

Personal:

Name: József Balogh

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Education:

PhD in Mathematics, 1997–2001, THE UNIVERSITY OF MEMPHIS, Memphis, TN, USA

Advisor: Prof. **Béla Bollobás**, Dissertation: *Graph properties and Bootstrap percolation*

M.Ed. in Mathematics Education, 1997, SZEGED UNIVERSITY, Hungary

M.S. in Mathematics, (summa cum laude) 1995, SZEGED UNIVERSITY, Hungary

Advisor: Prof. **Péter Hajnal** Dissertation: *On the existence of MDS-cyclic codes*

EU Scholarship (Tempus Grant) 1993–94. UNIVERSITY OF GENT, Belgium

Positions:

- UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, IL, USA
Professor 2013– present
- TRINITY COLLEGE, CAMBRIDGE, UK,
Elected Visiting Commoner Fellow January– June 2017
- SZEGED UNIVERSITY, Szeged, Hungary,
Senior Researcher May 2013– August 2014
- UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, IL, USA
Associate Professor 2010– 2013
- UNIVERSITY OF CALIFORNIA AT SAN DIEGO, CA, USA,
Associate Professor 2009– 2011
- IPAM AT UCLA, USA,
Long term visitor Fall 2009
- UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN, IL, USA
Assistant Professor 2005– 2010
- THE OHIO STATE UNIVERSITY, Columbus, OH, USA
Zassenhaus Assistant Professor 2002– 2005
- INSTITUTE OF ADVANCED STUDIES, Princeton, USA,
Long term visitor April– July 2002
- AT&T RESEARCH LABS, SHANNON LABORATORY, Florham Park, NJ, USA,
Shannon Postdoctoral Fellowship August 2001– March 2002

Grants:

- **NSF RTG in Combinatorics**, PI (co-PIs Di Francesco, Kedem, Kostochka, Yong + Senior Personnel Ford) \$2.5M 08/2020–8/2025
- **Simons Fellowship** \$145.000 2020
- **NSF grant DMS-1764123**,
“Global and Local Properties of Discrete Structures,” \$425.000 2018–23
- **BRIDGE Seed Fund project: Building Bridges in Mathematics**,
between the U. of Birmingham and UIUC, \$5.000 2019-21
- **Arnold O. Beckman Research Award**, by UIUC Research Board \$29.990 2018–21
- **Center of Advanced Studies, Fellow UIUC**, Spring 2017
- **Arnold O. Beckman Research Award**, by UIUC Research Board \$29.990 2016–17
- **NSF grant DMS-1500121**, co-PIs Molla, Skokan,
“Sparse Discrete Structures,” \$300.000 2015–18
- **BRIDGE Seed Fund project: Building Bridges in Mathematics**,
between the U. of Birmingham and UIUC, \$3.300 2015
- **Travel Scholar fund (UIUC)**, for international travel, \$1050 (2016)
- **NSA and NSF grants (\$20.000) each**, supporting the Excill III conference at IIT, August 2016,
(joint with Jiang, Kaul, Mubayi, Yu and West)
- **NSA grant H98230-15-1-0002**: “Sparse Discrete Structures,” \$40.000 2015
- **Arnold O. Beckman Research Award**, by UIUC Research Board \$29.990 2014–15
- **Simons Fellow**, \$105.000 2013–14
- **Marie Curie Fellow**, FP7-PEOPLE-2012-IIF 327763, EURO 110.000 2013–14
- **Travel Scholar fund (UIUC)**, for international travel, \$850 (2014–15)
- **NSF CAREER**: “Methods and Outreach in Modern Combinatorics”, \$529.000 2008–15
- **NSF**: “Hereditary and Random Combinatorial Structures” (with Füredi) \$351.999 2006–09
- **NSF**: “Extremal Graph Theory and Bootstrap Percolation” \$77.000 2003–06
- **Travel Scholar fund (UIUC)**, for international travel, \$1.050 (2012–13)
- **Arnold O. Beckman Research Award**, by UIUC Research Board \$27.760 2013
- **Travel Scholar fund (UIUC)**, for international travel, \$1.050 (2012–13)
- **IMA grant (\$4.000) supporting the Excill II conference at UIUC**, March 2013, (joint with Kostochka, Lidicky and West)
- **IMA Grant to support Graduate Student Conference in Combinatorics at UIUC** (joint with West)
\$5.000 2012
- **Travel Scholar fund (UIUC)**, for international travel, \$1.050 (2011–12)
- **Campus Research Board Grant to support an RA**, UIUC,
each \approx \$8.500 (2006, 2007, 2008, 2009, 2011)
- **Campus Research Board Grant (09072, to support an RA)**, UIUC, \approx \$8.500 (01/2009-12/2010)
- **NSF grant (\$10.000) and IMA grant (\$4000) supporting the Excill conference at UIUC**, Nov
18-20, 2006 (joint with Füredi, Hartke, Kostochka and West)
- **Soros grant, for starting Hungarian Ph.D. students in USA** \$4.000 1997

Awards and Scholarships:

- **Simons Fellow** 2020
- ICM 2018 invited speaker 2018
- Arnold O. Beckman Research Award, by UIUC Research Board 2013, 2015, 2018
- **George Polya Prize** in Combinatorics awarded by SIAM 2016
- **Marie Curie Fellow**, FP7-PEOPLE-2012-IIF 327763 2013–14
- **Simons Fellow** 2013–14
- Mortons Dissertation Award, for outstanding dissertation at University of Memphis 2001
- Second Prize, Algebra Section at the Hungarian National Conference for undergraduates 1995
- Hungarian National Fellowship for outstanding undergraduates 1993, 1994, 1995
- Miklós Schweitzer Hungarian National Memorial Math. Contest, fourth prize 1994, 1995
- Kató Rényi Award (nationally awarded to promising undergraduates in mathematics) 1993
- **International Mathematical Olympiad** (Braunschweig, Beijing), silver medals 1989, 1990

Selected Publications:

- J. Balogh and W. Samotij, An efficient container lemma, *Discrete Analysis*, (2020) 55 pages.
- J. Balogh, H. Liu, M. Sharifzadeh, and A. Treglown: Sharp bound on the number of maximal sum-free subsets of integers. *J. European Math. Soc.*, (2018), 1885–1911.
- J. Balogh and J. Solymosi: On the number of points in general position in the plane. *Discrete Analysis*, (2018), Paper No. 16, 20 pp.
- J. Balogh and A. Zs. Wagner: Kleitman’s conjecture about families of given size minimizing the number of k -chains. *Advances in Mathematics*, (2018), 229–252.
- J. Balogh, R. Morris, and W. Samotij, The method of hypergraph containers. Proceedings of the International Congress of Mathematicians—Rio de Janeiro 2018. Vol. IV. Invited lectures, 3059–3092, World Sci. Publ., Hackensack, NJ, 2018.
- P. Balister, J. Balogh, E. Bertuzzo, B. Bollobás, G. Caldarelli, A. Maritan, R. Mastrandrea, R. Morris, A Rinaldo River landscapes and Optimal Channel Networks, *Proceeding of the National Academy of Sciences U.S.A.*, 115 6548–6553 (2018).
- J. Balogh, H. Liu, and M. Sharifzadeh: The number of subsets of integers with no k -term arithmetic progression. *Int. Math. Research Notices*, (2017), 6168–6186.
- J. Balogh, R. Morris, W. Samotij, and L. Warnke: The typical structure of sparse K_{r+1} -free graphs. *Transactions of AMS*, (2016), 6439–6485.
- J. Balogh, R. Morris, and W. Samotij: Independent sets in hypergraphs. *J. of American Math. Soc.*, (2015), 669–709.
- J. Balogh, H. Liu, S. Petrickova, and M. Sharifzadeh: The typical structure of maximal triangle-free graphs. *Forum of Mathematics, Sigma*, (2015), 19 pages.
- J. Balogh, B. Bollobás, H. Duminil-Copin, and R. Morris: The sharp threshold for bootstrap percolation in all dimensions. *Trans. Amer. Math. Soc.*, (2012), 2667–2701.
- J. Balogh and W. Samotij: The number of $K_{s,t}$ -free graphs. *J. of the London Math. Soc.*, (2011), 368–388.

Ph.D. students supervised:

- Emily Heath, postdoc at Iowa St. 2021
- Jifan Ying, postdoc at Oxford U., UK 2021
- Lina Li, postdoc at Waterloo 2020
- Adam Zsolt Wagner, postdoc at ETH, Tel Aviv U. 2018
- Michelle Delcourt: tenure-track at Ryerson 2017
- Šárka Petříčková, lecturer at UIUC 2017
- Mayam Sharifzadeh: postdoc at Warwick, Marie Curie Fellow, tenure track at Umea, Sweden 2016
- Hong Liu: tenure-track at Warwick, 2015
- Ping Hu: postdoc at Warwick, tenure track in China 2014
- Jane Butterfield: MathCEP postdoc at U. Minnesota, tenured in mathematics education at Victoria U. CA 2012
- John Lenz: (was) postdoc at UIC 2011
- Wojtek Samotij: fellow at Cambridge, UK and Tel Aviv, tenured at Tel Aviv U.
EUROCOMB 2013 prize, Dénes König 14, George Pólya Prize in Combinatorics awarded by
SIAM 2016 prize winners 2010
- Noah Prince: (was at) Illinois Math. & Science Academy, Aurora; at Art of Problem Solving,
Inc. 2008
- William Linz started 2016
- Felix Clemen started 2017
- Souktik Roy started 2018
- Ramon Garcia started 2019
- Igor Araujo started 2019
- Robert Krueger started 2019
- Haoran Luo started 2020

Postdocs mentored:

- Leticia Mattos (mentoring) 2022–24
- Sean English (co-mentoring) 2019–22
- Misha Lavrov (co-mentored) tenure-track at Kennesaw College 2017–20
- Theo Molla (co-mentored) tenure-track at U. South Florida 2013–17
- Bernard Lidicky (co-mentored), tenured at Iowa State U. 2011–14
- Cory Palmer, tenured at Montana U. 2011–13
- Sujith Vijay (co-mentored,) tenured in India 2007–09

Selected Invited Conference Talks:

- British Conference in Combinatorics, Plenary Speaker 2022
- AIMS Square, Hypergraph Container, workshop 2021
- Moscow Conference on Combinatorics and Applications, Plenary Speaker 2021
- Invited to Yale REU to give two hours lecture, 2021

- Combinatorial and Additive Number Theory, (CANT 2021), New York, 2021
- Rényi Institute, Combinatorics seminar 2021
- AIMS Square, Crossing Numbers, workshop 2021
- Rényi Institute, Year Closing Ceremony, Invited (unique) Speaker, Budapest 2021
- Simons Institute, Simons Collaboration on Algorithms and Geometry meeting, 2 hours lecture to selected audience [Noga Alon, Avi Wigderson, etc] 2020
- Moscow Conference on Combinatorics and Applications, 2020
- Big Seminar of Laboratory, Moscow 2020
- Extremal and Probabilistic Combinatorics Webinar. Prague-Warwick U. 2020
- Yale, Seminar. (combinatorics seminar, cancelled) 2020
- Oberwolfach, Combinatorics, invited participant 2020
- Banff, probabilistic combinatorics 2019
- Invited (plenary) speaker: Erdős Lecture Series, Memphis, TN, 2004, 2011, 2014, 2019
- Keynote speaker at Graduate Student Conference in Combinatorics 2019
- Invited **ICM** speaker 2018
- Invited participant at Oberwolfach Research Center: 2006, 2007, 2009, 2012, 2013, 2014, 2016, 2017, 2018, 2019, 2020, 2022.
- Invited participant at Banff International Research Station: 2009, 2011, 2012, 2015, 2016, 2019
- Invited plenary Speaker: M.M.M.M., Iowa State University 2018
- Plenary Speaker at International Workshop on Graph Theory Ewha Womans U., Seoul, 2016, 2018
- Keynote Speaker at Workshop on graphs, networks, and their applications, Moscow, 2018
- Invited Speaker: NSFOCS, Novi Sad, Serbia 2017
- Invited participant at Probabilistic and Extremal Combinatorics, Center of Math. Sciences, Harvard University, Cambridge, MA 2018
- Invited Speaker at ‘Probabilistic and Extremal Combinatorics’, ETH 2016
- Invited plenary Speaker: Random Structures and Algorithms, CMU 2015
- Invited participant at AIMS: 2011, 2014, 2015
- Principal speaker: 25th, 28th Cumberland Conference on Combinatorics, 2012, 2015
- Invited plenary Speaker: NSFOCS, Novi Sad, Serbia 2015
- Invited two hour key-note speaker: Atlanta Lecture Series in Combinatorics and Graph Theory XIV, 2015
- FoCM, Montevideo Uruguay 2014
- Invited Speaker: IMA 2014
- Invited Speaker: Edinburgh Summer School in Combinatorics 2014
- Invited plenary Speaker: London Colloquium in Combinatorics 2014
- Invited Speaker: Moscow Number Theory Workshop 2014
- Invited speaker, Cambridge, BelaBash 70 2013
- Invited speaker: Erdős Centennial Meeting, Budapest, Hungary, 2013
- Stochastic Days, Szeged 2013

- Finite Geometry Conference and Workshop, Szeged 2013
- Invited Plenary Speaker: LAGOS'13, Mexico, April 2013
- Invited hour speaker: Atlanta Lecture Series in Combinatorics and Graph Theory VIII, 2013
- Invited plenary speaker: European Conference on Combinatorics (EUROCOMB), 2011
- Invited plenary speaker: "Emlektábla III." workshop, Rényi Institute, Budapest, Hungary, 2011
- Invited speaker: P. Hajnal birthday conference, Szeged, Hungary, 2011
- AMS Sectional Meetings: 1999, 2000, 2003, 2004, 2005, 2005, 2005, 2007, 2010, 2010, 2011, 2015, 2015, 2018.
- IMPA Summer School, Lecture Series, Brasil, January 2011.

Colloquia:

2019: Miami OH

2016: Rutgers

2015 Freie U. Berlin

2013: The Ohio State University

2012: Waterloo

2009: The Ohio State University, UCSD

2008: Western Kentucky University

2005: The Ohio State University, University of Western Australia, UIUC, Iowa State University, UIC, University of Central Florida

2004: UC Riverside, Wright State University

2001: Microsoft Research, Theory Group, Seattle, WA

Seminars:

2021: UIUC, SCMS Combinatorics seminar in China, Iowa State University, Rényi Institute (Budapest)

2020: UIUC

2019: UIUC

2018: Moscow State University, UIUC, Szeged, Hungary

2017: UIUC, Szeged, Hungary, ETH, Cambridge University, UK

2015: UIUC, Szeged, Hungary, Freie U. Berlin

2014: UIUC, Szeged, Hungary, Sao Paulo, Rényi Institute, Budapest, London School of Economy, U. of Birmingham, University of Memphis

2013: Emory, Technical University, Budapest

2012: UIUC, UIC, Szeged, Hungary, Columbia University, Rutgers, CUNY, New York City

2011: UIUC, UIUC, Szeged, Hungary, ETH

2010: UIUC, UIC, Szeged, Hungary, UCSD, UCLA

2009: UIUC, UIUC, Szeged, Hungary, University of Memphis, Ponomo College, CA

2008: UIUC, UIC, Szeged, Hungary, Microsoft Research Theory Group, Seattle, WA

2007: U. San Luis Potosi, Mexico, CMU, Cambridge University, UK, IMPA, Brasil, Princeton,

2006: UIUC, UIUC, UIUC, Szeged, Hungary, California Institute of Technology, MIT, Indiana University

2005: UIUC, Iowa State University, The Ohio State University

2004: UIUC, UIC, ETH, University of Memphis, University of Memphis, CMU, The Ohio State University, The Ohio State University, The Ohio State University

2003: Szeged, Hungary, University of Memphis, IAS, Princeton, NJ

2002: The Ohio State University, The Ohio State University, IAS, Princeton, NJ, IBM Watson Center, NY, Georgia Tech, CUNY, New York City

2001: University of Memphis, Microsoft Research Theory Group, Seattle, WA, DIMACS, NJ, AT&T Research, NJ

1998: Szeged, Hungary,

1997: University of Memphis

Teaching:

- UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN: 2005–present
Discrete Mathematics (M213),
Graph Theory (M412), Discrete Mathematics (M413)
Combinatorics (M580), Methods in Combinatorics (M584), Probabilistic methods in combinatorics, (M585), Combinatorial Optimization (M588),
Topics class (M595), Regularity Lemma (M595), Art of Combinatorics (M595), Additive Combinatorics (M595), Container Method (M595).
- UNIVERSITY OF CALIFORNIA AT SAN DIEGO: 2009–2010
Topics class 262B, Extremal combinatorics, Calculus 10B, Mathematical Reasoning 109.
- THE OHIO STATE UNIVERSITY, Columbus, OH: 2002–2005
Discrete Math. I-II (7, 3 quarters), Probability (1), Trigonometry (1), Analysis (graduate) (1).

Professional activities:

- Arxiv Moderator in Combinatorics
- Co-organizer for several conferences: EXCILL I, II, III at UIUC, Graduate Student Conference at UIUC, Several Special Sessions at AMS Sectional meetings. AIMS workshops.
- editor at SIDMA, Illinois J. Math.
- Reader for the USA National "Siemens" high school competition, 2010, 2011, 2012.
- Reviewer for several grant agencies in various countries, including NSF and NSA in USA, Holland, Italian, Portugal, Israelian, Hungarian, Swiss NSF, ERC, Czech republic,...
- Referee for journals, including: Advances in Math., Combinatorica, Combinatorics Probability and Computing, Journal of Combinatorial Theory A, and B, J. London Math. Soc., Random Structures & Algorithms,

Memberships

- American Mathematical Society
- János Bolyai Mathematical Society, Hungary