

# Curriculum Vitae

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## Personal Information

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**Name and surname** Daniel Král'  
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**E-mail** dkral@fi.muni.cz

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## Academic qualifications, summary of main achievements

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Doctor of Science (DSc), Academy of Sciences of the Czech Republic, October 2012  
Doctorate Degree (PhD) in Computer Science, Charles University, Prague, August 2004  
Master Degree (Mgr) in Computer Science, Charles University, Prague, September 2001

Fellow of the American Mathematical Society 2020

Philip Leverhulme Prize in Mathematics and Statistics 2014

The European Prize in Combinatorics 2011

ERC Consolidator grant LADIST 2015–2020

ERC Starting grant CCOSA 2010–2015

130 papers in journals and over 20 at peer-reviewed computer science conferences

Journal papers include those in Adv. Math., Canad. J. Math., Combinatorica, Comput. Complexity, GAFA, Israel J. Math., J. ACM, J. EMS, J. Combin. Theory Ser. A and B, SIAM J. Discrete Math., Trans. AMS  
Conference papers include those at FOCS, ICALP, SODA and STACS

Over 850 non-self-citations (WoS), H-index: 16 (WoS), 16 (MathSciNet), 30 (Google Scholar)

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## Employment

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Oct 2018-now	Donald Ervin Knuth Professor, Faculty of Informatics, Masaryk University, Brno
Sep 2018	Professor, Faculty of Informatics, Masaryk University, Brno
Oct 2012-now	Professor, University of Warwick (since Sep 2018 part-time) Mathematics Institute and Department of Computer Science Member of the DIMAP Centre
Jul 2010-Sep 2012	Associate professor, Charles University, Prague
Feb 2011-Dec 2012	Adjunct researcher, University of West Bohemia, Pilsen
Aug 2006-Jun 2010	Researcher, Charles University, Prague
Oct 2005-Jul 2006	Visiting assistant professor, Georgia Institute of Technology
Aug 2005-Sep 2005	Researcher, Charles University, Prague
Oct 2004-Jul 2005	Postdoctoral fellow, Technical University Berlin
Sept 2001-Aug 2004	PhD student, Charles University, Prague

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## Research interests

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Structural, extremal and algorithmic graph theory

Analytic methods in combinatorics, in particular, combinatorial limits

Logic methods in graph and matroid theory and their algorithmic applications

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## Professional service and commissions of trust

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**Editor-in-Chief:** SIAM J. Discrete Math. (since 2017, associate editor since 2012)

**Managing editor:** Advances in Combinatorics (since 2018)

**Associate editor:** Discrete Math. (since 2010) and Discrete Optim. (2010–2016)

**Editorial board member:** J. Graph Theory (since 2008) and European J. Combin. (since 2009)

Member of the **steering committee of SODA** (since 2016)

**Program committee (co-)chair:** CanaDAM'19, MFCS'20

**Program committee member:** WG'06, MFCS'10, SODA'12, SOFSEM'12, IPEC'12, ICALP'13, EuroComb'13, SOFSEM'14, WG'14, SODA'15, EuroComb'15, FCT'15, MEMICS'15, CanaDAM'17, STACS'18, DMD'18, EuroComb'19, DMD'20

**Organizing committee member:** SIAM DM'12, BCC'15, SIAM DM'16

**Organization of workshops:** CCOSA Fall School 2011, CCOSA Winter School 2013, ICMS workshop on Extremal Combinatorics 2014, LMS-CMI Research school on Regularity and Analytic Methods in Combinatorics 2015, Oberwolfach workshop on Graph Theory 2016, Workshop on Algorithms, Logic and Structure 2016, 10 Year Anniversary DIMAP Workshop 2017, Workshop in Honour of Mike Paterson's 75th Birthday 2017, Workshop on Structural Sparsity, Logic and Algorithms 2018, Oberwolfach workshop on Graph Theory 2019, Dagstuhl workshop Sparsity in Algorithms, Combinatorics and Logic 2020, Czech-Slovak Graph Theory 2020  
Computer Science Panel of the Czech Grant Agency (2011–15, vice-chair 2012, 2019-now)

Member of the 2016 Dénes König Prize selection committee

Promotion or appointment external reviewer for universities in Canada, Czech Republic, Germany, India, South Korea, UK and US

**External PhD reviewer:** UPC Barcelona, Bergen, TU Berlin, Montpellier, Nice, Oxford, Paris Diderot, QMUL, Rostock, Uppsala, University of West Bohemia

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## Supervision of graduate students and postdoctoral researchers

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**Postdocs:** Jean-Sébastien Sereni (2006–08), Louis Esperet (2008–09), Demetres Christofides (2010–11), Ján Mazák (2011–12), Andrew Treglown (2011–12), Roman Glebov (2013), Anita Liebenau (2013–15), Ping Hu (2014–2017), Tamás Hubai (2015–2017), Péter Pál Pach (2017–18), Jonathan Noel (2017–18), Andrzej Grzesik (2017–now), Robert Hancock (2019–now), Adam Kabela (2019–now), Fiona Skerman (2019), Jan Volec (2019), Théo Pierron (2019–now)

**Former PhD students:** Pavel Nejedlý (Charles University, 2008), Jan Hladký (Charles University, 2013), Jan Volec (Warwick and Université Paris Diderot, 2014, co-advised with Jean-Sébastien Sereni, *2015 Faculty of Science Doctoral Thesis Award in Mathematics*), Lukáš Mach (Warwick, 2015), Tereza Klimošová (Warwick, 2015), Taísa Lopes Martins (Warwick, 2018)

**Current PhD students:** Timothy Chan, Jacob W. Cooper, Yanitsa Pehova

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## Invited long term stays

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2016	Visiting professor, ENS Paris, France, 1 month
2014	Research program, Institut Mittag-Leffler, Stockholm, Sweden, 3 months
2011	Research program, Fields Institute, Toronto, Canada, 1 month
2011	Visiting professor, University of Pavol Jozef Šafárik, Košice, Slovakia, 2 months
2011	Visiting professor, LIAFA, Paris, France, 3 months

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**Invited plenary talks at major international conferences**

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- 2019 27th British Combinatorial Conference (BCC), Birmingham, UK
- 2019 9th Slovenian International Conference on Graph Theory, Bled, Slovenia
- 2018 10th International Colloquium on Graph theory and combinatorics (ICGT), Lyon, France
- 2018 SIAM Conference on Discrete Mathematics, Denver, US
- 2017 18th International Conference on Random Structures and Algorithms (RSA), Gniezno, Poland
- 2017 Structure in Graphs and Matroids (SIGMA), Waterloo, Canada
- 2016 Bordeaux Graph Workshop (BGW), Bordeaux, France
- 2016 Discrete Mathematics Days, Barcelona, Spain
- 2012 Graph Theory at Georgia Tech (GTAGT), Atlanta, US
- 2011 Kolloquium über Kombinatorik (Kolkom), Magdeburg, Germany
- 2011 Joint Mathematical Conference CSASC, Krems, Austria
- 2011 6th European Conference on Combinatorics, Graph Theory and Applications (Eurocomb), Budapest, Hungary
- 2009 35th Workshop on Graph-Theoretic Concepts in Computer Science (WG), Montpellier, France

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**Other invited talks (selected)**

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- 2019 31st Cumberland Conference on Combinatorics, Graph Theory and Computing, Orlando, US
- 2018 CMI Workshop Recent Advances in Extremal Combinatorics, Oxford, UK
- 2018 One-Day Meeting in Combinatorics, Oxford, United Kingdom
- 2018 Graphs@IMPA Workshop Graphs and Randomness, Rio de Janeiro, Brazil
- 2017 Shanks Workshop: 29th Cumberland Conference on Combinatorics, Graph Theory and Computing, Nashville, US
- 2017 Algebraic, Topological and Complexity Aspects of Graph Covers (ATCAG), Durham, UK
- 2016 Newton Institute Satellite Workshop: Future Directions in Network Mathematics, London, United Kingdom
- 2015 International Workshop on Graph Decompositions, Marseille, France
- 2014 International Workshop on Structure in Graphs and Matroids, Princeton, US
- 2014 ICM Satellite Conference on Extremal and Structural Graph Theory, Gyeongju, Republic of Korea
- 2014 CMI Workshop Extremal and Probabilistic Combinatorics, Oxford, UK
- 2013 Bertinoro Workshop on Algorithms and Graphs, Bertinoro, Italy
- 2013 22nd Workshop '3in1', Kroczyce, Poland
- 2013 Utrecht Graphs Workshop, Utrecht, Netherlands
- 2012 Two One-Day Colloquia in Combinatorics, Queen Mary, London, UK
- 2011 Workshop on Graph Homomorphisms, Fields Institute, Toronto, Canada
- 2009 18th workshop Cycles and Colourings, Tatranská Štrba, Slovakia
- 2008 43th International Czech and Slovak Conference Graphs, Zadov, Czech Republic

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**Tutorial series**

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- 2019 9th PhD Summer School in Discrete Mathematics, Rogla, Slovenia
- 2018 Open lectures for PhD students in computer science, Warsaw, Poland
- 2018 International Research School on Graph Limits, Lyon, France
- 2016 São Paulo School of Advanced Science on Algorithms, Combinatorics and Optimization, São Paulo, Brazil
- 2014 5th Polish Combinatorial Conference, Bedlewo, Poland
- 2014 IX Escuela de Verano en Matemáticas Discretas, Valparaíso, Chile
- 2013 LMS-EPSRC Durham Symposium “Graph Theory and Interactions”, Durham, UK
- 2013 Recent advances in the theory of directed graphs, Oléron, France
- 2011 CCOSA Fall School, Beroun, Czech Republic

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**Colloquium talks**

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- 2019 Faculty of Mathematics and Computer Science, Jagiellonian University, Kraków, Poland
- 2019 Pure Maths Colloquium, University of Southampton, United Kingdom
- 2018 Computer Science Colloquium, Masaryk University Brno, Czech Republic
- 2018 Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University, Prague, Czech Republic
- 2018 Department of Mathematics, Uppsala University, Sweden
- 2016 Computer Science Colloquium, Masaryk University Brno, Czech Republic
- 2015 Mathematics Colloquium, University of Birmingham, United Kingdom
- 2015 School of Mathematics and ACO, Georgia Institute of Technology, Atlanta, US
- 2015 Department of Mathematics, Iowa State University, Ames, US
- 2014 Prague Computer Science Seminar, Czech Technical Univ., Prague, Czech Rep.
- 2013 Warwick Mathematics Institute, University of Warwick, United Kingdom
- 2012 Department of Mathematical Sciences Colloquium, KAIST, Daejeon, Korea
- 2012 Mathematics Colloquium, University of Illinois at Urbana-Champaign, US
- 2011 Mathematisches Kolloquium, Universität Rostock, Germany
- 2010 Mathematics Colloquium, University of Ljubljana, Slovenia
- 2009 Computer Science Colloquium, Masaryk University Brno, Czech Republic
- 2006 Colloquium of Computer and Information Science Department, University of Oregon, US

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## Journal publications (selected)

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- V. Cohen-Addad, M. Hebdige, D. Král', Z. Li, E. Salgado: *Steinberg's Conjecture is false*, Journal of Combinatorial Theory Ser. B **122** (2017), 452–456.
- J. W. Cooper, T. Kaiser, D. Král', J. Noel: *Weak regularity and finitely forcible graph limits*, Transactions of the AMS **370** (2018), 3833–3864.
- J. W. Cooper, D. Král', T. Martins: *Finitely forcible graph limits are universal*, Advances in Mathematics **340** (2018), 819–854.
- Z. Dvořák, D. Král', R. Thomas: *Deciding first-order properties for sparse graphs*, Journal of ACM **60** (2013), article no. 36.
- L. Esperet, F. Kardoš, A. King, D. Král', S. Norine: *Exponentially many perfect matchings in cubic graphs*, Advances in Mathematics **227** (2011), 1646–1664.
- R. Glebov, A. Grzesik, T. Klímošová, D. Král': *Finitely forcible graphons and permutons*, Journal of Combinatorial Theory Ser. B **110** (2015), 112–135.
- R. Glebov, D. Král', T. Klímošová: *Infinite dimensional finitely forcible graphon*, to appear in Proceedings of the LMS.
- R. Glebov, D. Král', J. Volec: *A problem of Erdős and Sós on 3-graphs*, Israel Journal of Mathematics **211** (2016), 349–366.
- R. Glebov, D. Král', J. Volec: *Compactness and finite forcibility of graphons*, Journal of the EMS **21** (2019), 3199–3223.
- H. Hatami, J. Hladký, D. Král', S. Norine, A. Razborov: *On the number of pentagons in triangle-free graphs*, Journal of Combinatorial Theory Series A **120** (2013), 722–732.
- J. Hladký, D. Král', S. Norine: *Counting flags in triangle-free digraphs*, Combinatorica **37** (2017), 49–76.
- D. Král', E. Máčajová, A. Pór, J.-S. Sereni: *Characterization results for Steiner triple systems and their application to edge-colorings of cubic graphs*, Canadian Journal of Mathematics **62** (2010), 355–381.
- D. Král', L. Mach, J.-S. Sereni: *A new lower bound based on Gromov's method of selecting heavily covered points*, Discrete and Computational Geometry **48** (2012), 487–498.
- D. Král', O. Pikhurko: *Quasirandom permutations are characterized by 4-point densities*, Geometric and Functional Analysis **23** (2013), 570–579.
- D. Král', O. Serra, L. Vena: *A combinatorial proof of the Removal Lemma for groups*, Journal of Combinatorial Theory Ser. A **116** (2009), 971–978.
- D. Král', O. Serra, L. Vena: *A Removal Lemma for systems of linear equations over finite fields*, Israel Journal of Mathematics **187** (2012), 193–207.
- D. Král', R. Škrekovski: *A Theorem about the channel assignment problem*, SIAM Journal on Discrete Mathematics **16** (2003), 426–437.
- D. Král', H.-J. Voss: *Edge-disjoint odd cycles in planar graphs*, Journal of Combinatorial Theory Ser. B **90** (2004), 107–120.