Sascha Troscheit

— Curriculum Vitæ —

Address
Department of Mathematics
Box 480
751 06, Uppsala University
Sweden
Last updated[1]: 6th December, 2025

Contact
`sascha.troscheit@math.uu.se`
`maths@troscheit.eu`
`https://www.troscheit.eu`

1 Employment

➤ Associate Professor (Universitetslektor), *Uppsala University*, Sweden.   Since 1 Sep 2024

➤ European Fellowship, *University of Oulu*, Oulu, Finland.   1 Sep 2022 – 31 Aug 2024
Principle Investigator, EU Horizon Fund, Marie Skłodowska-Curie Individual Fellowship #101064701:
Dimension and Dynamics.

➤ Lise Meitner Senior Research Fellow, *Universität Wien*, Vienna, Austria.   17 Jun 2020 – 31 Jul 2022
Principle Investigator, FWF (Austrian Science Fund) Project M-2813:
Regularity and embeddability of self-similar processes.

➤ Universitätsassistent (postdoc. fellow), *Universität Wien*, Vienna, Austria.   1 Jan 2019 – 16 Jun 2020

➤ Postdoctoral Fellowship, *University of Waterloo*, Waterloo, Canada.   1 May 2017 – 31 Dec 2018

2 Education

➤ Docent (Habilitation) in Pure Mathematics, University of Oulu.   1 Jul 2023
External Evaluators: De-Jun Feng and Tuomas Sahlsten.

➤ Ph.D. in Pure Mathematics, University of St Andrews.   (graduation) 23 Jun 2017
Supervisors: Kenneth Falconer and Mike Todd.   (defense) 11 Apr 2017
Thesis Title: *"Dimension Theory of Random Self-similar and Self-affine Constructions".*

➤ MSc Mathematical Sciences, University of Bristol.   6 Dec 2012
Supervisor: Thomas Jordan.
Dissertation Title: *"Non-differentiability of self-similar and self-conformal devil's staircases".*

3 Publications[2]

Submitted

32. On exponential separation of analytic self-conformal sets on the real line.
Balázs Bárány, István Kolossváry, and Sascha Troscheit.
Preprint, available at `https://arxiv.org/abs/arXiv:2509.07888`, (2025).

31. Recent progress on fractal percolation.
István Kolossváry and Sascha Troscheit.
Preprint, available at `https://arxiv.org/abs/arXiv:2508.08150`, (2025).

30. On the Fourier transform of random Bernoulli convolutions.
Simon Baker, Henna Koivusalo, Sascha Troscheit, and Xintian Zhang.
Preprint, available at `https://arxiv.org/abs/2507.21605`, (2025).

29. Dynamical covering sets in self-similar sets.
Balázs Bárány, Henna Koivusalo, and Sascha Troscheit.
Preprint, available at `https://arxiv.org/abs/2506.18447`, (2025).

28. On continuum real trees of circle maps and their graphs.
Maik Gröger and Sascha Troscheit.
Preprint, available at `https://arxiv.org/abs/2401.08479`, (2024).

In Print

27. Interpolating with generalized Assouad dimensions.
Amlan Banaji, Alex Rutar, and Sascha Troscheit.
Journal of Geometric Analysis, **35**, 270, (2025).
`https://doi.org/10.1007/s12220-025-02099-w`.

---

[1]Check `https://www.troscheit.eu` for the most recent version.
[2]As is the norm in pure mathematics, there is no author ranking and all authors are considered to have contributed equally. For some of my interdisciplinary contributions where there is an author ranking, my order is explicitly stated.

26. Minkowski weak embedding theorem.
    Efstathios Konstantinos Chrontsios Garitsis and Sascha Troscheit.
    Houston Journal of Mathematics, **50**(2), (2024), 259–273.
    `https://www.math.uh.edu/~hjm/Vol50-2.html`.

25. Stability relations for Hilbert space operators and a problem of Kaplansky.
    Laurent W. Marcoux, Heydar Radjavi, Sascha Troscheit, and Yuanhang Zhang.
    Mathematische Annalen, **308**(39), (2024) 1–46.
    `https://doi.org/10.1007/s00209-024-03590-w`.

24. On the Minkowski content of self-similar random homogeneous iterated function systems.
    Sascha Troscheit.
    Annales Fennici Mathematici, **48**(1), (2023), 345–359.
    `https://doi.org/10.54330/afm.129638`.

23. Box-counting dimension in one-dimensional random geometry of multiplicative cascades.
    Kenneth J. Falconer and Sascha Troscheit.
    Communications in Mathematical Physics, **399**, (2023), 57–83.
    `https://doi.org/10.1007/s00220-022-04558-9`.

22. Dynamically defined subsets of generic self-affine sets.
    Balázs Bárány and Sascha Troscheit.
    Nonlinearity, **35**, (2022), 4986–5013.
    `https://doi.org/10.1088/1361-6544/ac8219`.

21. Analogues of Khintchine's theorem for random attractors.
    Simon Baker and Sascha Troscheit.
    Transactions of the American Mathematical Society, **375**(2), (2022), 1411-1441.
    `https://doi.org/10.1090/tran/8537`.

20. Regularity versus smoothness of measures.
    Jonathan M. Fraser and Sascha Troscheit.
    Pacific Journal of Mathematics, **311**(2), (2021), 257–275.
    `http://doi.org/10.2140/pjm.2021.311.257`.

19. On quasisymmetric embeddings of the Brownian map and continuum trees.
    Sascha Troscheit.
    Probability Theory and Related Fields, **179**(3), (2021), 1023–1046.
    `https://doi.org/10.1007/s00440-020-01024-2`.

18. Exact Hausdorff and packing measures for random self-similar code-trees with necks.
    Sascha Troscheit.
    Studia Mathematica, **257**(3), (2021), 253–285.
    `http://doi.org/10.4064/sm190327-26-8`.

17. Lower Assouad dimension of measures and regularity.
    Kathryn Hare and Sascha Troscheit.
    Mathematical Proceedings of the Cambridge Philosophical Society, **170**(2), (2021), 379–416.
    `https://doi.org/10.1017/S0305004119000458`.

16. The Assouad spectrum of random self-affine carpets.
    Jonathan M. Fraser and Sascha Troscheit.
    Ergodic Theory and Dynamical Systems, **41**(10), (2021), 2927–2945.
    `https://doi.org/10.1017/etds.2020.93`

15. Quasi-doubling of self-similar measures with overlaps.
    Kathryn E. Hare, Kevin G. Hare, and Sascha Troscheit.
    Journal of Fractal Geometry, **7**(3), (2020), 233–270.
    `https://doi.org/10.4171/JFG/91`.

14. Self-conformal sets with positive Hausdorff measure.
    Jasmina Angelevska, Antti Käenmäki, and Sascha Troscheit.
    Bulletin of the London Mathematical Society, **52**(1), (2020), 200–223.
    `https://doi.org/10.1112/blms.12320`

13. Assouad spectrum thresholds for some random constructions.
    Sascha Troscheit.
    Canadian Mathematical Bulletin, **63**(2), (2020), 434–453.
    `https://doi.org/10.4153/S0008439519000547`.

12. The Mass Transference Principle: Ten years on.
    Demi Allen and Sascha Troscheit.
    Horizons of Fractal Geometry and Complex Dimensions, AMS Contemp. Math. Ser., **731**, (2019), 1–37.
    `https://doi.org/10.1090/conm/731.`

11. The Assouad spectrum and the quasi-Assouad dimension: a tale of two spectra.
    Jonathan M. Fraser, Kathryn E. Hare, Kevin G. Hare, Sascha Troscheit, and Han Yu.
    Annales Academiæ Scientiarum Fennicæ, **44**(1), (2019), 379–387.
    `https://doi.org/10.5186/aasfm.2019.4419`

10. The quasi-Assouad dimension of stochastically self-similar sets.
    Sascha Troscheit.
    Proceedings A of the Royal Society of Edinburgh, **150**(1), (2020), 261–275.
    `https://doi.org/10.1017/prm.2018.112`

9. Random ubiquitous transformation semigroups.
   Julius Jonušas and Sascha Troscheit.
   Semigroup Forum, **99**(3), (2019), 655–678.
   `https://doi.org/10.1007/s00233-018-09992-7`

8. Local dimensions of random homogeneous self-similar measures: strong separation and finite type.
   Kathryn E. Hare, Kevin G. Hare, and Sascha Troscheit.
   Mathematische Nachrichten, **291**(16), (2018), 2397–2426.
   `https://doi.org/10.1002/mana.201700466`

7. On the inverse problem for Channell collisionless plasma equilibria.
   Oliver Allanson, Sascha Troscheit[3], and Thomas Neukirch.
   IMA Journal of Applied Mathematics, **83**(5), (2018), 849–873.
   `http://dx.doi.org/10.1093/imamat/hxy026`

6. The Assouad dimension of randomly generated fractals.
   Jonathan M. Fraser, Jun Jie Miao, and Sascha Troscheit.
   Ergodic Theory and Dynamical Systems, **38**(3), (2018), 982–1011.
   `http://dx.doi.org/10.1017/etds.2016.64`

5. The box dimension of random box-like self-affine sets.
   Sascha Troscheit.
   Indiana University Mathematics Journal, **67**(2), (2018), 495–535.
   `http://dx.doi.org/10.1512/iumj.2018.67.7295`

4. On the dimensions of attractors of random self-similar graph directed iterated function systems.
   Sascha Troscheit.
   Journal of Fractal Geometry, **4**(3), (2017), 257–303.
   `http://dx.doi.org/10.4171/JFG/51`

3. From one-dimensional fields to Vlasov equilibria: theory and application of Hermite polynomials.
   Oliver Allanson, Thomas Neukirch, Sascha Troscheit[4], and Fiona Wilson.
   Journal of Plasma Physics, **82**, (2016).
   `http://dx.doi.org/10.1017/S0022377816000519`

2. An exact collisionless equilibrium for the Force-Free Harris Sheet with low plasma beta.
   Oliver Allanson, Thomas Neukirch, Fiona Wilson, and Sascha Troscheit[5].
   Physics of Plasmas, **22**, 102116 (2015).
   `http://dx.doi.org/10.1063/1.4934611`

1. Hölder differentiability of self-conformal devil's staircases.
   Sascha Troscheit.
   Mathematical Proceedings of the Cambridge Philosophical Society, **156**(2), (2014), 295–311.
   `http://dx.doi.org/10.1017/S0305004113000698`

Theses

➢ Doctoral thesis. *"Dimension Theory of Random Self-similar and Self-affine Constructions"*.
   University of St Andrews, 2017, `http://hdl.handle.net/10023/11033`.

➢ Master thesis. *"Non-differentiability of self-similar and self-conformal devil's staircases"*.
   University of Bristol, 2013.

---

[3]Second author.
[4]Third author.
[5]Fourth author.

4 Selected Academic Visits and Programme Fellowships

➤ Long term visitor; Thematic Programme   2 Sep – 11 Dec 2026
Institut Mittag-Leffler, Stockholm, Sweden.
Event: *Interactions between fractal geometry, harmonic analysis, and dynamical systems.*

➤ Simons Semester   7 May – 23 May 2023
Banach Center, IMPAN, Warsaw, Poland.
Event: *Ergodic theory, Fractal Geometry, and Diophantine approximation.*

➤ Long term visitor; Thematic Programme   6 May – 16 Jun 2024
The Fields Institute, Toronto ON, Canada.
Event: *Randomness and Geometry.*

➤ Simons Semester   1 May – 27 May 2023
Banach Center, University of Warsaw, Warsaw, Poland.
Event: *Topological, smooth and holomorphic dynamics, ergodic theory, fractals.*

➤ Programme Fellowship   10 Nov – 15 Dec 2017
Institut Mittag–Leffler, Stockholm, Sweden.
Event: *Fractal Geometry and Dynamics.*

5 Grants and Stipends Awarded

In total, I have obtained approximately EUR 500 000 in research project funding (Marie Skłodowska-Curie Action European Fellowship, Senior Meitner Research Fellowship & PhD Funding); EUR 30 000 towards travel, accommodation, and to facilitate collaborative visits; and EUR 46 000 in conference funding. A selection of which can be found below.

➤ Research stipend, Kungl. Vetenskapsakademien/The Royal Swedish Academy of the Sciences.   Nov 2025
Research stipend (100 000SEK) for project MA2025-0070, *Dvoretzky and liminf problems in dynamical systems and probability theory*, funding several research visits and international collaboration.
(PI, Project, Total: EUR 9 125.12)

➤ Travel fund, Lisa & Carl-Gustav Esseens fund for mathematics.   Dec 2024
Principal holder for travel bursary (SEK 75 295.00), funding research activities in probability theory. The funding is for two research stays in 2025 at BME Budapest and University of Helsinki/Aalto University.
(PI, Travel, Total: EUR 6 544.97)

➤ MSCA Fellowship, Horizon Europe, ERC.   Mar 2022
Horizon Europe Marie Skłodowska-Curie Action European Fellowship (MSCA-EF #101064701): *"Dimension and Dynamics"*. Principle investigator of the two year individual research grant (EUR 215 534.40) investigating random and deterministic self-similar structures at the University of Oulu.
(PI, Project, Total: EUR 215 534.40)

➤ Conference funding.   Jan 2024
For the *Geometry and Fractals under the Midnight Sun* conference in June 2024 we received EUR 9 000 from the Mathematical Fund of the Finnish Academy of Science and Letters. Funding also contained various smaller grants and fees (EUR 6 870).   **(Chair, Conference, Total: EUR 15 870.00)**

➤ Meitner Fellowship, FWF   Dec 2019
Austrian Science Fund (FWF) Lise Meitner Senior Research Fellowship M-2813: *"Regularity and embeddability of self-similar processes"*. Principle investigator of two year individual research grant (EUR 172 760.00) at the University of Vienna, investigating stochastic self-similarity and embeddability.
(PI, Project, Total: EUR 172 760.00)

➤ Collaboration grant, AÖU.   Jul 2019
Aktion Österreich Ungarn Collaboration Grant 103öu6 (EUR 3 330.00 and HUF 1 224 000.00) to facilitate collaborative visits between members of University of Vienna and Budapest Institute of Technology.
(Co-Applicant, Group Funding, Total: EUR 7 079.11)

6 Academic achievements, memberships

➤ My paper (14) with J. Angelevska and A. Käenmäki was the top cited paper of Bull. London Math. Soc. for the period 2020–2021.

➤ *2017 IMA Lighthill-Thwaites Prize finalist* for paper (7).

➤ *Edinburgh Mathematical Society Prize* (best presentation).   2015

➤ Member of the following learned societies:
  ※ Svenska matematikersamfundet (Swedish Math Soc).   since 2024
  ※ American Mathematical Society.   since 2020
  ※ London Mathematical Society.   since 2015

7 Invited Talks (recent selection)

7.1 Invited Colloquia, Invited Lectures

➤ Course at the *Jyväsykylä summer school 2025.*   4 – 8 Aug 2025
   University of Jyväskylä, Jyväskylä, Finland.
   Title: "Random Geometry and Embeddability"

➤ Talk at the *Annual Meeting of the Swedish Math. Soc.*   23 May 2025
   University of Stockholm, Stockholm, Sweden.
   Title: "Dimension theory and fine geometry of metric spaces"

➤ Colloquium at *National Higher School of Mathematics*, Algiers, Algeria.   19 Nov 2024
   Title: "Dimension theory in one-dimensional random geometry"

➤ Mini-Course at the *Randomness and Geometry* program.   20 – 31 May 2024
   Fields Institute, Toronto ON, Canada.
   Title: "Geometry of self-conformal sets and measures"

➤ Opening Colloquium, Annual General Assembly of the Finnish Math. Soc.   25 Mar 2024
   University of Helsinki, Helsinki, Finland.
   Title: "Zoom in and enhance: Finer geometry of metric spaces"

➤ Mathematical Colloquium, University of North Texas, Denton TX, USA.   29 Nov 2022
   Title: "Zoom in and enhance: Dimension theory and finer geometry of metric spaces"

➤ Rainwater Seminar, University of Washington, Seattle WA, USA.   8 Nov 2022
   Title: "The box-counting dimension in one-dimensional random geometry of multiplicative cascades"

➤ London Mathematical Society Scheme 2 funded lecture tour of the United Kingdom.   Jul 2022
   Visit of the Universities of Bristol, Birmingham, and Glasgow at which special lectures were given.

7.2 Invited Conference Talks

➤ *Ergodic theory, fractal geometry and Diophantine approximation.*   18 – 22 May 2026
   IMPAN, Warsaw, Poland.
   Title: TBA

➤ *2025 Helsinki-Stockholm Probability and Mathematical Physics Workshop.*   13 – 14 Nov 2025
   Aalto University, Espoo, Finland.
   Title: "Non-isotropic fractal percolation and random cascade measure."

➤ *One Day Workshop: Fourier decay and Fractals.*   24 Oct 2025
   University of Oulu, Oulu, Finland.
   Title: "Dimension drop and dual IFSs for analytic iterated function systems."

➤ *Fractal Geometry and Stochastics 7.*   23 – 27 Sep 2024
   TU Chemnitz, Chemnitz, Germany.
   Title: "Quasi-isometric equivalence of Galton-Watson trees and statistically self-similar sets"

➤ *One Day Fractal Geometry Meeting.*   29 Feb 2024
   Budapest University of Technology and Economics, Budapest, Hungary.
   Title: "Continuum trees of real functions and their graphs"

➤ *Workshop on Fractal Geometry.*   3 – 7 Jul 2023
   International Centre for Mathematics (ICMS), Edinburgh, Scotland.
   Title: "Metric spaces in random geometry: dimension theory and applications"

➤ *Thermodynamic Formalism: Non-additive Aspects and Related Topics.*   14 – 19 May 2023
   Mathematical Research and Conference Center (MRCC), Będlewo, Poland.
   Title: "Diophantine approximation and coverings on random self-similar and self-affine sets"

➤ *Amer. Math. Soc. Spring Western Sectional Meeting. (online)*   14 – 15 May 2022
   University of Denver, Denver CO, USA.
   Title: "The box-counting dimension in one-dimensional random geometry of multiplicative cascades"

➤ *German Probability and Statistics Days Mannheim. (online)*   27 Sep – 1 Oct 2021
   Mannheim, Germany.
   Title: "Dimension theory and quasi-symmetric embeddability in random geometry"

➤ *Geometric measure theory and applications.*   30 Aug – 3 Sep 2021
   Cortona, Italy.
   Title: "Quasi-self-similar sets with positive Hausdorff measure"

7.3 Invited Seminar Talks

- ➢ *Dynamical Systems Seminar.*   13 Nov 2025
  KTH (Royal Institute of Technology), Stockholm, Sweden.
  Title: "Dynamical Self-similar Covering Sets"

- ➢ *Probability Seminar.*   20 Oct 2025
  Lund University, Lund, Sweden.
  Title: "Dimension theory and embeddability in random geometry"

- ➢ *Mathematical Physics & Random Matrix Seminar.*   18 Mar 2025
  KTH (Royal Institute of Technology), Stockholm, Sweden.
  Title: "Quasi-isometries between Galton-Watson trees"

- ➢ *Analysis and Probability Seminar.*   25 Feb 2025
  Chalmers University of Technology / Gothenburg University, Gothenburg, Sweden.
  Title: "Fractal percolation, dimensions, connected components, and other recent progress."

- ➢ *Geometric and Functional Analysis Seminar.*   20 Feb 2025
  University of Helsinki, Helsinki, Finland.
  Title: "Quasi-isometries between Galton-Watson trees"

- ➢ *Rényi Analysis Seminar.*   6 Feb 2025
  Rényi Institute, Budapest, Hungary.
  Title: "Continuum trees of real functions and their graphs"

- ➢ *Analysis Seminar.*   9 May 2024
  University of Waterloo, Waterloo ON, Canada.
  Title: "Dynamical Self-similar Covering Sets"

- ➢ *Budapest-Wien Dynamics Seminar (BudWiSer).*   23 Feb 2024
  Budapest University of Technology and Economics, Budapest, Hungary.
  Title: "The box-counting dimension in one-dimensional random geometry of multiplicative cascades"

- ➢ *Dynamical Systems Seminar.*   30 Nov 2023
  Scuola Normale Superiore di Pisa, Pisa, Italy.
  Title: "Assouad spectra and geometric phase transitions"

- ➢ *Dynamical Systems Seminar.*   29 Jun 2023
  Universität Bremen, Bremen, Germany.
  Title: "The box-counting dimension in one-dimensional random geometry of multiplicative cascades"

- ➢ *Geometric Analysis Seminar.*   30 Jan 2023
  University of Jyväskylä, Jyväskylä, Finland.
  Title: "The box-counting dimension in one-dimensional random geometry of multiplicative cascades"

- ➢ *Harmonic Analysis and Fractal Geometry Seminar.*   15 Nov 2022
  University of British Columbia, Vancouver BC, Canada.
  Title: "Metric spaces in random geometry: dimension theory, embeddability, and applications"

8 Service and Organisation

8.1 Committees

- ➢ *Hiring committee, Doctoral students.* Department of Mathematics, Uppsala University   Year 2024/25

- ➢ *Doctoral examining committee, Rebekka Müller-Widmann.*   May 2025
  Department of Mathematics, Uppsala University.

8.2 Refereeing and Reviewing

- ➢ Acted as referee for over 25 general and specialist journals, including:
  - ⁂ *Advances in Mathematics*,
  - ⁂ *Bulletin & Journal of the London Mathematical Society*,
  - ⁂ *Inventiones Mathematicae*,
  - ⁂ *Proceedings of the American Mathematical Society*,

- ➢ Reviewer for American Mathematical Society's Mathematical Reviews (MathSciNet) since 2014.

- ➢ Reviewer for Zentralblatt MATH (zbMATH) since 2021.

8.3 Seminar

- ➤ *Probability and Combinatorics Seminar,* Uppsala University.   Jan 2025 – Now
  Seminar organiser.

- ➤ *One World Fractals,* `www.oneworldfractals.org` (online).   Oct 2022 – Now
  Organising committee and founding member. Administrator of associated website and mailing list. The seminars are organised jointly with the Universities of Bristol, Eastern Finland, St Andrews, and Uppsala University (formerly with University of Oulu).

- ➤ *Finnish Math. Soc. remote colloquium.*   Oct 2023 – Jun 2024
  Local organiser. Viewing events at University of Oulu.

- ➤ *Vienna Ergodic Theory Seminar (online).*   Apr 2020 – Jun 2022

8.4 Conferences and Workshops

- ➤ *Geometry and Fractals under the Midnight Sun* conference.   Jun 2024
  Chair of organisation committee. Organised with Roope Antilla, Antti Käenmäki, and Ville Suomala at the University of Oulu.

- ➤ *One Day Workshop: Shrinking Targets, Dynamics, and Number Theory.*   Jan 2024
  Organiser. Held at the University of Oulu.

- ➤ *"Affine and overlapping iterated function systems" workshop.*   May 2022
  Member of organisation committee. Organised with Thomas Jordan and Henna Koivusalo at the University of Bristol.

9 Supervision

PhD Students:

- ➤ Jacob Nordin Gröning, principal supervisor, Uppsala University.   Sep 2025 – Aug 2030 (expected)
- ➤ Yu-Liang Wu, co-supervisor, University of Oulu.   Sep 2021 – Oct 2025
- ➤ Xintian Zhang, (external) co-supervisor, University of Bristol.   Sep 2021 – Sep 2025

MSc Students:

- ➤ MSc project (advisor/subject reviewer).   Jan – Jun 2025
  Covering problems in dynamical systems, Zheng Chi Megan Lee.

- ➤ MSc project (advisor/subject reviewer).   Jan – Jun 2025
  Random trees and their applications, Jie Wang.

- ➤ MSc project (joint with Scania CV AB).   Jan – May 2025
  Battery cell data analytics, Zakia Khanom Tisha.

- ➤ MSc project (2nd advisor/examiner).   Sep 2019 – Feb 2020
  Cellular automata in Hydrodynamics, Grisela Zeka.

10 Teaching

Teaching Engagements (selection, MSc level):

- ➤ *Markov Processes – 1MS012*   Spring 2025/26
  Lecture course, Master studies, Uppsala University.

- ➤ *Probability and Martingales – 1MS045*   Autumn 2024/25 & 2025/26
  Lecture course, Master studies, Uppsala University.

- ➤ *Stochastic Processes*   Period 1, 2023–24
  Lecture course, University of Oulu.

- ➤ *Branching Processes*   Period 3, 2022–23
  Lecture course, University of Oulu.

- ➤ *Geometric measure theory and dynamics*   Sommersemester 2022
  Lecture course, University of Vienna.

- ➤ *Fractal Geometry*   Sommersemester 2020
  Lecture course, University of Vienna.

Teaching Qualifications:

- ➤ Supervising Doctoral Students, Pedagogics course, 4.5hp, Uppsala University.   Jun 2025
- ➤ Docentship (Habilitation), University of Oulu, Oulu, Finland.   Jun 2023

➤ Teacher Development.   Nov 2017
  Completion of the *Teaching Development Series* organised by the Centre for Teaching Excellence at the University of Waterloo. Seminars attended: CTE501 How Students Learn, CTE504 Interactive Teaching, CTE196 Teaching Philosophy, CTE502 Motivating Students, CTE503 Assessing Students, CTE505 Introduction to Course Design.

11 Other

Outreach:

➤ Lecture course *Advanced Probability*,   Fall 2024
  as part of the International Mathematics Masters (IMM) at the *Ecole Nationale Supérieure de Mathématiques*, Algiers, Algeria.

Training & qualifications:

➤ Training: Equality and non-discrimination, University of Oulu, April 2024.