

JAN KORBEL

Researcher in statistical physics, complex systems, and econophysics

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WORKING EXPERIENCE

Postdoctoral researcher

Medical University of Vienna & Complexity Science Hub Vienna

📅 Sep 2017 - Ongoing

📍 Vienna, Austria

Postdoctoral researcher

Zhejiang University

📅 Sep 2016 - May 2017

📍 Hangzhou, China

Doctoral intern

Max-Planck Institute for the history of science

📅 Sep 2013 - Jun 2014

📍 Berlin, Germany

Research intern

Watson Research Centre, IBM

📅 Dec 2012 - Aug 2016

📍 Prague, Czechia

EDUCATION

Ph.D., Mathematical Engineering

Czech Technical University in Prague

📅 Jul 2012 - May 2016

📍 Prague, Czechia

Ing. (≡ MSc.), Mathematical Physics, with honors

Czech Technical University in Prague

📅 Sep 2010 - Jun 2012

📍 Prague, Czechia

Bc. (≡ BSc.), Mathematical Physics

Czech Technical University in Prague

📅 Sep 2007 - Aug 2010

📍 Prague, Czechia

TEACHING

Technical University of Vienna

Introduction to financial networks

📅 2023 -

📍 Vienna, Austria

Medical University of Vienna

Basic Lecture

📅 2020 - 2022

📍 Vienna, Austria

Czech Technical University in Prague

Quantum physics, Thermodynamics, Classical mechanics

📅 2012 - 2016

📍 Prague, Czech Republic

ACADEMIC STATS

📄 Publications

42 publications in PNAS, Nat. Com., PRL, New J. Phys., Sci. Rep., PRE, FCAA, and others.

” Citations

~520 citations in Web of Science.

✍ Peer review

~180 reviews of academic papers.

🗣 Conference talks

~40 conference and workshop talks.

👥 Event organization

co-organized ~15 workshops, including a virtual annual workshop on stochastic thermodynamics (WOST) with ~900 registered participants.

🏆 Awards

2019 MDPI Mathematics Best paper award (received for review paper [5]).
2023 Dora Brücke-Teleky award - Best paper written by a postdoc at MedUni Wien (received for paper [1]).

RESEARCH INTERESTS

Statistical Physics

Generalized entropies

Stochastic thermodynamics

Maximum entropy principle

Structure-forming systems

Complex systems

Complex networks

Opinion dynamics

Information theory

Collapse prediction

Econophysics

Option pricing

Fractional diffusion

Transfer entropy

Multifractal time series

LANGUAGES

Czech
English
German



10 MOST IMPORTANT PUBLICATIONS

Journal Articles

- [1] J. Korbelt, S. D. Lindner, T. M. Pham, R. Hanel, and S. Thurner, "Homophily-based social group formation in a spin glass self-assembly framework," *Physical Review Letters* (editors' suggestion), vol. 130, p. 057 401, 5 Jan. 2023.
- [2] T. M. Pham, J. Korbelt, R. Hanel, and S. Thurner, "Empirical social triad statistics can be explained with dyadic homophilic interactions," *Proceedings of the National Academy of Sciences*, vol. 119, no. 6, e2121103119, 2022.
- [3] J. Korbelt, S. D. Lindner, R. Hanel, and S. Thurner, "Thermodynamics of structure-forming systems," *Nature Communications*, vol. 12, p. 1127, 2021.
- [4] J. Korbelt and D. H. Wolpert, "Stochastic thermodynamics and fluctuation theorems for non-linear systems," *New Journal of Physics*, vol. 23, no. 3, p. 033 049, 2021.
- [5] J.-P. Aguilar, J. Korbelt, and Y. Luchko, "Applications of the fractional diffusion equation to option pricing and risk calculations," *Mathematics*, vol. 7, no. 9, p. 796, 2019.
- [6] P. Jizba and J. Korbelt, "Maximum entropy principle in statistical inference: Case for non-shannonian entropies," *Physical Review Letters*, vol. 122, p. 120 601, 12 2019.
- [7] J. Korbelt, R. Hanel, and S. Thurner, "Classification of complex systems by their sample-space scaling exponents," *New Journal of Physics*, vol. 20, no. 9, p. 093 007, 2018.
- [8] H. Kleinert and J. Korbelt, "Option pricing beyond black-scholes based on double-fractional diffusion," *Physica A*, vol. 449, pp. 200–214, 2016.
- [9] J. Korbelt and Y. Luchko, "Modeling of financial processes with a space-time fractional diffusion equation of varying order," *Fractional Calculus and Applied Analysis*, vol. 19, no. 6, pp. 1414–1433, 2016.
- [10] P. Jizba and J. Korbelt, "Multifractal diffusion entropy analysis: Optimal bin width of probability histograms," *Physica A*, vol. 413, pp. 438–458, 2014.