

Curriculum Vitae

Name: Matúš Medo
Born: 6th December 1979 in Prešov, Slovakia
Citizenship: Slovak
Family status: Married, two children
Institution: University of Fribourg, Switzerland
Homepage: www.ddp.fmph.uniba.sk/~medo/physics/

Education

- PhD (University of Fribourg, Switzerland) October 2006—September 2008
PhD study in statistical physics. Thesis “Applications of Statistical Physics in Complex Systems” supervised by Prof. Yi-Cheng Zhang defended in September 2008.
- PhD (Comenius University, Slovakia) October 2003—September 2006
Phd study in theoretical physics. Thesis “Economic models on complex networks” supervised by Dr. František Šlanina (Czech Academy of Sciences, Czech Republic) defended in November 2010.
- Master in physics (Comenius University, Slovakia) September 1998—June 2003
Specialization “Theoretical and Mathematical Physics”. Graduation with distinction.

Current and previous positions

- Maître-assistant/Oberassistent (University of Fribourg, Switzerland) July 2012—present
- Post-doc (University of Fribourg, Switzerland) October 2008—June 2012

Skills

Language skills: Slovak (mother tongue), English (fluent), German (advanced), French (intermediate). Programming skills: Python, C, TeX, LaTeX, Metapost, Mathematica.

Grants

- On-going: Node heterogeneity and temporal patterns in growing complex networks (Swiss National Science Foundation, grant No. 200020-156188, 300,000 CHF, co-applicant).
- Past: New Models of Growing Networks (Swiss National Science Foundation, grant No. 200020-143272, 120,000 CHF, co-applicant), Evolving and adaptive networks (Swiss National Science Foundation, grant No. 200020-132253, 120,000 CHF, co-applicant).
- Large-scale EU projects: Liquid Publications, Non-equilibrium Social Sciences, Quality Collectives, GROWTHCOM (9.5 million EUR in total; the Fribourg team share: 1.7 million EUR). I participated in proposal preparation, project work, and reporting activities.

Selected talks

- Network metrics for reputation and quality in scholarly data, *Symposium “Scientometric Maps and Dynamic Models of Science and Scientific Collaboration Networks”*, Regensburg, March 2016 (invited talk)
- Models and algorithms for growing information networks, *Challenges in Data Science: A complex systems perspective*, Torino, October 2015 (invited talk)
- Models and algorithms for growing information networks, *Summer School on Socio-Economic Complex Systems*, Lipari, October 2015 (invited talk)
- Adverse effects of recommendation on information ecosystems, *ECCS 2014 Satellite Workshop on Computational Social Science*, Lucca, September 2014
- Complexity insights into information filtering, *ICT Applications to Non-Equilibrium Social Sciences Conference*, Lisbon, June 2013 (invited talk)

- Growth of information networks, *International Workshop on Agent-Based Models and Complex Techno-Social Systems*, Zurich, July 2012
- Aging and heterogeneity in the growth of networks, *Hypernetworks, network dynamics, influence on network: current trends in social research*, Warsaw, December 2011 (invited talk)
- Aging and heterogeneity in the growth of networks, *ECCS 2011 Satellite Workshop "Dynamics on and of Complex Networks - V"*, Vienna, September 2011

Five representative publications and their citation counts (Google Scholar, August 10, 2016)

1. T. Zhou, J. Ren, **M. Medo** and Y.-C. Zhang, *Bipartite network projection and personal recommendation*, *Physical Review E* 76, 046115 (2007). [657 citations](#)
2. T. Zhou, Z. Kuscsik, J.-G. Liu, **M. Medo**, J. R. Wakeling, Y.-C. Zhang, *Solving the apparent diversity-accuracy dilemma of recommender systems*, *Proceedings of the National Academy of Sciences of the USA* 107, 4511 (2010). [429 citations](#)
3. L. Lü, **M. Medo**, C. H. Yeung, Y.-C. Zhang, Z.-K. Zhang, T. Zhou, *Recommender Systems*, *Physics Reports* 519, 1 (2012). [417 citations](#)
4. **M. Medo**, G. Cimini, S. Gualdi, *Temporal effects in the growth of networks*, *Physical Review Letters* 107, 238701 (2011). [50 citations](#)
5. T. Zhou, **M. Medo**, G. Cimini, Z.-K. Zhang, Y.-C. Zhang, *Emergence of scale-free leadership structure in social recommender systems*, *PLoS ONE* 6, e20648 (2011). [48 citations](#)

Awards / Work recognition

- Paper on similarity-preferential diffusion (Zeng et al, 2014) has been chosen as one of the best papers published by the EPL (Europhysics Letters) in 2014.
- Paper on crowd avoidance in recommendation (Gualdi et al, 2013) was covered by the *Symmetry Magazine* published jointly by Fermilab and SLAC in an article entitled the title "Physics and the wisdom of crowds" and by the online magazine *TechNewsDaily* in an article entitled "Particle Physics Improves Search Engine Recommendations".
- Paper on temporal effects in the network growth (Medo et al, 2011) has been included in PRL editors' selection and covered by the APS magazine *Physics*. Talks presenting this paper have been given at multiple venues (Vienna, Zurich, Warsaw, etc.).
- Paper concerning "Solving the apparent diversity-accuracy dilemma of recommender systems" (PNAS; Zhou et al, 2010) was described as a "prime example of how scientists from disciplines outside your own can spark new trains of thought".
- Award of the Faculty of Science, University of Fribourg, for the best PhD thesis in theoretical science (February 2009).
- Best poster award in the International Workshop on Coping with Crises in Complex Socio-Economic Systems, Zurich, Switzerland (June 2009).
- Silver and bronze medal at the International Physics Olympiad (Canada, 1997 and Iceland, 1998, respectively).

Teaching activities

- Spring semesters 2013 and 2015: Numerical Methods for Physicists (lecture)
- Autumn semester 2014: Introduction to Complex Systems (lecture)
- Autumn semester 2012: Quantum Statistical Physics (lecture)
- Autumn semester 2011–present: Computational Physics (computer labs)
- Supervision of numerous master students and contribution to supervision of PhD candidates (S. Gualdi, G. Cimini, M. Mariani, A. Vidmer).
- Teaching assistance (Mathematical Methods of Physics, Quantum Mechanics, Thermodynamics, Statistical Physics, Advanced Statistical Physics).