

# Annina Iseli

Bernoulli Instructor

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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.

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## 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](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)

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## 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)

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## Publications and Preprints

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
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## Teaching experience

### For the Swiss Doctoral Program in Mathematics (CUSO)

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

### At EPFL, Lausanne, Switzerland

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

### 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, 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.

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## 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.
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## Scientific talks

### Workshops and Conferences

- 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 Kolloquium, 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.
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## 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 April 5, 2024)*