

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
Languages	German, English and Japanese.

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.
- [4] David A. Croydon, Ryoki Fukushima, and Stefan Junk. Anomalous scaling regime for one-dimensional Mott variable-range hopping, October 2020. 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