

Stefan Junk

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| Education | TU München Ph.D., Mathematics, 2014–2019. About <i>stochastic processes in random media</i> , supervised by Nina Gantert. M.Sc., Mathematics, 2012-2014 (TopMath Elite Master Study Program). B.Sc., Mathematics, 2009-2012. |
| Dissertation | “Random polymers among disasters” [12] (summa cum laude, based on [10, 9, 8]). |
| PostDoc | JSPS Postdoctoral Fellowship for Research in Japan (Standard Program) . November 2019 – June 2021 Research Institute for Mathematical Sciences, Kyoto University and Department for Mathematics, University of Tsukuba. Hosted by David Croydon and Ryoki Fukushima |
| Assistant Professor | Advanced Institute for Materials Research (Tohoku University) . Since August 2021. |
| Teaching | TU München : Teaching assistant, 2014–2019. <u>Responsibilities</u> : organizing exercise classes, hiring student assistants, creating homework, exercise and exam problems, and occasionally giving lectures. <u>Courses</u> : Actuarial Risk Theory, Large Deviations, Markov Chains, Markov Processes, Probability Theory, Stochastic Analysis. |
| Review activities | Annales de l’Institut Henri Poincaré, Annals of Probability, Communications in Mathematical Physics, Electronic Journal of Probability, Probability Theory and Related Fields. |
| Languages | German, English and Japanese. |
| Parental leave | October 2021 – December 2021. |

Publication list

Submitted

- [1] David A. Croydon, Ryoki Fukushima, and Stefan Junk. Extremal regime for one-dimensional mott variable-range hopping, August 2022. arXiv:2208.12102.
- [2] Stefan Junk. Fluctuations of partition functions of directed polymers in weak disorder beyond the L^2 -phase, February 2022. arXiv:2202.02907.
- [3] Stefan Junk. The central limit theorem for directed polymers in weak disorder, revisited, May 2021. arXiv:2105.04082.

Accepted

- [4] David A. Croydon, Ryoki Fukushima, and Stefan Junk. Anomalous scaling regime for one-dimensional Mott variable-range hopping. To appear in *Ann. Appl. Probab.* arXiv:2010.01779.

Published

- [5] Ryoki Fukushima and Stefan Junk. Number of paths in oriented percolation as zero temperature limit of directed polymer. *Probab. Theory Relat. Fields*, 2022. doi:10.1007/s00440-022-01130-3.
- [6] Stefan Junk. New characterization of the weak disorder phase of directed polymers in bounded random environments. *Comm. Math. Phys.*, 389(2):1087–1097, 2022. doi:10.1007/s00220-021-04259-9.
- [7] Ryoki Fukushima and Stefan Junk. On large deviation rate functions for a continuous-time directed polymer in weak disorder. *Electron. Comm. Probab.*, 26:1 – 10, 2021. doi:10.1214/21-ECP378.
- [8] Stefan Junk. Comparison of partition functions in a space-time random environment. *J. Stat. Phys.*, 181(1):95–115, 2020. ISSN 0022-4715. doi:10.1007/s10955-020-02566-4.
- [9] Ryoki Fukushima and Stefan Junk. Zero temperature limit for the Brownian directed polymer among Poissonian disasters. *Ann. Appl. Probab.*, 29(6):3821–3860, 2019. doi:10.1214/19-AAP1493.
- [10] Nina Gantert and Stefan Junk. A branching random walk among disasters. *Electron. J. Probab.*, 22:Paper No. 67, 34, 2017. doi:10.1214/17-EJP75.
- [11] Stefan Junk. On the survival probability of a random walk in random environment with killing. *ALEA Lat. Am. J. Probab. Math. Stat.*, 11(1):823–844, 2014. *Based on results from the Bachelor thesis.*

Thesis

- [12] Stefan Junk. *Random polymers in disastrous environments*. Dissertation, Technische Universität München, München, 2019. <http://mediatum.ub.tum.de/?id=1488489>.

Invited Talks (since 2019)

- February 2019 **Probability Seminar, Haifa.** Zero temperature limit for Brownian directed polymers among Poissonian disasters.
- November 2019 **Stochastic Analysis in Large Scale Interacting Systems, Osaka:** Zero temperature limit for the Brownian polymer among Poissonian disasters.
- February 2020 **KTGU Workshop, Kyoto:** Large deviations for directed polymers in the whole weak disorder phase.
- November 2020 **Workshop on Microstructure, Sapporo:** Anomalous scaling regime for one-dimensional Mott variable-range hopping.
- November 2020 **Kansai Probability Seminar, Kyoto:** Anomalous scaling regime for one-dimensional Mott variable-range hopping.
- February 2021 **Statistics Seminar, Bergen:** Zero temperature limit for the number of open paths in oriented percolation.
- February 2022 **Probability Seminar, Sendai:** Number of paths in oriented percolation as zero temperature limit of directed polymer.
- May 2022 **Probability Seminar, Münster:** Fluctuations for partition function of directed polymers beyond the L^2 -phase.
- August 2022 **Probability and Analysis on Random Structures and Related Topics, Kyoto:** Fluctuations for the partition function of directed polymers beyond the L^2 -phase
- December 2022 **Stochastic Analysis on Large Scale Interacting Systems, Fukuoka:** The directed polymer model in weak disorder beyond the L^2 -regime