbolic space** (with Z. Balogh)
   Archiv der Mathematik, Vol. 112 no. 3, (2019), 329-336

2. **Iterated function system quasiarcs** (with K. Wildrick)
   Conformal Geometry and Dynamics, Vol. 21 (2016), 78–100

1. **Dimensions of projections on Riemannian surfaces of constant curvature** (with Z. Balogh)
   Proceedings of the AMS, Vol. 144 no. 7 (2016), 2939-2951

Funding and awards

Spring 2022	*Postdoctoral Fellowship* (5 months) for the research program on *Analysis and Geometry in Random Spaces* at the Mathematical Sciences Research Institute (MSRI), Berkeley
2020 – 2022	*AMS Simons Travel Grant 2020*
2019	*Fakultätspreis 2019.* Departmental Prize for best PhD thesis, University of Bern
2018 – 2021	*Early Postdoc.Mobility* with the Swiss National Science Foundation, Project No. 181898
Summer 2018	*Nachwuchsförderung.* Summer travel grant for junior researchers by the Department of Natural Sciences, University of Bern

---

Teaching experience

At EPF Lausanne, Switzerland

Fall 2024	Linear Algebra (Math111en). Service course for engineering students.
Fall 2023:	Linear Algebra (Math111en). Service course for engineering students.

For the Swiss Doctoral Program in Mathematics (CUSO)

Fall 2023:	Swiss Graduate Lectures in Mathematics on Complex Dynamics on the Riemann Sphere.

At University of Fribourg, Switzerland

Spring 2023:	Thematical Seminar on Analysis in Metric spaces. For 3rd year Bachelor. (Co-taught with Prof. Stefan Wenger)
Fall 2022:	Proseminar on Complex Dynamics in One Variable. For 3rd year Bachelor.
Fall 2021:	Analysis 3: Complex Analysis. For 2nd year Bachelor.

At University of California, Los Angeles (UCLA), USA.

Summer 2021:	Abstract Algebra (Math 110A). Proof-based, upper division, online.
Winter 2021:	Probability Theory II (Math 170B). Proof-based, upper division, online.
Fall 2020:	Probability Theory I (Math 170A). Proof-based, upper division, online.
	Introduction to Probability and Statistics I (Math 170E). Applied, online.
Spring 2020:	Probability Theory II (Math 170B). Proof-based, upper division, online.
Winter 2020:	Probability Theory I (Math 170A). Proof-based, upper division, in person.
Spring 2019:	Abstract Algebra (Math 110A). Proof-based, upper division, in person.

Mentoring of students:

Spring 2024:	Ruben Navasardyan: *Kaufman's projection theorem* (BA thesis, EPFL)
	Laura Magyar: *Classification of Thurston maps with $|P_f|=3$* (MA Selbststudium, UniBe)

Service work for teaching (at UCLA):

2020 – 2021: **Member of the Teaching Committee**: coordination of courses and syllabi; support of the teaching training for new instructors; developing and updating exam policies; teaching award admin; etc.

Fall 2020: **Course coordinator** for Math 170E (Applied Probability): Coordination of course content and exams for the four sections of the course.

Co-organized research activities

2024 - present	**EPFL Geometry Seminar.** Weekly in-person research seminar. https://www.epfl.ch/labs/cmgr/cmgr/geometry-seminar/
2020 – present	**Quasiworld Seminar.** Monthly online research seminar and community event. https://sites.google.com/g.ucla.edu/quasiworld
August 2023	**Quasiworld Workshop.** Conference in honor of Mario Bonk's 60th birthday at the University of Helsinki, Finland. Co-organized with several others. https://www.helsinki.fi/en/conferences/quasiworld-workshop
April 2023	**Fribourg MAPS.** Workshop in Metric Analysis, Parametrizations, and Surfaces at the University of Fribourg. Co-organized with Katrin Fässler. https://homeweb.unifr.ch/iselian/pub/FribourgMAPS/Index.html
Spring 2022	**AGRS Junior Seminar.** Weekly topics seminar for postdocs and PhD students in the Analysis and Geometry in Random Spaces program at MSRI Berkeley.
Fall 2021	**Teichmüller Seminar.** Reading seminar on Teichmüller theory at the University of Fribourg, https://sites.google.com/view/teichmueller-seminar-unifr
Fall 2019	**PPP Seminar.** Reading seminar on rough isometries and Poisson point processes.
2019 – 2020	**Analysis topics meeting**, weekly meeting of the UCLA analysis postdocs.

Scientific talks

Workshops and Conferences

Teichmüller Theory, University of Liverpool, June 2024

Junge MathematikerInnen in Geometrie und Analysis, Universität Freiburg, Germany, June 2023

AGRS Research Seminar, MSRI Berkeley, CA, USA, February 2022

Analysis in Metric Spaces, Mathematical Research Community (MRC 3a) of the AMS, online, June 2021

Geometric Analysis on Riemannian and Singular Metric Measure Spaces (summer school), Lake Como School of Advanced Studies, Italy, July 2019

Complex Analysis and Function Theory (conference), University of Heraklion, Greece, July 2018

Ghys' workshop on Mathematical Communication, University of Neuchâtel, Switzerland, September 2016

Complex Analysis and Probability (workshop), Montana State University, Bozeman, August 2016

Departmental Seminars

Analysis Seminar (online), University of Warwick, England, January 2022

Analysis and PDE Seminar, UCLA, January 2022

Mathematisches Kollquium, Universität Bern, Switzerland, November 2021

Oberseminar Geometrie, University of Fribourg, Switzerland, May 2021

Analysis and Geometry Seminar (online), Chapman University, California, April 2021

Analysis Seminar (online), University of Memphis, Knoxville, October 2020

Quasiworld Seminar (online), https://sites.google.com/g.ucla.edu/quasiworld, September 2020

Rainwater Seminar, University of Washington, Seattle, February 2020

Topology, Algebraic Geometry, and Dynamics Seminar (TADS), George Mason Univ., Fairfax, April 2019

Analysis and PDE Seminar, UCLA, February 2019

Analysis Seminar, University of Edinburgh, Scotland, January 2019

Analysis seminar, University of Fribourg, Switzerland, Spring 2017

Pure Mathematics Seminar, Montana State University, Bozeman, 2016

Summer Analysis Seminar, UCLA, August 2016

Analysis seminar, University of Fribourg, Switzerland, 2014

Special Sessions at AMS Meetings

Fractal Geometry, AMS-EMS-SMF International Meeting 2022, University of Grenoble, France, July 2022.
Analysis, Combinatorics, and Geometry of Fractals. Online (Zoom), May 2021.
Analysis and Geometry on Metric Spaces and Fractals. University of Wisconsin, Madison, September 2019.
Recent Developments in Harmonic Analysis. University of Wisconsin, Madison, September 2019.
Analysis, Geometry, and PDEs in Non-smooth Metric Spaces. Univ. of Connecticut, Hartford, April 2019.
Topics at the Interface of Analysis and Geometry. University of Hawai'i at Manoa, March 2019.

Service and outreach

Since 2019	**Refereeing for peer reviewed journals**: Annales Academiae Scientiarum Fennicae Mathematica, Proceedings of the AMS, Analysis and Geometry in Metric Spaces.
Since 2010	**Speaker** at several outreach events per year. Topics and titles of these events include: find-my-career, math research for students, women in STEM, how-to-math, and math events for incoming students.
2010 – 2017	**Coaching** of a student with Asperger's syndrome in mathematics and professional communication, contracted by the Disability Insurance (Invalidenversicherung) Bern.

Languages

German / Swiss German: Native

English: Proficient

French: Advanced

Professional memberships

Since 2019: The Association for Women in Mathematics

Since 2018: The Swiss Mathematical Society

Since 2017: The American Mathematical Society

(This CV was last updated on August 26, 2024)