## CV - Jan Korbel

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Full publication and review activity: https://publons.com/researcher/1294887/jan-korbel/
Born: 1988—Jihlava, Czech Republic
Nationality: Czech Languages: Czech (mother tongue), English, German

## Working experience

2017 - Postdoc, Section for Science of Complex Systems, Medical University of Vienna, Austria.
2017 - Associate faculty member, Complexity Science Hub, Vienna, Austria.
2017 - Research assistant, FNSPE, Czech Technical University in Prague, Czech Republic.
2016 - 2017 Postdoc, Department of Physics, Zhejiang University, Hangzhou, P. R. China.
2013 - 2014 Ph.D. intern, Max-Planck-Institute for the history of science, Berlin, Germany.
2012 - 2016 Intern, Watson Research Centre, IBM Czech Republic, Prague, Czech Republic.
2012 Student intern, IT department of Quirin Bank, Berlin, Germany.

## Education

2016 - Ph.D. in Mathematical Engineering, CTU in Prague
2012 - Ing. (≡ M.Sc.) in Mathematical Physics, CTU in Prague (with honors)
2010 - Bc. (≡ B.Sc.) in Mathematical Physics, CTU in Prague

## Topics of interest

- Complex systems: information theory of complex systems, complex networks, statistical physics of complex systems, especially correlated systems and systems with emergent structures.
- Statistical physics: generalized entropies, stochastic thermodynamics, maximum entropy principle, thermodynamics of complex systems.
- Econophysics: option pricing, applications of fractional calculus, network models, multifractal analysis of time series, tranfer entropy, applications of information theory in finance.

## Publications

About 35 peer-reviewed publications in Nature Communications, Physical Review Letters, Scientific Reports, New Journal of Physics, Physical Review E, Physica A, Fractional Calculus and Applied Analysis, Physics Letters A, Entropy and other journals, several proceedings publications. More than 260 citations, H-index: 9 (WoS).

## Review activity and editorial membership

About 100 reviews for various journals including Physical Review E, Physical Review Research, Physica A, Physics Letters A, Chaos, Entropy, European Journal of Operational Research, Europhysics Letters, IEEE Access, and others. Editorial board member of *Experimental results* and *Fractal and Fractional*, Reviewer board member of *Entropy*, *Symmetry* and *Mathematics*, guest editor of *Entropy* and *Mathematics*.

## Awards

MPDI Mathematics - 2019 Best Paper Award, for the article: Applications of the Fractional Diffusion Equation to Option Pricing and Risk Calculations by J.-Ph. Aguilar, J. Korbel and Y. Luchko, chosen out of more than 1200 papers submitted to MDPI Mathematics in 2019.

## Talks

About 20 conference talks at conferences and workshops on econophysics (Econophysics Colloquium '15) thermodynamics (JETC '17, Entropy '18, SPCP '19) and complex systems (ISCS '13,'14, Complex Networks '17,'19), co-organizer of several workshops (e.g., workshop: Information-theoretic methods for complexity science '19, Stochastic thermodynamics of complex systems '20 at Complexity Science Hub Vienna, Workshop on stochastic thermodynamics '21, virtual)

## Ten most important publications of Jan Korbel


1. J. Korbel, D. Wolpert, Stochastic thermodynamics and fluctuation theorems for non-linear systems, *New J. Phys.* **23** (2021) 033049. doi:10.1088/1367-2630/abea46.

2. J. Korbel, S. D. Lindner, R. Hanel, S. Thurner, Thermodynamics of structure-forming systems, *Nat. Com.* **12** (2021) 1127. doi:10.1038/S41467-021-21272-7.

3. L. Horstmeyer, T. Pham Minh, J. Korbel, S. Thurner, Predicting collapse of adaptive networked systems without knowing the network, *Sci. Rep.* **10** (2020) 1223. doi:10.1038/S41598-020-57751-Y.

4. J.-Ph. Aguilar, J. Korbel, and Yu. Luchko, Applications of the Fractional Diffusion Equation to Option Pricing and Risk Calculations, *Mathematics* **7(9)** (2019) 796. doi:10.3390/math7090796.

5. P. Jizba, J. Korbel, Maximum entropy principle in statistical inference: Case for non-Shanonian entropies, *Phys. Rev. Lett.* **122** (2019) 120601. doi:10.1103/PhysRevLett.122.120601.

6. J. Korbel, R. Hanel and S. Thurner, Classification of complex systems by their sample-space scaling exponents, *New J. Phys.* **20** (2018) 093007. doi:10.1088/1367-2630/aadcbe.

7. J. Korbel, Rescaling the nonadditivity parameter in Tsallis thermostatistics, *Phys. Lett. A* **381(32)** (2017) 2588–2592. doi:10.1016/j.physleta.2017.06.033.

8. J. Korbel and Yu. Luchko, Modelling of financial processes with a space-time fractional diffusion equation of varying order, *Fract. Calc. Appl. Anal.* **19(6)** (2016) 1414-1433. doi:10.1515/fca-2016-0073.

9. H. Kleinert and J. Korbel, Option pricing beyond Black-Scholes based on double-fractional diffusion, *Physica A* **449**. (2016) 200-214. doi:10.1016/j.physa.2015.12.125.

10. P. Jizba and J. Korbel, Multifractal diffusion entropy analysis: Optimal bin width of probability histograms, *Physica A* **413** (2014) 438-458.10.1016/j.physa.2014.07.008.