Contact Information

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Current Position

05/2017 – present:	Researcher, Institute of Mathematics of the Czech Academy of Sciences

Previous Employments

01/2014 – 04/2017:	Postdoctoral Fellow, Institute of Mathematics of the Czech Academy of Sciences
10/2016 – 03/2017:	Postdoctoral Fellow, The University of Warsaw, Faculty of Mathematics, Informatics and Mechanics
09/2013 – 12/2014:	Assistant Professor, University of Economics, Prague, Faculty of Informatics and Statistics

Fellowships

2014 – 2015:	Support Programme for the Perspective Human Resources, founded by the Czech Academy of Sciences

Education and Degrees

Ph.D. (2013):	Charles University in Prague, Faculty of Mathematics and Physics, PhD thesis *Applications of descriptive set theory in mathematical analysis*, supervisor Miroslav Zelený
Mgr. (2009):	Charles University in Prague, Faculty of Mathematics and Physics, Diploma thesis *Infinite games and their applications*, supervisor Miroslav Zelený
Bc. (2007):	Charles University in Prague, Faculty of Mathematics and Physics, Bachelor's thesis *Křivky Peanova typu* (in Czech), supervisor Jaroslav Lukeš

Research Visits

08/2016 – 09/2016:	The University of Auckland, New Zealand

Research Projects

2020 – 2022:	*Banach spaces of continuous and Lipschitz functions*, Grant number 20-22230L by the Austrian Science Foundation and the Czech Science Foudation, role: team member
2018 – 2021:	*Graph limits and inhomogeneous random graphs*, Grant number 18-01472Y by the Czech Science Foundation, role: team member
2017 – 2019:	*Generic objects*, Grant number 17-27844S by the Czech Science Foundation, role: team member
2016 – 2018:	*Nonlinear analysis in Banach spaces*, Grant number GA16-07378S by the Czech Science Foundation, role: team member

| 2012 – 2016: | *Asymptotics of Operator Semigroups*, Marie Curie Action 'International Research Staff Exchange Scheme' awarded by the European Commission |
| 2010 – 2012: | *Applications of descriptive set theory in mathematical analysis*, Grant number 149410 by the Charles University Grant Agency, role: leader |

Awards

2017:	Otto Wichterle Award for young researchers, awarded by the Czech Academy of Sciences
2009:	First place in the competition SVOČ (competition of students from Czech and Slovak universities in scientific activity in mathematics)
2008 – 2009:	Award of the Dean of the Faculty of Mathematics and Physics for the best diploma thesis

Teaching

2016 – 2017:	University of Warsaw, Faculty of Economic Sciences, problem solving sessions in a basic course in linear algebra
2013 – 2014:	University of Economics, Prague, Faculty of Informatics and Statistics, problem solving sessions in a basic course in calculus and linear algebra
2008 – 2013:	Charles University in Prague, Faculty of Mathematics and Physics, problem solving sessions in basic courses in calculus

Publication Activity

| WoS: | 17 publications, 36 citations, H-index 3 |
| Scopus: | 18 publications, 41 citations, H-index 3 |

Research Profile

Graph limits, descriptive set theory, real and functional analysis, topology, sigma-ideals of small sets

Other Professional Activities

• Vice-head of the Abstract Analysis Department, Institute of Mathematics of the Czech Academy of Sciences
• Secretary of the Supervisory Board, Institute of Mathematics of the Czech Academy of Sciences
• Organizing: Seminar Set Theory and Analysis, Institute of Mathematics of the Czech Academy of Sciences
• Member of the HRS4R Advisory Committee, Institute of Mathematics CAS goes for HR Award
• Expert reviews for Ministry of Education, Youth and Sports, programm Mobility
• Preparing review reports for journals: Combinatorics, Probability and Computing; Topology and its Applications; Combinatorica; Journal of Mathematical Analysis and Applications; Real Analysis Exchange; Hacettepe Journal of Mathematics and Statistics
• Preparing reviews for MathSciNet

Conference Talks

- 44th Summer Symposium in Real Analysis, Paris & Orsay, France, 06/2022
- Inspirations in Real Analysis, Bedlewo, Poland, 04/2022
- Winter School in Abstract Analysis, Svratka, Czech Republic, 01/2022
- Winter School in Abstract Analysis, Svratka, Czech Republic, 01/2020
- The Alamo Symposium, San Antonio, Texas, USA, 06/2019
- Současné trendy teoretické informatiky, Prague, Czech Republic, 06/2019
- Winter School in Abstract Analysis, Svratka, Czech Republic, 01/2019
- Summer Symposium in Real Analysis XLII, Saint-Petersburg, Russian Federation, 06/2018
- Workshop Graph limits in Bohemian Switzerland, Janov, Czech Republic, 03/2018
- Set Theoretic Methods in Topology and Analysis, Bedlewo, Poland, 09/2017
- Summer Symposium in Real Analysis XLI, Wooster, Ohio, USA, 06/2017
- Interactions between Algebra and Functional Analysis, Prague, Czech Republic, 09/2016
- Winter School in Abstract Analysis, Svratka, Czech Republic, 01/2016
- Winter School in Abstract Analysis, Svratka, Czech Republic, 01/2015
- Interactions between Algebra and Functional Analysis, Prague, Czech Republic, 12/2014
- Joint Prague-Vienna Logic & Set Theory Meeting, Prague, Czech Republic, 12/2014
- Summer Symposium in Real Analysis XXXV, Budapest, Hungary, 06/2011
- Week of doctoral students, Prague, Czech Republic, 06/2010
- Winter School in Abstract Analysis, Kácov, Czech Republic, 01/2009
- Winter School in Abstract Analysis, Lhota nad Rohanovem, Czech Republic, 01/2008

Invited Seminar Talks

- Banach spaces webinars: online, May 20, 2022
- Seminar on Real and Abstract Analysis: Charles University, Faculty of Mathematics and Physics, Department of Mathematical Analysis, May 5, 2021
- Noon Seminar: Charles University, Faculty of Mathematics and Physics, Department of Applied Mathematics, November 15, 2015

Publications and Preprints

[23] M. Cúth, M. Doležal, M. Doucha, O. Kurka: *Polish spaces of Banach spaces. Complexity of isometry and isomorphic classes.* Submitted.

[22] M. Cúth, M. Doležal, M. Doucha, O. Kurka: *Polish spaces of Banach spaces.* Forum of Mathematics, Sigma, 10 (2022).

[21] M. Doležal, J. Grebík, J. Hladký, I. Rocha, V. Rozhoň: *Cut distance identifying graphon parameters over weak* limits.* J. Combin. Theory Ser. A 189 (2022), Paper No. 105615, 57 pp.

[20] M. Doležal: *Graph limits: An alternative approach to s-graphons.* J. Graph Theory 99 (2022), no. 1, 90–106.

[19] M. Doležal, J. Hladký, J. Kolář, T. Mitsis, C. Pelekis, V. Vlasák: *A Turán-type theorem for large-distance graphs in Euclidean spaces, and related isodiametric problems.* Discrete Comput. Geom. 66 (2021), no. 1, 281–300.

[18] M. Doležal, J. Grebík, J. Hladký, I. Rocha, V. Rozhoň: *Relating the cut distance and the weak* topology for graphons.* J. Combin. Theory Ser. B 147 (2021), 252–298.

[17] M. Doležal, J. Hladký: *Matching polytons.* Electron. J. Combin. 26 (2019), no. 4, Paper No. 4.38, 33 pp.

[16] M. Doležal, T. Mitsis, C. Pelekis: *The de Bruijn–Erdős theorem from a Hausdorff measure point of view.* Acta Math. Hungar. 159 (2019), no. 2, 400–413.

[15] M. Doležal, J. Hladký, J. Kolář, T. Mitsis, C. Pelekis, V. Vlasák: *A Turán-type theorem for large-distance graphs in Euclidean spaces, and related isodiametric problems.* Acta Math. Univ. Comenian. (N.S.) 88 (2019), no. 3, 625–629.

[14] M. Doležal, J. Hladký: *Cut-norm and entropy minimization over weak* limits.* J. Combin. Theory Ser. B 137 (2019), 232–263.

[13] M. Doležal, J. Hladký, P. Hu, D. Piguet: *First steps in combinatorial optimization on graphons: matchings.* Drmota, Michael (ed.) et al., Extended abstracts of the ninth European conference on combinatorics, graph theory and applications, EuroComb 2017, Vienna, Austria, August 28 – September 1, 2017. Amsterdam: Elsevier. Electronic Notes in Discrete Mathematics 61, 359-365 (2017).

[12] M. Doležal, W. B. Moors: *On a certain generalization of W-spaces.* Topology Appl. 231 (2017), 1–9.

[11] M. Doležal, J. Hladký, A. Máthé: *Cliques in dense inhomogeneous random graphs.* Random Structures Algorithms 51 (2017), no. 2, 275–314.

[10] M. Doležal, V. Vlasák: *Haar meager sets, their hulls, and relationship to compact sets.* J. Math. Anal. Appl. 446 (2017), no. 1, 852–863.

[9] M. Doležal, W. Kubiś: *Perfect independent sets with respect to infinitely many relations.* Arch. Math. Logic 55 (2016), no. 7-8, 847–856.

[8] M. Doležal, D. Preiss, M. Zelený: *Infinite games and σ-porosity.* Israel J. Math. 215 (2016), no. 1, 441–457.

[7] M. Doležal, M. Rmoutil, B. Vejnar, V. Vlasák: *Haar meager sets revisited.* J. Math. Anal. Appl. 440 (2016), no. 2, 922–939.

[6] M. Doležal, B. Vejnar: *Classification of the spaces $C_p^*(X)$ within the Borel-Wadge hierarchy for a projective space X.* Topology Appl. 183 (2015), 11–17.

[5] M. Doležal: *Unitary representations of finite abelian groups realizable by an action.* Topology Appl. 164 (2014), 87–94.

[4] M. Doležal, P. Ludvík, P. Pošta, P. Pyrih, M. Rmoutil, B. Vejnar: *Arcwise connected continuum with a free arc and with the fixed set property for monotone onto maps.* Questions Answers Gen. Topology 30 (2012), no. 2, 135–137.

[3] M. Doležal: *Characterization of σ-porosity via an infinite game.* Fund. Math. 216 (2012), no. 2, 109–118.

[2] M. Doležal, P. Pošta, P. Pyrih, M. Rmoutil, B. Vejnar: *Chain of dendrites without monotone supremum.* Questions Answers Gen. Topology 29 (2011), no. 2, 131–133.

[1] M. Doležal: *A note on the three-segment problem.* Math. Bohem. 134 (2009), no. 2, 211–215.