

## Curriculum vitae of Jiří Fink

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Born: 13 January 1982, Kladno, Czech Republic  
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Research fellow at: Institute for Theoretical Computer Science  
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### Important data

Nov 2010 – now Research fellow  
Institute for Theoretical Computer Science, Charles University, Prague  
Oct 2004 – now Teaching assistant of combinatorics, algorithms and optimizations  
Faculty of Mathematics and Physics, Charles University, Prague  
Nov 2010 Doctoral Degree (Ph.D.) in Computer Science  
Charles University, Prague; advisor: Martin Loeb  
Sept 2006 Master Degree (Mgr) in Computer Science  
Faculty of Mathematics and Physics, Charles University, Prague

### Foreign studies and internship

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

### Areas of interest

Hypercube interconnecting network, see [2, 4, 5, 6, 13, 3, 12, 7, 8].

The article [2] provides a solution of Kreweras' conjecture from Knuth: The art of computer programming, volume 4, fascicle 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 [4]. The article [13] 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  $2^n - 2|F|$ .

Modern statistical physics, the incongruency problem – Topic of my master and PhD. thesis. See [1, 9, 10].

**Programming:** 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>).

## List of publications

- [1] J. Fink. “Optimization and Statistics”. MA thesis. Department of Applied Mathematics, Charles University in Prague, 2006. URL: <http://kam.mff.cuni.cz/~fink/publications/mastersthesis.pdf>.
- [2] J. Fink. “Perfect Matchings Extend to Hamilton Cycles in Hypercubes”. In: *J. Comb. Theory, Ser. B* 97.6 (2007), pp. 1074–1076. URL: <http://kam.mff.cuni.cz/~fink/publications/kreweras1.pdf>.
- [3] 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. URL: <http://kam.mff.cuni.cz/~fink/publications/eurocomb09.pdf>.
- [4] J. Fink. “Connectivity of Matching graph of Hypercube”. In: *SIAM J. Discrete Math* 23 (2 2009), pp. 1100–1109. URL: <http://kam.mff.cuni.cz/~fink/publications/kreweras2.pdf>.
- [5] J. Fink. “Matching graphs of Hypercubes and Complete bipartite graphs”. In: *European J. Comb.* 30 (7 2009), pp. 1624–1629. URL: <http://kam.mff.cuni.cz/~fink/publications/eurocomb07.pdf>.
- [6] J. Fink and P. Gregor. “Long paths and cycles in hypercubes with faulty vertices”. In: *Information Sciences* 179 (20 2009), pp. 3634–3644. URL: [http://kam.mff.cuni.cz/~fink/publications/long\\_path.pdf](http://kam.mff.cuni.cz/~fink/publications/long_path.pdf).
- [7] T. Dvořák, J. Fink, P. Gregor, and V. Koubek. “Gray codes with bounded weights”. Submitted. 2010. URL: [http://kam.mff.cuni.cz/~fink/publications/layer\\_complexity.pdf](http://kam.mff.cuni.cz/~fink/publications/layer_complexity.pdf).
- [8] T. Dvořák, J. Fink, P. Gregor, V. Koubek, and T. Radzik. “Testing connectivity of faulty networks in sublinear time”. Submitted. 2010.
- [9] J. Fink. “Probabilistic Methods in Discrete Applied Mathematics”. PhD thesis. Department of Applied Mathematics, Charles University in Prague, 2010. URL: <http://kam.mff.cuni.cz/~fink/publications/phdthesis.pdf>.
- [10] J. Fink. “Towards a theory of Ground state uniqueness”. Submitted. 2010. URL: <http://kam.mff.cuni.cz/~fink/publications/xor.pdf>.
- [11] J. Fink, B. Lužar, and R. Škrekovski. “Some Remarks on Inverse Wiener Index Problem”. Submitted. 2010. URL: <http://kam.mff.cuni.cz/~fink/publications/wiener.pdf>.
- [12] T. Dvořák, J. Fink, P. Gregor, V. Koubek, and T. Radzik. “Efficient connectivity testing of hypercubic networks with faults”. In: *Lecture notes in computer science* 6460 (2011), pp. 181–191. URL: [http://kam.mff.cuni.cz/~fink/publications/connectivity\\_testing.pdf](http://kam.mff.cuni.cz/~fink/publications/connectivity_testing.pdf).
- [13] J. Fink and P. Gregor. “Long cycles in hypercubes with optimal number of faulty vertices”. To appear in *J. Comb. Opt.*, doi:10.1007/s10878-011-9379-1. 2011. URL: [http://kam.mff.cuni.cz/~fink/publications/cycle\\_optimal.pdf](http://kam.mff.cuni.cz/~fink/publications/cycle_optimal.pdf).