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RYOSUKE SHIMIZU

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Education

Ph.D. in Informatics, Kyoto University. (Supervisor: Jun Kigami) Apr. 2020—Sep. 2022
MInf, Kyoto University. (Supervisor: Jun Kigami) Apr. 2018—Mar. 2020
B.Sc., Faculty of Science, Kyoto University. Apr. 2014—Mar. 2018

Employment

Junior Researcher (Assistant Professor) · JSPS Research Fellow PD, Waseda University Oct. 2023—Present

Fellowship

JSPS Research Fellow (PD) for Young Scientists, Waseda University Apr. 2023—Present
JSPS Research Fellow (PD) for Young Scientists[*], Kyoto University Sep. 2022—Mar. 2023
JSPS Research Fellow (DC1) for Young Scientists, Kyoto University April 2020—Sep. 2022

Publications and Preprints

• (with Naotaka Kajino) *Korevaar–Schoen p-energy form and associated p-energy measures on fractals*, preprint; submitted.

• (with Naotaka Kajino) *Contraction properties and differentiability of p-energy forms with applications to nonlinear potential theory on self-similar sets*, Preliminary draft.

• (with Naotaka Kajino) *p-Energy forms on fractals: recent progress*, preprint; submitted.

• (with Mathav Murugan) *First-order Sobolev spaces, self-similar energies and energy measures on the Sierpiński carpet*, preprint; a shorter version is submitted.

• *Construction of p-energy and associated energy measures on Sierpiński carpets*, Trans. Amer. Math. Soc. **377** (2024), no.2, 951–1032.

• *Parabolic index of an infinite graph and Ahlfors regular conformal dimension of a self-similar set*, in **Analysis and Partial Differential Equations on Manifolds, Fractals and Graphs**, edited by Alexander Grigor'yan and Yuhua Sun, Berlin, Boston: De Gruyter, 2021, pp. 201–274.

Selected Talks

• *First-order Sobolev spaces and self-similar energies on the Sierpinski carpet*, Geometric Analysis Seminar, University of Jyväskylä, Jyväskylä, Finland, March 11, 2024.
• *Construction of first-order Sobolev spaces on the planar Sierpiński carpet* (short talk), Random Interacting Systems, Scaling Limits, and Universality (Week 1), National University of Singapore, Singapore, Singapore, December 6, 2023.

[*]The category was changed from (DC1) because I obtained the doctral degree.

• *Construction of a canonical p-energy on the Sierpiński carpet for all $p > 1$*, Geometric and Stochastic analysis on metric spaces, Kyoto University, Kyoto, Japan, March 13, 2023.

• *Nonlinear potential theory on the Sierpiński carpet* (25 minutes talk), Analysis and geometry of fractals and metric spaces: Recent developments and future prospects, Bankoku Shinryokan, Okinawa, Japan, March 9, 2023.

• *Construction of a canonical p-energy on the Sierpiński carpet* (short talk), Smooth Functions on Rough Spaces and Fractals with Connections to Curvature Functional Inequalities, Banff International Research Station, Banff, Canada, November 24, 2022.

• *Construction of a canonical p-energy on the Sierpiński carpet* (contributed talk), PIMS-CRM Summer School in Probability 2022, University of British Columbia, Vancouver, Canada, June 9, 2022.

• *Construction of a canonical p-energy on the Sierpiński carpet* (short talk via Zoom), Analysis on Metric Spaces Workshop 2022, OIST & zoom, Okinawa, Japan, May 27, 2022.

• *Construction of a canonical p-energy on the Sierpiński carpet*, Quasiworld, UCLA (zoom), October 20, 2021.

• *Generalized resistance metrics on graphs* (30 minutes talk), Kobe Workshop on Probabilistic Potential Theory and Related Fields, Kobe, Japan, May 7, 2019.