

Rudolf Dániel Prokaj

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Education

- 2018– **PhD in Mathematics**, *Budapest University of Technology and Economics*, Doctoral School of Mathematics and Computer Science.
Subject: Fractal Geometry, Supervisor: Dr. Károly Simon
- 2016–2018 **MSc in Applied Mathematics**, *Budapest University of Technology and Economics*, Stochastics specialization, excellent diploma.
MSc thesis: The dimension theory of some families of non-conformal iterated function systems
Supervisor: Dr. Károly Simon
- 2013–2016 **BSc in Mathematics**, *Budapest University of Technology and Economics*, Applied Mathematics specialization, I graduated with highest honors.
BSc Thesis: The Ledrappier-Young formula for self-affine iterated function systems
Supervisor: Dr. Károly Simon

Experience

- 2016–2018 **Demonstrator**, *Budapest University of Technology and Economics*.
I graded homeworks and short tests written in the beginning of the lectures, and administrated the results in the following courses for mathematicians: Stochastic Differential Equations, Stochastic Analysis and Applications, Functional Analysis, Stochastic Processes.
- 2018– **Instructor**, *Budapest University of Technology and Economics*.
I held and prepared several tutorials for engineers and mathematicians. The subjects include linear algebra, calculus, multivariate calculus, ODE, probability theory, stochastics.
- 2021– **Lecturer**, *Budapest University of Technology and Economics*.
I held a Probability Theory course for mathematicians.
- 2022– **Young Researcher**, *Alfréd Rényi Institute of Mathematics*.

Conferences and Workshops

- 14–19. **Thermodynamic Formalism: Non-additive Aspects and Related Topics**,
05.2023. *Conference center, Będlewo, Poland*, (30 min talk),
Title: On the attractor of piecewise linear iterated function systems.
- 15–19. **On geometric complexity of Julia sets - IV**,
08.2022. *Conference center, Będlewo, Poland*, (Poster),
Title: Continuous piecewise linear iterated function systems on the line.

- 10-12. **Workshop on affine and overlapping iterated function systems**,
05.2022. *University of Bristol, Bristol, UK*, (Poster),
Title: Continuous piecewise linear iterated function systems on the line.
- 12-13. **Interdisciplinary Doctoral Conference**,
11.2021. *University of Pécs, Pécs, Hungary*, (15 min talk),
Title: A survey on piecewise linear iterated function systems on the line.
- 17-20. **First Dynamical Systems Summer Meeting**,
08.2021. *online, Conference center, Będlewo, Poland*.
- 14-18. **Visegrád Conference on Dynamical Systems 9**,
06.2021. *online, Czech Technical University, Prague*.
- 22-26. **Ergodic Theory and Related Fields**,
07.2019. *IMAR, Bucharest, Romania*, (30 min talk),
Title: Piecewise linear iterated function systems on the line.
- 22-26. **Thermodynamic Formalism: Ergodic Theory and Geometry**,
07.2019. *Warwick University, Coventry, UK*.
- 15-18. **School on smooth ergodic theory and partially hyperbolic systems**,
04.2019. *Loughborough University, Loughborough, UK*.
- 06-12. **Dynamics, measures and dimensions**,
04.2019. *Conference center, Będlewo, Poland*.
- 05-11. **International Workshop and Conference on Topology and Applications**,
12.2018. *Rajagiri School of Engineering and Technology, Kochi, Kerala, India*.
- 10.2015. **Simons Semester in Banach Center: "Dynamical Systems"**,
IMPAN, Warsaw, Poland.

Seminar talks

- 05.06. **DAGGER seminar**,
2023. *Warwick University, Coventry, UK*, (50 min talk),
Title: Fractal dimensions of continuous piecewise linear iterated function systems on the line.
- 17.03. **BudWiSer Seminar**,
2023. *University of Vienna, Vienna, Austria*, (50 min talk),
Title: Continuous piecewise linear iterated function systems on the line.
- 03-04. **Fractal Talks**,
06.2021. *Online, University of Bristol, Bristol, UK*, (30 min talk),
Title: Continuous piecewise linear iterated function systems on the line.

Organizing activity

- 27.06-01.07 **Geometry of Deterministic and Random Fractals**,
2021. *BUTE, Budapest, Hungary*, (Local Organizer).
- 24-28. **Visegrád Conference on Dynamical Systems 8**,
06.2019. *Rényi Institute, Budapest, Hungary*, (Local Organizer).

Publications

- 2023 **Fractal dimensions of continuous piecewise linear iterated function systems**,
R.D. Prokaj, P. Raith, K. Simon, Proceedings of the American Mathematical Society.
- 2023 **Special families of piecewise linear iterated function systems**,
R.D. Prokaj, K. Simon, arXiv preprint, arXiv:2302.04333.
- 2022 **A survey on piecewise linear iterated function systems on the line**,
R.D. Prokaj, Conference Book of the Interdisciplinary Doctoral Conference, Pécs.
- 2021 **Piecewise linear iterated function systems on the line of overlapping construction**,
R.D. Prokaj, K. Simon, Nonlinearity.
- 2020 **Climate change in a conceptual atmosphere-plankton model**,
G. Károlyi, R.D. Prokaj, T. Tél, I. Scheuring, Earth System Dynamics.

Skills

Languages **Hungarian** - Native, **English** - Fluent
Programming Python, R, \LaTeX , Microsoft Excel, HTML