

# Curriculum Vitae of Mihyun Kang

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## Contact information

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## Research fields

Combinatorics, Discrete Probability, Algorithms:  
in particular random graphs, random discrete structures, probabilistic combinatorics, analytic combinatorics, enumerative combinatorics, analysis of algorithms

## Academic positions and qualification

Jan. 2012– Full Professor, Graz University of Technology (TU Graz)  
Apr.–Sep. 2011 W2-Vertretungsprofessur, University of Munich  
2008–2011 DFG Heisenberg Fellow,  
Free University Berlin (Host: Günter Ziegler); New York University (Host: Joel Spencer); University of Oxford (Host: Colin McDiarmid)  
2001–2008 Postdoctoral Research Fellow, HU Berlin (Research Group of Hans Jürgen Prömel)  
Jul. 2007 Habilitation in Computer Science, Humboldt University of Berlin (HU Berlin)  
Aug. 2001 Ph.D. in Mathematics, Korea Advanced Institute of Science and Technology (KAIST)

## Honours and awards

Apr. 2016 Member of the International Mathematical Union (IMU) Circle  
Oct. 2015 Special Contribution Award, Korean Mathematical Society  
2011 Offer of Associate Professor, University of Munich (not realised)  
2011 Offer of Full Professor, University of Klagenfurt (not realised)  
2008–2011 DFG Heisenberg Fellowship  
2001–2003 Postdoctoral Fellowship of European Graduate Program CGC  
1996–2001 State Scholarship at KAIST  
1994, 1995 Awards at National Undergraduate Mathematics Competition, Korean Math. Society  
1992–1995 Scholarship of Korea Research Foundation

## Editorial responsibilities

2018– Series Editor of *Mathematik Kompakt*  
2018 Guest Editor of *European Journal on Combinatorics*  
2013– Editor of *Online Journal of Analytic Combinatorics*  
2012– Chief Editor of *Discrete Mathematics & Theoretical Computer Science*  
2011–2016 Associate Editor of *SIAM Journal on Discrete Mathematics*

# Curriculum Vitae of Mihyun Kang

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## Selected research grants

- 2018–2021 Austrian-German DACH-Project “Random graphs: cores, colourings and contagion”
- 2016–2019 Austrian-Taiwanese Joint Project “Random recursive structures of small diameters”
- 2016–2017 Austrian Agency for International Cooperation in Education and Research (OeAD) with Slovenia, “Random graphs defined geometrically”
- 2015–2019 FWF Doctoral Program “Discrete Mathematics”  
Project 15. Random graphs on a surface
- 2015–2019 FWF Research Grant “Asymptotic properties of graphs on a surface”
- 2014–2017 FWF Research Grant “Phase transitions and critical phenomena in random graphs”
- 2013 ESF RGLIS Fall school “Phase transition in random discrete structures”
- 2011–2014 DFG Research Grant “Phase transitions in random graphs”

## Selected invited research stays

- Oct. 2017 Erwin Schrödinger International Institute for Mathematics and Physics  
(ESI Thematic Program on Algorithmic and Enumerative Combinatoric)
- Jul. 2015 National Institute for Mathematical Science  
(NIMS Thematic Program on Combinatorics)
- Sep. 2014 University of Minnesota, Institute for Mathematics and its Applications  
(IMA Thematic Year on Discrete Structures)
- Feb. 2009 Mittag-Leffler Institute  
(Research Program on Discrete Probability)
- Mar. 2007 Centre de Recerca Matemàtica  
(CRM Research Program on Enumerative Combinatorics and Random Structures)

## Selected academic service outside of TU Graz

- 2014– Member of Executive Committee of the Discrete Mathematics Group of the German Mathematical Society (& 2016–2018: Speaker)
- 2011–2014 Organising Committee of International Congress of Mathematicians (Seoul ICM 2014)
- 2009– Scientific or Program Committee of ANALCO 2019, Eurocomb 2017, ANALCO 2017, AofA 2016, AofA 2014, ALÉA in Europe 2013, ISAAC 2010, SODA 2009

## Selected academic service at TU Graz

- 2018– Head of Institute of Discrete Mathematics
- 2016– Deputy Head of Fields of Expertise “Information, Communication & Computing”
- 2016– NAWI-Graz Working Group “Fundamental and Applied Mathematics”
- 2013– Member of the Senate of TU Graz

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## Selected invited presentations

- Keynote lecture “Vanishing of cohomology groups of random simplicial complexes”, 29th int'l Conference on Probabilistic, Combinatorial, and Asymptotic Methods for the Analysis of Algorithms, Uppsala, Sweden, 25-29 June 2018
- Introductory lecture “Enumeration of graphs on surfaces”, Workshop on Enumerative Combinatorics, Erwin Schrödinger Institute (ESI), Vienna, Austria, 16-20 October 2017
- Invited talk “Bootstrap percolation on random graphs”, Workshop on Random Instances and Phase Transitions, Simons Institute, University of California, Berkeley, USA, 2-6 May 2016
- Keynote lecture “Asymptotic properties of graphs on orientable surfaces”, 27th Int'l Conference on Formal Power Series and Algebraic Combinatorics (FPSAC), KAIST, Korea, 6-10 July 2015
- Invited talk “Phase transitions in random hypergraphs”, IMA Workshop Probabilistic and Extremal Combinatorics, University of Minnesota, USA, 8–12 September 2014

## Selected publications

- O. Cooley, M. Kang and C. Koch, The size of the giant high-order component in random hypergraphs, *Random Structures and Algorithms* (2018), 1-51, doi:10.1002/rsa.20761
- W. Fang, M. Kang, M. Moßhammer and P. Sprüssel, Cubic graphs and related triangulations on orientable surfaces, *Electronic Journal of Combinatorics* 25 (2018), #P1.30, 1-52
- B. Bollobás, O. Cooley, M. Kang and C. Koch, Jigsaw percolation on random hypergraphs, *Journal of Applied Probability* 54 (2017), 1261-1277
- M. Behrisch, A. Coja-Oghlan and M. Kang, The asymptotic number of connected  $d$ -uniform hypergraphs, *Combinatorics, Probability and Computing* 23 (2014), 367–385
- M. Behrisch, A. Coja-Oghlan and M. Kang, Local limit theorems for the giant component of random hypergraphs, *Combinatorics, Probability and Computing* 23 (2014), 331–366
- M. Kang and K. Panagiotou, On the connectivity of random graphs from addable classes, *Journal of Combinatorial Theory, Series B* 103 (2013), 306-312
- M. Kang, W. Perkins and J. Spencer, The Bohman-Frieze process near criticality, *Random Structures & Algorithms* 43 (2013), 221–250
- M. Kang and T. Łuczak, The two critical phase of a random planar graph, *Transactions of the American Mathematical Society* 364 (2012), 4239–4265
- M. Kang and C. McDiarmid, Random unlabelled graphs containing few disjoint cycles, *Random Structures & Algorithms* 38 (2011), 174–204
- M. Bodirsky, É. Fusy, M. Kang and S. Vigerske, Boltzmann samplers, Pólya theory and cycle pointing, *SIAM Journal on Computing* 40 (2011), 721–769
- M. Kang and M. Loeb, The enumeration of planar graphs via Wick’s theorem, *Advances in Mathematics* 221 (2009), 1703–1724
- M. Kang, G. Chapuy, É. Fusy and B. Shoilekova, A complete grammar for decomposing a family of graphs into 3-connected components, *Electronic Journal of Combinatorics* 15 (2008), #R 148
- M. Bodirsky, C. Gröpl and M. Kang, Generating labeled planar graphs uniformly at random, *Theoretical Computer Science* 379 (2007), 377–386