Curriculum vitae of Jiří Fink

Name:	Jiří Fink
Born:	13 January 1982, Kladno, Czech Republic
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Education

Nov 2010	Doctoral Degree (Ph.D.) in Computer Science Charles University, Prague advisor: Martin Loebl
Sep 2006	Master Degree (Mgr) in Computer Science Faculty of Mathematics and Physics, Charles University, Prague

Employment

Oct 2015 – now	Assistant Professor Dep. of Theoretical Computer Science and Mathematical Logic, Charles University, Prague
Jan 2013 – Aug 2015	Post-doc University of Twente, The Netherland
Nov 2011 – Aug 2012	Programmer Ing. Software Dlubal s.r.o., Prague
Nov 2010 – Nov 2011	Research fellow Institute for Theoretical Computer Science, Charles University,
Oct 2004 – Dec 2012	Teaching assistant of combinatorics and optimizations courses Faculty of Mathematics and Physics, Charles University, Prague

Foreign studies and internship

Oct 2008 – Jun 2009	Intern research Mitsubishi Electric Research Laboratories, Cambridge, MA, USA
May 2007 – Jun 2008	MDS (Pre)Doc-Course: Random and Quasirandom Graphs Humboldt-University in Berlin, Germany
May 2007 – Jul 2007	MDS (Pre)Doc-Course: Integer Points in Polyhedra Free University in Berlin, Germany
Sep 2005 – Jan 2006	Socrates/Erasmus Faculty of mathematics and physics, University of Ljubljana, Slovenia

Research grants

2017 – 2019	Principal inverstigator of a junior grant on Network optimization Czech science foundation (GAČR) GA17-10090Y
2015 – 2016	Team member of a grant on Hypercube, graph and hypergraph structures Czech science foundation (GAČR) GA14-10799S
2013 – 2015	Team member of a research project on I-CARE: Personalized climate and ambient control for zero-energy buildings Technology Foundation (STW) 11854

Areas of interest

Interconnecting networks: The article [27] provides a solution of Kreweras' conjecture from Knuth: The art of computer programming, volume 4, fascile 2. The conjecture states that every perfect matching of the hypercube can be extended into a Hamiltonian cycle. Another conjecture by Kreweras is proven in [24]. The article [19] proves a conjecture by Castañeda and Gotchev which states that for every set F of at most $\binom{n}{2} - 2$ vertices in Q_n and $n \geq 4$, the graph $Q_n - F$ contains a cycle of length at least $2^n - 2|F|$. See also [25, 26, 23, 21, 18, 17].

Smart Grid is a modernized electrical grid that uses ICT to improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity. Paper [14] proposes a mathematical model of Smart Grid. Algorithms are developed in theoretical papers [8, 3, 7] while engineering papers [6, 11, 9, 15] propose practical solutions.

Programming:

- At the University of Twente, I designed and programmed an improved version of Triana; see `http://www.utwente.nl/ctit/energy/simulator/`.
- At Mitsubishi Electric Research Laboratories I worked on elevators controls.
- I participated at a software project Vector graphics editor Vrr during my undergraduate studies (`http://vrr.ucw.cz`).

Publication statistics

Source	Publications	Citations	H-factor
Web of Science	14	68	4
Scopus	21	73	4
Google Scholar	31	166	6

List of publications

[1] J. Fink. "Matchings extend into 2-factors in hypercubes". Accepted in Combinatorica. 2017.

[2] J. Fink, T. Dvořák, P. Gregor, and T. Novotný. "Towards a problem of Ruskey and Savage on matching extendability". Accepted in Electronic Notes in Discrete Mathematics. 2017.

[3] J. Fink and J.L. Hurink. "Greedy algorithm for local heating problem". Submitted. 2017.

[4] T. Dvořák and J. Fink. "Gray codes extending quadratic matchings". Submitted. 2016.

[5] J. Fink. "Two algorithms extending a perfect matching of the hypercube into a Hamiltonian cycle". Submitted. 2016.

[6] K. X. Perez, M. Baldea, T. F. Edgar, G. Hoogsteen, R. P. van Leeuwen, T. van der Klauw, B. Homan, J. Fink, and G. J. M. Smit. "Soft-islanding a Group of Houses through Scheduling of CHP, PV and Storage". In: *Energy Conference (ENERGYCON), 2016 IEEE International*. 2016, pp. 1–6.

[7] J. Fink. "Approximation algorithms for scheduling a group of heat pumps". Submitted. 2015.

[8] J. Fink and J.L. Hurink. "Minimizing costs is easier than minimizing peaks when supplying the heat demand of a group of houses". In: *European Journal of Operational Research* 242 (2015), pp. 644–650.

[9] J. Fink, R.P. van Leeuwen, J.L. Hurink, and G.J.M. Smit. "Linear programming control of a group of heat pumps". In: *Springer open journal on Energy, Sustainability and Society* 5 (1 2015).

[10] R.P. van Leeuwen, J. Fink, and G.J.M. Smit. "Central Model Predictive Control of a Group of Domestic Heat Pumps - Case Study for a Small District". In: *Proceedings of the 4th International Conference on Smart Cities and Green ICT Systems*. 2015, pp. 136–147.

[11] R.P. van Leeuwen, J. Fink, and G.J.M. Smit. "Upscaling a district heating system based on biogas cogeneration and heat pump". In: *Springer open journal on Energy, Sustainability and Society* 16 (5 2015), pp. 1–13.

[12] R.P. van Leeuwen, JB de Wit, J Fink, and G.J.M. Smit. "House thermal model parameter estimation method for model predictive control applications". In: *PowerTech, 2015 IEEE Eindhoven*. IEEE. 2015, pp. 1–6.

[13] J. Fink and P. Gregor. "Linear extension diameter of level induced subposets of the Boolean lattice". In: *European Journal of Combinatorics* 35 (2014), pp. 221–231.

[14] J. Fink, J.L. Hurink, and A. Molderink. "Mathematical modelling of devices and flows in energy systems". Submitted. 2014.

[15] R.P. van Leeuwen, J.B. de Wit, J. Fink, and G.J.M. Smit. "Thermal storage in a heat pump heated living room floor for urban district power balancing effects on thermal comfort, energy loss and costs for residents". In: *Proceedings of the 3rd International Conference on Smart Grids and Green IT Systems*. SMARTGREENS 2014. NSTICC Institute for Systems, Technologies of Information, Control, and Communication, 2014, pp. 43–50. ISBN: 978-989-758-025-3.

[16] V. Andova, D. Dimitrov, J. Fink, and R. Škrekovski. "Bounds on Gutman Index". In: *MATCH Commun. Math. Comput. Chem.* 67 (2012), pp. 515–524.

[17] T. Dvořák, J. Fink, P. Gregor, V. Koubek, and T. Radzik. "Testing connectivity of faulty networks in sublinear time". In: *Journal of Discrete Algorithms* 14 (2012), pp. 223–231.

[18] T. Dvořák, J. Fink, P. Gregor, and V. Koubek. "Gray codes with bounded weights". In: *Discrete Mathematics* 312 (17 2012), pp. 2599–2611.

[19] J. Fink and P. Gregor. "Long cycles in hypercubes with optimal number of faulty vertices". In: *J. Comb. Opt.* 24 (2012), pp. 240–265.

[20] J. Fink, B. Lužar, and R. Škrekovski. “Some Remarks on Inverse Wiener Index Problem”. In: *Discrete Applied Mathematics* 160 (12 2012), pp. 1851–1858.

[21] T. Dvořák, J. Fink, P. Gregor, V. Koubek, and T. Radzik. “Efficient connectivity testing of hypercubic networks with faults”. In: *Combinatorial Algorithms* 6460 (2011), pp. 181–191.

[22] J. Fink. “Probabilistic Methods in Discrete Applied Mathematics”. PhD thesis. Department of Applied Mathematics, Charles Univesity in Prague, 2010.

[23] T. Dvořák, J. Fink, P. Gregor, and V. Koubek. “Long paths and cycles in faulty hypercubes: existence, optimality, complexity”. In: *El. Notes in Disc. Math.* 34 (2009). Extended abstract on Eurocomb 2009., pp. 35–39.

[24] J. Fink. “Connectivity of Matching graph of Hypercube”. In: *SIAM J. Discrete Math* 23 (2 2009), pp. 1100–1109.

[25] J. Fink. “Matching graphs of Hypercubes and Complete bipartite graphs”. In: *European J. Comb.* 30 (7 2009), pp. 1624–1629.

[26] J. Fink and P. Gregor. “Long paths and cycles in hypercubes with faulty vertices”. In: *Information Sciences* 179 (20 2009), pp. 3634–3644.

[27] J. Fink. “Perfect Matchings Extend to Hamilton Cycles in Hypercubes”. In: *J. Comb. Theory, Ser. B* 97.6 (2007), pp. 1074–1076.

[28] J. Fink. “Optimization and Statistics”. MA thesis. Department of Applied Mathematics, Charles Univesity in Prague, 2006.