

CURRICULUM VITAE

Personal data

Name: Balázs Patkós

Place and date of birth: Budapest, Hungary, January 4 1978.

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Citizenship: Hungarian

Research Interests: extremal and probabilistic combinatorics

Studies

1996-2003 Eötvös Loránd University, Budapest

MSc in Mathematics

2003-2007 Central European University, Budapest

PhD in Mathematics and its Applications, supervisor: Gyula O.H. Katona

Title of thesis: Problems in extremal finite set theory

date of defense: January 2008

Current position

Researcher at MTA-ELTE Geometric and Algebraic Combinatorics Research Group, Budapest, Hungary, March 2014 -

Scientific Secretary at the Alfréd Rényi Institute of Mathematics in Budapest, Hungary, July 2014 -

Earlier positions

- OTKA postdoctoral fellow at the Alfréd Rényi Institute of Mathematics in Budapest, Hungary, March 2011 - February 2014
- Young researcher (postdoc) at the Alfréd Rényi Institute of Mathematics in Budapest, Hungary, January 2010 - February 2011
- Researcher at the University of Memphis, September 2008 - December 2009
- Pre-doc fellowship at Eötvös University, Budapest, September 2007 - August 2008

Teaching experience

- Instructor - Calculus, introductory real analysis, Eötvös University, Budapest 2001-02 (Fall), 2002-03 (Fall)
- Instructor - Discrete mathematics, Eötvös University, Budapest 2007-08, Technical University, Budapest 2007-08, 09-10, 10-11, 11-12, 12-13
- Lecturer - Discrete mathematics, Eötvös University, Budapest 2007-08, 13-14
- Instructor and lecturer - Mathematics and its application / Math and modeling (in English), Business School of Central European University, Budapest 2007-08
- Lecturer - Statistics and Calculus (in English), McDaniel College, Budapest, 2012-13, 13-14

Academic visits:

March - May 2012 Zhejiang Normal University

Scientific Awards, Fellowships, Grants:

- 2005 CEU Award for Advanced Doctoral Students
- 2005 October - 2006 January: Marie-Curie Fellowship (COMBSTRU), Bielefeld University, Germany
- 2006 September - November: Marie-Curie Fellowship (Phenomena in High Dimensions) Tel Aviv University, Israel
- 2011 Youth Award of the Hungarian Academy of Sciences
- 2011 March - present OTKA (Hungarian National Scientific Fund) Postdoctoral Grant
- 2011 September - 2013 August, János Bolyai Fellowship of the Hungarian Academy of Sciences
- 2014 September - János Bolyai Fellowship of the Hungarian Academy of Sciences

Scientific Activities

- reviewer for Mathematical Reviews and referee for several international scientific journals,
- secretary of the Scientific Department of the János Bolyai Mathematical Society,

Conference Organization

- founder and organizer of Emléktábla Workshop Series. (6 workshops)
- co-secretary in Organizing Committee of EuroComb'11, Budapest August 29 - September 2, 2011
- secretary of Organizing Committee of Katona70, Budapest, September 3-4, 2011
- member of local Organizing Committee of Erdős Centennial, Budapest, July 1-5, 2013
- member of the Organizing Committee of Miki Simonovits is 70, Budapest, January 3-4, 2014
- secretary of the Organizing Committee of Sum(m)it240, Budapest, July 7-11, 2014

Publications

1. How different can two intersecting families be, *Electronic Journal of Combinatorics* 12 (2005) R24
2. The distance of \mathcal{F} -free families, *Studia Sci. Math. Hungarica* 46 (2009) 2, 275-286.
3. l -chain profile vectors (with Dániel Gerbner), *SIAM Journal on Discrete Mathematics* 22 (2008) 1, 185-193.
4. Profile vectors in the lattice of subspaces (with Dániel Gerbner), *Discrete Mathematics*, 309 (2009) 2861-2869.
5. Equitable coloring of random graphs (with Michael Krivelevich), *Random Structures and Algorithms* 35 (2009) 83-99.
6. l -trace k -Spener families, *J. of Combinatorial Theory, Ser. A*, 116 (2009) 1047-1055.
7. Inclusionwise minimal completely separating systems (with Krisztián Tichler and Gábor Wiener), *Journal of Statistical Theory and Practice*, 3 (2009) 459-466.
8. Selecting the largest and the smallest elements with a lie (with Dániel Gerbner, Dömötör Pálvölgyi and Gábor Wiener), *Discrete Applied Mathematics* 158, (2010), 988-995.
9. Traces of uniform set families, *Electronic Journal of Combinatorics*, 16 (2009) N8

10. Polychromatic Colorings of Arbitrary Rectangular Partitions (with D. Gerbner, B. Keszegh, N. Lemons, C. Palmer, D. Pálvölgyi), *Discrete Mathematics* 310 (2010), 21–30.
11. Hilton-Milner theorem for vector spaces, (with A. Blokhuis, A.E. Brouwer, A. Chowdhury, T. Mussche, T. Szőnyi), *Electronic Journal of Combinatorics*, 17 (2010), R71
12. Shadows and Intersections in Vector Spaces, (with Ameera Chowdhury), *J. of Combinatorial Theory, Ser. A* 117 (2010) 1095–1106
13. Continuum percolation with steps in line segments, (with Paul Balister and Béla Bollobás) manuscript
14. On randomly generated non-trivially intersecting hypergraphs, *Electronic Journal of Combinatorics* **17** (2010), R26
15. Random partial orders defined by angular domains, (with Paul Balister) *Order*, 28 (2011) 341–355
16. Large B_d -free and union-free subfamilies (with János Barát, Zoltán Füredi, Ida Kantor, Younjin Kim), *SIAM J. on Discrete Mathematics*, 26 (2012) 71–76
17. Cross-Sperner families (with Dániel Gerbner, Nathan Lemons, Cory Palmer and Vajk Szécsi), *Studia Sci. Math. Hungarica*, 49 (2012), 44-51.
18. A note on traces of set families, *Moscow Journal of Combinatorics and Number Theory*, 2 (2012), 47-55.
19. Two-part set systems (with P.L. Erdős, D. Gerbner, N. Lemons, D. Mubayi and C. Palmer), *Electronic Journal of Combinatorics*, 19 (2012), P52
20. Almost intersecting families (with Dániel Gerbner, Nathan Lemons, Cory Palmer and Vajk Szécsi), *SIAM J. on Discrete Mathematics*, 26 (2012), 1657-1669.
21. Almost Cross-Intersecting and Almost Cross-Sperner Pairs of Families of Sets (with Dániel Gerbner, Nathan Lemons, Cory Palmer Dömötör Pálvölgyi and Vajk Szécsi), *Graphs and Combinatorics*, 29 (2013), 489-498.
22. Saturating Sperner families (with D. Gerbner, B. Keszegh, N. Lemons, C. Palmer, D. Pálvölgyi), *Graphs and Combinatorics*, 29 (2013), 1355–1364.
23. On the ratio of maximum and minimum degree in maximal intersecting families (with Z.L. Nagy, L. Özkahya and M. Vizer), *Discrete Mathematics*, 313 (2013), 207–211.

24. On majority and plurality problems (with D. Gerbner, G.O.H. Katona, D. Pálvölgyi), *Discrete Applied Mathematics*, 161 (2013), 813-818.
25. Towards a de Bruijn-Erdos theorem in the L_1 -metric (with Ida Kantor), *Discrete and Computational Geometry*, 49 (2013), 659-670.
26. Families that remain k -Sperner even after omitting an element of their ground set, *Electronic Journal of Combinatorics*, 20 (2013), P32
27. Game saturation of intersecting families (with Máté Vizer), *Cent. Eur. J. Math.*, 2014, 12(9), 1382-1389

Conference Talks and Seminars

- *How different can two intersecting families be?*, Rutgers University, DIMACS-DIMATIA-Rényi Working Group on Extremal Combinatorics, 20 October 2004
- *The distance of \mathcal{F} -free families*, Charles University, Prague, DIMACS-DIMATIA-Rényi Working Group on Extremal Combinatorics, July 2005, and Oxford University, COMBSTRU Workshop, April 2005
- *Profile vectors in the lattice of subspaces*, Charles University, Prague, COMSTRU Workshop, March 2006
- *Néhány profilvektoros eredmény (Some results concerning profile vectors of set systems)*, Rényi Institute, Combinatorics Seminar, April 2006
- *Equitable coloring of random graphs*, EU FP6 Collaboration meeting Samos, Greece, June 2007 and Random Structures and Algorithms, Tel-Aviv University, May 2007
- *l -trace k -Sperner families*, Rényi Institute, Budapest, June 2007, University of Memphis, Combinatorics Seminar, September 2008 and SIAM-SEAS Conference, University of South Carolina April 2009
- *Hamlazrendszerek nyomai (Traces of Set Systems)* Eötvös University, Budapest, Combinatorics Seminar, November 2007
- *Minimális antilánccok (Minimal antichains)*, Technical University, Budapest, Combinatorics seminar, March 2008
- *Continuum percolation with steps in line segments*, University of Memphis, Combinatorics Seminar, February 2009
- *Intersection Theorems. Subsets vs Subspaces*, University of South Carolina, Combinatorics Seminar, April 2009

- *Shadows and Intersections in Vector Spaces*, Extremal Set Systems Seminar, Rényi Institute, Budapest, May 2009
- *Percolation Problems in Random Geometric Graphs*, Departmental Seminar, Central European University, Budapest, May 2009
- *On randomly generated non-trivially intersecting hypergraphs*, British Combinatorial Conference, St. Andrews, July 2009, Random Structures and Algorithms, Poznan, August 2009
- *Random angle orders*, University of Memphis, Combinatorics Seminar, December 2009 and Rényi Institute, Combinatorics Seminar, March 2010
- *Almost Sperner and almost intersecting families*, Extremal Set Systems seminar, Rényi Institute, Budapest, March 2010 and 8th French Combinatorial Conference, Paris, June 2010
- *Large B_d -free and union-free subfamilies*, Young Researchers' Mini-Conference, Rényi Institute, November 2010 and EuroComb'11, Budapest, August 2011
- *Saturating Sperner families*, 7th Hungarian-Japanese Symposium on Discrete Mathematics and Its Applications, June 2011
- *Two-part set systems*, Combinatorics Conference in Lisbon, July 2011
- *Random processes generating intersecting families of sets*, Conference in Honor of the 70th birthday of Gyula Katona, Budapest, September 2011
- *When you hear the instruction "TRACE, TRACE", take up the following position*, Extremal Set Systems seminar, Rényi Institute, Budapest, November 2011
- *Towards a de Bruijn - Erdős theorem in L^1* , Geometry seminar, Rényi Institute, November 2011
- *On traces of set systems*, Combinatorics seminar, Zhejiang Normal University, Jinhua, March 2012, and Combinatorics seminar, JiaoTong University, Shanghai, April 2012 and 4th Polish Combinatorial Conference, Bedlewo, September 2012
- *On majority and plurality problems*, Workshop on Discrete Mathematics and Graph Theory, Zhejiang University, Jinhua, April 2012 and EuroComb'13, Pisa, Italy September 2013
- *Search Problems in Vector Spaces*, Combinatorics seminar, Rényi Institute, April 2013 and 7th Czech-Slovak International Symposium on Graph Theory, Combinatorics, Algorithms and Applications, July 2013

- Two Combinatorial Search Problems (invited lecture), Workshop in Combinatorics, March 7-9 2014, Szeged, Hungary
- Supersaturation and stability for forbidden subposet problems, Extremal set systems seminar, Rényi Institute, May 2014