CV of Zdeněk Dvořák

- Born 1981 in Nové Město na Moravě, Czech Republic.
- Currently professor at Charles University, Prague.
- Research interests: graph coloring and its generalizations, graph homomorphisms, structural graph theory and properties of graphs on surfaces, algorithmic aspects of graph theory.

Education

- Obtained Master Degree (Mgr) (summa cum laude) in Computer Science at Faculty of Mathematics and Physics of Charles University, Prague, in September 2004. Defended a theses on the topic of Graph Homomorphisms with Local Constraints, advisor Jaroslav Nešetřil.
- I obtained PhD degree at Faculty of Mathematics and Physics of Charles University, Prague in May 2007. The topic of my PhD thesis was Asymptotical Structure of Combinatorial Objects. My advisor was Jaroslav Nešetřil.
- Habilitation (Doc. degree) at Faculty of Mathematics and Physics of Charles University, Prague in January 2013. The topic of my habilitation thesis was New Techniques in Coloring Embedded Graphs.

Employment history

- professor at Computer Science Institute, Charles University, Prague (2022–now)
- associate professor at Computer Science Institute, Charles University, Prague (2013–2021)
- assistant professor at Computer Science Institute, Charles University, Prague (2012)
- assistant professor at Department of Applied Mathematics, Charles University, Prague (2011)
- postdoc at Simon Fraser University, Vancouver, BC, Canada (2008–2009)
- postdoc at Georgia Institute of Technology, Atlanta, GA, USA (2007–2008)
- research fellow at Institute of Theoretical Computer Science, Charles University, Prague (2003–2010)

Papers accepted to refereed international journals

1. Z. Dvorak, D. Kral: *On Planar Mixed Hypergraphs*, Electronic Journal on Combinatorics **8 (1)** (2001), #R35, 23 pages.

2. Z. Dvorak, D. Kral, R. Skrekovski: *Coloring Face Hypergraphs on Surfaces*, European Journal on Combinatorics **26(1)** (2004), 95-110.

3. Z. Dvorak, T. Kaiser, D. Kral: *Eulerian colorings and the Bipartizing matching conjecture of Fleischner*, European Journal of Combinatorics **27(7)** (2006), 1088-1101.

4. Z. Dvorak, D. Kral, O. Pangrac: *Locally consistent constraint satisfaction problems*, Theoretical Computer Science **348(2-3)** (2005), 187-206.

5. Z. Dvorak, R. Skrekovski: *A Theorem About a Contractible and Light Edge*, SIAM Journal on Discrete Mathematics **20(1)** (2006), 55-61.

6. Z. Dvorak, V. Jelinek, D. Kral, J. Kyncl, M. Saks: *Probabilistic Strategies for the Partition and Plurality Problems*, Random Structures & Algorithms **30(1-2)** (2007), 63 - 77.

7. Z. Dvorak, R. Skrekovski, T. Valla: *Four Gravity Results*, Discrete Mathematics **207(2)** (2007), 181-190.

8. J. Cerny, Z. Dvorak, V. Jelinek, J. Kara: *Noncrossing Hamiltonian Paths in Geometric Graphs*, Discrete Applied Mathematics **155(9)** (2007), 1096-1105.

9. Z. Dvorak, D. Kral, P. Nejedly, R. Skrekovski: *Coloring squares of planar graphs with girth six*, European Journal of Combinatorics **29(4)** (2007), 838-849.

10. Z. Dvorak, R. Skrekovski, M. Tancer: *List-Coloring Squares of Sparse Subcubic Graphs*, SIAM Journal on Discrete Mathematics **22(1)** (2008), 139-159.

11. Z. Dvorak, R. Skrekovski, T. Valla: *Planar graphs of odd-girth at least 9 are homomorphic to the Petersen graph*, SIAM Journal on Discrete Mathematics **22(2)** (2008), 568-591.

12. Z. Dvorak: *On Forbidden Subdivision Characterization of Graph Classes*, European Journal of Combinatorics **29(5)** (2008), 1321-1332.

13. Z. Dvorak, D. Kral, P. Nejedly, R. Skrekovski: *Distance constrained labelings of planar graphs with no short cycles*, Discrete Applied Mathematics **157** (2009), 2634-2645.

14. Z. Dvorak: *Two-factors in Oriented Graphs with Forbidden Transitions*, Discrete Mathematics **309(1)** (2009), 104-112.

15. Z. Dvorak, R. Skrekovski: *k-chromatic number of graphs on surfaces*, SIAM Journal on Discrete Mathematics **23(1)** (2009), 477-486.

16. Z. Dvorak, S. Jendrol, D. Kral, G. Pap: *Matchings and Non-rainbow Colorings*, SIAM Journal on Discrete Mathematics **23(1)** (2009), 344-348.

17. Z. Dvorak, B. Lidicky, R. Skrekovski: *Planar graphs without 3-,7-, and 8-cycles are 3-choosable*, Discrete Mathematics **309(20)** (2009), 5899-5904.

18. Z. Dvorak, D. Kral, R. Skrekovski: *Non-Rainbow Colorings of 3-, 4- and 5-Connected Plane Graphs*, Journal of Graph Theory **63(2)** (2010), 129-145.

19. Z. Dvorak, D. Kral, J. Teska: *Toughness Threshold for the Existence of 2-walks in K_4-minor Free Graphs*, Discrete Mathematics **310(3)** (2010), 642-651.

20. Z. Dvorak, T. Kaiser, D. Kral, J.-S. Sereni: *A Note on Antisymmetric Flows in Graphs*, European Journal of Combinatorics **31(1)** (2010), 320-324.

21. Z. Dvorak, S. Norine: *Small Graph Classes and Bounded Expansion*, Journal of Combinatorial Theory, series B **100** (2010), 171-175.

22. Z. Dvorak, K. Kawarabayashi, R. Thomas: *Three-coloring triangle-free planar graphs in linear time*, ACM Transactions on Algorithms **7** (2011), article no. 41.

23. Z. Dvorak: *On Recognizing Graphs by Numbers of Homomorphisms*, Journal of Graph Theory **64(4)** (2010), 330-342.

24. Z. Dvorak, B. Lidicky, R. Skrekovski: 3*-choosability of triangle-free planar graphs with constraints on* 4*-cycles*, SIAM Journal on Discrete Mathematics **24** (2010), 934-945.

25. Z. Dvorak, B. Mohar: *Crossing-critical graphs with large maximum degree*, Journal of Combinatorial Theory, Series B **100(4)** (2010), 413-417.

26. H. Ardal, Z. Dvorak, V. Jungic, T. Kaiser: *On a Rado Type Problem for Homogeneous Second Order Linear Recurrences*, Electronic Journal of Combinatorics **17** (2010), #R38.

27. Z. Dvorak, B. Mohar: *Spectral radius of finite and infinite planar graphs and of graphs of bounded genus*, Journal of Combinatorial Theory, series B **100(6)** (2010), 729-739.

28. Z. Dvorak, B. Lidicky, R. Skrekovski: *Randić index and the diameter of a graph*, European Journal of Combinatorics **32** (2011), 434-442.

29. Z. Dvorak, A. C. Giannopoulou, D. M. Thilikos: *Forbidden Graphs for Tree-depth*, European Journal of Combinatorics **33** (2012), 969-979.

30. Z. Dvorak, B. Lidicky, R. Skrekovski: *Graphs with two crossings are* 5*-choosable*, SIAM Journal on Discrete Mathematics **25** (2011), 1746-1753.

31. Z. Dvorak, D. Kral: *Classes of graphs with small rank decompositions are* χ*-bounded*, European Journal of Combinatorics **33** (2012), 679-683.

32. Z. Dvorak, B. Mohar, R. Samal: *Star chromatic index*, Journal of Graph Theory **72** (2013), 313-326.

33. Z. Dvorak, B. Mohar: *Chromatic number and complete graph substructures for degree sequences*, Combinatorica **33** (2013), 513-529.

34. Z. Dvorak, B. Lidicky, R. Skrekovski: *Bipartizing fullerenes*, European Journal of Combinatorics **33** (2012), 1286-1293.

35. Z. Dvorak, B. Mohar: *Spectrally degenerate graphs: Hereditary case*, Journal of Combinatorial Theory, series B **102** (2012), 1099-1109.

36. Z. Dvorak, D. Kral, R. Thomas: *Three-coloring triangle-free graphs on surfaces I. Extending a coloring to a disk with one triangle*, Journal of Combinatorial Theory, Series B **120** (2016), 1-17.

37. Z. Dvorak: *Constant-factor approximation of domination number in sparse graphs*, European Journal of Combinatorics 34 (2013), 833-840.

38. Z. Dvorak, L. Esperet: *Distance-two coloring of sparse graphs*, European Journal of Combinatorics **36** (2014), 406-415.

39. A. Asadi, Z. Dvorak, L. Postle, R. Thomas: *Sub-exponentially many* 3*-colorings of triangle-free planar graphs*, Journal of Combinatorial Theory, series B **103** (2013), 706-712.

40. Z. Dvorak, D. Kral, R. Thomas: *Testing first-order properties for subclasses of sparse graphs*, Journal of the ACM 60 (2013), article 36.

41. Z. Dvorak: 3*-choosability of planar graphs with* (≤ 4)*-cycles far apart*, Journal of Combinatorial Theory, series B **104** (2014), 28-59.

42. Z. Dvorak, T. Klimosova: *Strong immersions and maximum degree*, SIAM Journal on Discrete Mathematics **28** (2014), 177-187.

43. Z. Dvorak, J.-S. Sereni, J. Volec: *Subcubic triangle-free graphs have fractional chromatic number at most* 14/5, Journal of the London Mathematical Society **89** (2014), 641-662.

44. Z. Dvorak, B. Lidicky: 4*-critical graphs on surfaces without contractible* (≤ 4)*-cycles*, SIAM Journal on Discrete Mathematics 28 (2014), 521-552.

45. O. Borodin, Z. Dvorak, A. Kostochka, B. Lidicky, M. Yancey: *Planar 4-critical graphs with four triangles*, European Journal of Combinatorics **41** (2014), 138-151.

46. M. DeVos, Z. Dvorak, J. Fox, J. McDonald, B. Mohar, D. Scheide: *A minimum degree condition forcing complete graph immersion*, Combinatorica **34** (2014), 279-298.

47. Z. Dvorak, B. Lidicky: 3-*coloring triangle-free planar graphs with a precolored* 8-*cycle*, Journal of Graph Theory **80** (2015), 98-111.

48. Z. Dvorak, J.-S. Sereni, Jan Volec: *Fractional coloring of triangle-free planar graphs*, Electronic Journal of Combinatorics **22** (2015), #P4.11.

49. Z. Dvorak, B. Mohar: *Crossing number of periodic graphs*, Journal of Graph Theory **83** (2016), 34-43.

50. Z. Dvorak, L. Postle: *Density of* 5/2-*critical graphs*, Combinatorica **37** (2017), 863-886.

51. Z. Dvorak, K. Kawarabayashi, D. Kral: *Packing six T-joins in plane graphs*, Journal of Combinatorial Theory, series B **116** (2016), 287-305.

52. Z. Dvorak: *Sublinear separators, fragility and subexponential expansion*, European Journal of Combinatorics **52** (2016), 103-119.

53. M. Chudnovsky, Z. Dvorak, T. Klimosova, P. Seymour: *Immersion in four-edge-connected graphs*, Journal of Combinatorial Theory, Series B **116** (2016), 208-218.

54. Z. Dvorak, S. Norin: *Strongly sublinear separators and polynomial expansion*, SIAM J. Discrete Math. **30** (2016), 1095-1101.

55. Z. Dvorak, B. Lidicky, B. Mohar, L. Postle: 5-*list-coloring planar graphs with distant precolored vertices*, Journal of Combinatorial Theory, Series B **122** (2017), 311-352.

56. Z. Dvorak, M. Mnich: *Large Independent Sets in Triangle-Free Planar Graphs*, SIAM Journal on Discrete Mathematics **31** (2017), 1355-1373.

57. Z. Dvorak, B. Lidicky, B. Mohar: *5-choosability of graphs with crossings far apart*, Journal of Combinatorial Theory, Series B **123** (2017), 54-96.

58. Z. Dvorak, B. Lidicky: *Fine structure of* 4-*critical triangle-free graphs II. Planar triangle-free graphs with two precolored* 4-*cycles*, SIAM J. Discrete Math. **31** (2017), 865-874.

59. Z. Dvorak, P. Wollan: *A structure theorem for strong immersions*, Journal of Graph Theory **83** (2016), 152-163.

60. Z. Dvorak, K. Kawarabayashi: *Triangle-free graphs of tree-width t are $\lceil (t+3)/2 \rceil$-colorable*, European Journal in Combinatorics **66** (2017), 95-100.

61. Z. Dvorak, L. Postle: *Correspondence coloring and its application to list-coloring planar graphs without cycles of lengths 4 to 8*, Journal of Combinatorial Theory, Series B **129** (2018), 38-54.

62. Z. Dvorak: *Induced subdivisions and bounded expansion*, European Journal in Combinatorics **69** (2018), 143-148.

63. Z. Dvorak, J.-S. Sereni: *Do triangle-free planar graphs have exponentially many* 3*-colorings?*, Electronic Journal of Combinatorics **24** (2017), #P3.47.

64. Z. Dvorak, L. Yepremyan: *Complete graph immersions and minimum degree*, Journal of Graph Theory **88** (2018), 211-221.

65. E. Berger, Z. Dvorak, S. Norin: *Tree-width of grid subsets*, Combinatorica **38** (2018), 1337-1352.

66. Z. Dvorak, B. Lidicky: *Fine structure of* 4*-critical triangle-free graphs III. General surfaces*, SIAM J. Discrete Math. **32** (2018), 94-105.

67. Z. Dvorak: *On classes of graphs with strongly sublinear separators*, European Journal of Combinatorics **71** (2018), 1-11.

68. Z. Dvorak, A. Kabela, T. Kaiser: *Planar graphs have two-coloring number at most* 8, Journal of Combinatorial Theory, Series B **130** (2018), 144-157.

69. Z. Dvorak, T. Kelly: *Induced 2-degenerate Subgraphs of Triangle-free Planar Graphs*, Electronic Journal of Combinatorics **25** (2018), #P1.62.

70. Z. Dvorak, D. Kral, R. Thomas: *Three-coloring triangle-free graphs on surfaces II.* 4*-critical graphs in a disk*, Journal of Combinatorial Theory, Series B **132** (2018), 1-46.

71. Z. Dvorak, B. Lidicky: *Fine structure of* 4*-critical triangle-free graphs I. Planar graphs with two triangles and* 3*-colorability of chains*, SIAM J. Discrete Math. **32** (2018), 1775-1805.

72. Z. Dvorak, T. Masarik, J. Musilek, O. Pangrac: *Triangle-free planar graphs with the smallest independence number*, Journal of Graph Theory **90** (2019), 443-454.

73. Z. Dvorak, J. Venters: *Triangle-free planar graphs with small independence number*, European Journal of Combinatorics **76** (2019), 88-103.

74. Z. Dvorak: *On distance* r*-dominating and* $2r$*-independent sets in sparse graphs*, Journal of Graph Theory **91** (2019), 162-173.

75. Z. Dvorak, S. Norin: *Treewidth of graphs with balanced separations*, Journal of Combinatorial Theory, Series B **137** (2019), 137-144.

76. Z. Dvorak, B. Mohar, R. Samal: *Exponentially many nowhere-zero* $\mathbb{Z}_3$*-,* $\mathbb{Z}_4$*-, and* $\mathbb{Z}_6$*-flows*, Combinatorica **39** (2019), 1237-1253.

77. Z. Dvorak, J. Pekarek: *Irreducible* 4*-critical triangle-free toroidal graphs*, European Journal of Combinatorics **88** (2020), 103112.

78. Z. Dvorak, X. Hu: *Fractional coloring of planar graphs of girth five*, SIAM J. Discrete Math. **34** (2020), 538-555.

79. Z. Dvorak, X. Hu: *Planar graphs without cycles of length* 4 *or* 5 *are* $(11:3)$*-colorable*, European Journal of Combinatorics **82** (2019).

80. Z. Dvorak, J.-S. Sereni, X. Hu: *A* 4*-choosable graph that is not* $(8:2)$*-choosable*, Advances in Combinatorics (2019), `https://doi.org/10.19086/aic.10811`.

81. Z. Dvorak, J. Pekarek, J.-S. Sereni: *On generalized choice and coloring numbers*, Electronic Journal of Combinatorics **26** (2019), #P1.51.

82. Z. Dvorak, S. Norin, L. Postle: *List coloring with requests*, Journal of Graph Theory **92** (2019), 191-206.

83. Z. Dvorak, P. Ossona de Mendez, H. Wu: *1-subdivisions, fractional chromatic number and Hall ratio*, Combinatorica **40** (2020), 759-774.

84. Z. Dvorak, T. Masarik, J. Musilek, O. Pangac: *Flexibility of planar graphs of girth at least six*, Journal of Graph Theory **95** (2020), 457-466.

85. Z. Dvorak, D. Kral, R. Thomas: *Three-coloring triangle-free graphs on surfaces III. Graphs of girth five*, Journal of Combinatorial Theory, Series B **145** (2020), 376-432.

86. Z. Dvorak, D. Kral, R. Thomas: *Three-coloring triangle-free graphs on surfaces IV. Bounding face sizes of* 4*-critical graphs*, Journal of Combinatorial Theory, Series B **150** (2021), 270-304.

87. Z. Dvorak, K. Kawarabayashi: *Additive non-approximability of chromatic number in proper minor-closed classes*, Journal of Combinatorial Theory, Series B **158** (2023), 74–92.

88. Z. Dvorak, D. Kral, R. Thomas: *Three-coloring triangle-free graphs on surfaces V. Coloring planar graphs with distant anomalies*, Journal of Combinatorial Theory, Series B **150** (2021), 244-269.

89. Z. Dvorak, X. Hu: $(3a:a)$*-list-colorability of embedded graphs of girth at least five*, SIAM J. Discrete Math. **34** (2020), 2137-2165.

90. Z. Dvorak, T. Masarik, J. Musilek, O. Pangac: *Flexibility of triangle-free planar graphs*, Journal of Graph Theory **96** (2021), 619-641.

91. Z. Dvorak, N. Morrison, J. Noel, S. Norin, L. Postle: *Bounding the number of cycles in a graph in terms of its degree sequence*, European Journal of Combinatorics **91** (2021), 103206.

92. Z. Dvorak, J.-S. Sereni: *On fractional fragility rates of graph classes*, Electronic Journal of Combinatorics **27** (2020), #P4.9.

93. Z. Dvorak, C. Feghali: *An update on reconfiguring* 10*-colorings of planar graphs*, Electronic Journal of Combinatorics **27** (2020), #P4.51.

94. Z. Dvorak, M. Hebdige, F. Hlasek, D. Kral, J. Noel: *Cyclic Coloring of Plane Graphs with Maximum Face Size 16 and 17*, European Journal of Combinatorics **94** (2021), 103287.

95. Z. Dvorak, R. McCarty, S. Norin: *Sublinear separators in intersection graphs of convex shapes*, SIAM J. Discrete Math **35** (2021), 1149-1164.

96. Z. Dvorak, C. Feghali: *A Thomassen-type method for planar graph recoloring*, European Journal of Combinatorics **95** (2021), 103319.

97. Z. Dvorak: *A note on sublinear separators and expansion*, European Journal of Combinatorics **93** (2021), 103273.

98. Z. Dvorak, J. Pekarek: *Coloring near-quadrangulations of the cylinder and the torus*, European Journal of Combinatorics **93** (2021), 103258.

99. Z. Dvorak, D. Kral, R. Thomas: *Three-coloring triangle-free graphs on surfaces VII. A linear-time algorithm*, Journal of Combinatorial Theory, Series B **152** (2022), 483-504.

100. Z. Dvorak: *On weighted sublinear separators*, Journal of Graph Theory **100** (2022), 270-280.

101. Z. Dvorak, B. Lidicky: *Coloring count cones of planar graphs*, Journal of Graph Theory **100** (2022), 84-100.

102. D. Bokal, Z. Dvorak, P. Hlineny, J. Leanos, B. Mohar, T. Wiedera: *Bounded maximum degree conjecture holds precisely for c-crossing-critical graphs with* $c \leq 12$, Combinatorica **42** (2022), 701–728.

103. Z. Dvorak, L. Postle: *On decidability of hyperbolicity*, Combinatorica **42** (2022), 1081–1098.

104. Z. Dvorak, L. Postle: *Triangle-free planar graphs with at most* $64^{n^{0.731}}$ *3-colorings*, Journal of Combinatorial Theory, Series B **156** (2022), 294-298.

105. Z. Dvorak, L. Esperet, R. Kang, K. Ozeki: *Single-conflict colouring*, Journal of Graph Theory **97** (2021), 148-160.

106. Z. Dvorak, J. Pekarek: *Characterization of 4-critical triangle-free toroidal graphs*, Journal of Combinatorial Theory, Series B **154** (2022), 336-369.

107. Z. Dvorak, B. Mohar: *On density of Z_3-flow-critical graphs*, SIAM J. Discrete Math. **37** (2023), 699–717.

108. Z. Dvorak, J. Pekarek: *Induced odd cycle packing number, independent sets, and chromatic number*, Journal of Graph Theory **103** (2023), 502–516.

109. Z. Dvorak, D. Kral, R. Thomas: *Three-coloring triangle-free graphs on surfaces VI.* 3*-colorability of quadrangulations*, Journal of Combinatorial Theory, Series B **164** (2024), 517-548.

110. Z. Dvorak, C. Feghali: *Solution to a problem of Grünbaum on the edge density of* 4*-critical planar graphs*, accepted to Combinatorica.

Papers presented at international conferences

1. Z. Dvorak, J. Kara, D. Kral, O. Pangrac: *On Pattern Coloring of Cycle Systems*, Proceedings 28th International Workshop on Graph-Theoretic Concepts (WG'02), Lecture Notes in Computer Science vol. 2573, p. 164-175, Springer-Verlag, 2002.

2. Z. Dvorak: *New Loop Optimizer for GCC*, First Annual GCC Developers' Summit, 2003.

3. J. Cerny, Z. Dvorak, V. Jelinek, J. Kara: *Noncrossing Hamiltonian Paths in Geometric Graphs*, Proceedings 11th International Symposium on Graph Drawing, Lecture Notes in Computer Science vol. 2912, Springer-Verlag, 2004.

4. Z. Dvorak, J. Kara, D. Kral, O. Pangrac: *An Algorithm for Cyclic Edge Connectivity of Cubic Graphs*, Proceedings 9th Scandinavian Workshop on Algorithm Theory (SWAT'04), Lecture Notes in Computer Science vol. 3111, p. 236-247, Springer-Verlag, 2004.

5. Z. Dvorak, D. Kral, O. Pangrac: *Locally consistent constraint satisfaction problems*, Proceedings 31st International Colloquium Automata, Languages and Programming (ICALP'04), Lecture Notes in Computer Science vol. 3142, p. 469-480, Springer-Verlag, 2004.

6. Z. Dvorak: *Declarative world inspiration*, Second Annual GCC Developers' Summit, 2004.

7. Z. Dvorak, V. Jelinek, D. Kral, J. Kyncl, M. Saks: *Three optimal algorithms for balls of three colors*, Proceedings of 22nd Annual Symposium on Theoretical Aspects of Computer Science (STACS'05), Lecture Notes in Computer Science vol. 3404, p. 206-217, Springer-Verlag, 2005.

8. Z. Dvorak, V. Jelinek: *On the Complexity of the G-Reconstruction Problem*, Proceedings of Algorithms and Computation: 16th International

Symposium, ISAAC 2005, Lecture Notes in Computer Science vol. 3827, p. 196 - 205, Springer-Verlag, 2006.

9. Z. Dvorak, D. Kral, R. Thomas: *Coloring triangle-free graphs on surfaces*, SODA 2009, Proceedings of the twentieth Annual ACM-SIAM Symposium on Discrete Algorithms.

10. Z. Dvorak, B. Mohar: *Spectral radius of finite and infinite planar graphs and of graphs of bounded genus (extended abstract)*, European Conference on Combinatorics, Graph Theory and Applications (EuroComb 2009), Electronic Notes in Discrete Mathematics **34** (2009), 101-105.

11. Z. Dvorak, D. Kral: *Algorithms for classes of graphs with bounded expansion*, in Graph-Theoretic Concepts in Computer Science, Christophe Paul and Michel Habib (Eds.). Lecture Notes In Computer Science, Vol. 5911., Springer-Verlag, 2009.

12. Z. Dvorak, D. Kral, R. Thomas: *Deciding first-order properties for sparse graphs (Extended abstract)*, in Proceedings of FOCS'2010, 133-142.

13. Z. Dvorak, K. Kawarabayashi: *List-coloring embedded graphs*, in Proceedings of the Annual ACM-SIAM Symposium on Discrete Algorithms (2013), 1004-1012.

14. Z. Dvorak, V. Tuma: *A dynamic data structure for counting subgraphs in sparse graphs*, in Proceedings of 13th International Symposium, WADS 2013, Lecture Notes in Computer Science Volume 8037, 2013, 304-315.

15. Z. Dvorak, M. Mnich: *Large Independent Sets in Triangle-Free Planar Graphs*, Algorithms – ESA 2014, Lecture Notes in Computer Science Volume 8737, 2014, 346-357.

16. Z. Dvorak, M. Kupec, V. Tuma: *A dynamic data structure for MSO properties in graphs with bounded tree-depth*, Algorithms – ESA 2014, Lecture Notes in Computer Science Volume 8737, 2014, 334-345.

17. Z. Dvorak, M. Kupec: *On Planar Boolean CSP*, Automata, Languages, and Programming, Lecture Notes in Computer Science Volume 9134, 2015, 432-443.

18. Z. Dvorak, D. Kral, B. Mohar: *Graphic TSP in cubic graphs*, STACS'17.

19. Z. Dvorak, B. Lidicky: *Independent sets near the lower bound in bounded degree graphs*, STACS'17.

20. Z. Dvorak: *Thin graph classes and polynomial-time approximation schemes*, SODA'18, Proceedings of the Twenty-Ninth Annual ACM-SIAM Symposium on Discrete Algorithms.

21. Z. Dvorak, P. Hlineny, B. Mohar: *Structure and generation of crossing-critical graphs*, 34th International Symposium on Computational Geometry (SoCG 2018).

22. Z. Dvorak, K. Kawarabayashi: *Additive non-approximability of chromatic number in proper minor-closed classes*, 45th International Colloquium on Automata, Languages, and Programming (ICALP 2018).

23. D. Bokal, Z. Dvorak, P. Hlineny, J. Leanos, B. Mohar, T. Wiedera: *Bounded maximum degree conjecture holds precisely for c-crossing-critical graphs with* $c \leq 12$, 35th International Symposium on Computational Geometry (SoCG 2019).

24. Z. Dvorak: *Baker game and polynomial-time approximation schemes*, SODA'20, Proceedings of the Fourteenth Annual ACM-SIAM Symposium on Discrete Algorithms 2020, 2227-2240.

25. Z. Dvorak, A. Lahiri: *Approximation schemes for bounded distance problems on fractionally treewidth-fragile graphs*, 29th Annual European Symposium on Algorithms (ESA 2021).

26. Z. Dvorak, J. Pekarek, T. Ueckerdt, Y. Yuditsky: *Weak Coloring Numbers of Intersection Graphs*, 38th International Symposium on Computational Geometry (SoCG 2022).

27. Z. Dvorak, D. Goncalves, A. Lahiri, T. Ueckerdt, J. Tan: *On comparable box dimension*, 38th International Symposium on Computational Geometry (SoCG 2022).

28. Z. Dvorak: *Approximation metatheorems for classes with bounded expansion*, 18th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT 2022).

29. Z. Dvorak: *Representation of short distances in structurally sparse graphs*, STACS'23.

30. Z. Dvorak, A. Lahiri: *Maximum edge colouring problem on graphs that exclude a fixed minor*, WG'23.

Invited plenary talks

- Czech-Slovak Graph Theory Conference, Teplice nad Becvou, Czech Republic, 2014.
- Cycles and Colorings, Novy Smokovec, Slovakia, 2014.
- Eurocomb, Bergen, Norway, 2015.
- Algorithms, Logic and Structure, Warwick, UK, 2016.
- Interactions with Combinatorics, Birmingham, UK, 2017.

- Workshop on Graph Classes, Optimization, and Width Parameters (GROW), Toronto, Canada, 2017.
- International Colloquium on Graph theory and combinatorics (ICGT), Lyon, France, 2018.
- Southwestern German Workshop on Graph Theory, Karlsruhe, Germany, 2018.
- International Conference on Graph Theory, Combinatorics and Applications, Kaohsiung, Taiwan, 2019.
- Czech-Slovak International Symposium on Combinatorics, Graph Theory, Algorithms and Applications, Prague, Czech Republic, 2022.
- Slovenian conference on graph theory, Kranjska Gora, Slovenia, 2023

Submitted/unpublished papers

1. Z. Dvorak, J. Kara, D. Kral, O. Pangrac: *Feasible Sets of Pattern Hypergraphs*, available as ITI report 2002-093.
2. J. Cerny, Z. Dvorak, V. Jelinek, and P. Podbrdsky: *Generalization of the polygon-crossing problem*, available as KAM-DIMATIA report 2003-623.
3. Z. Dvorak: *Eulerian tours in graphs with forbidden transitions and bounded degree*, available as KAM-DIMATIA report 2004-669.
4. Z. Dvorak: *A stronger structure theorem for excluded topological minors*, submitted.
5. Z. Dvorak, R. Thomas: *List-coloring apex-minor-free graphs*, submitted.
6. Z. Dvorak, L. Yepremyan: *Independence number in triangle-free graphs avoiding a minor*, submitted.
7. Z. Dvorak, S. Norin: *Weak diameter coloring of graphs on surfaces*, submitted.
8. Z. Dvorak: *Representation of short distances in structurally sparse graphs*, submitted.
9. Z. Dvorak, B. Lidicky, L. Postle: *11/4-colorability of subcubic triangle-free graphs*, submitted.
10. Z. Dvorak, S. Norin: *Asymptotic dimension of intersection graphs*, submitted.
11. Z. Dvorak, A. Lahiri, B. Moore: *Square roots of nearly planar graphs*, available at .

12. Z. Dvorak: *A strengthening and an efficient implementation of Alon-Tarsi list coloring method*, submitted.

13. C. Bang, Z. Dvorak, E. Heath, B. Lidicky: *Embedded graph 3-coloring and flows*, submitted.

14. Z. Dvorak: *Clustered coloring of* $(path + 2K_1)$*-free graphs on surfaces*, submitted.

15. Z. Dvorak, L. Yepremyan: *Correspondence coloring of random graphs*, submitted.

16. Z. Dvorak, D. Wood: *Product structure of graph classes with strongly sublinear separators*, submited.

17. Z. Dvorak, B. Moore, M. Seifrtova, R. Samal: *Precoloring extension in planar near-Eulerian-triangulations*, submitted.

18. Z. Dvorak, S. Norin: *Sparsity of 3-flow critical graphs*, submitted.

Popularization papers

- Z. Dvorak, M. Mares, P. Skoda: *Recepty z programatorske kucharky Korespondencniho seminare z programovani – VII. dil*, Rozhledy matematicko-fyzikalni **83(1)** (2008), 24-30.

- Z. Dvorak, M. Mares, D. Matousek: *Recepty z programatorske kucharky Korespondencniho seminare z programovani – VIII. dil*, Rozhledy matematicko-fyzikalni **83(4)** (2008), 16-26.

Other activities

- Chair of the organization committee of Eurocomb'23.

- Program committee member of SODA'22.

- Invited minisymposium on sparsity at CanaDAM'21.

- Organizer of workshop Theory Underlying Algorithms co-located with SODA'20.

- Program committee member of SODA'19.

- Editorial board member in Journal of Graph Theory (since 2018).

- Program committee member of Eurocomb'17.

- Co-organized conference New Trends in Graph Coloring, Banff, 2016.

- Organized a minisymposium on graph colorings at SIAM Conference on Discrete Mathematics 2014.

- Track chair at MEMICS 2014.
- One of editors-in-chief of Electronic Journal of Combinatorics (since 2017; associate editor 2014–2016).
- Managing editor of Journal of Combinatorial Theory, Series B (2016–2022), editorial board member since 2022.
- Associate editor of Discrete Mathematics (2013–2015).
- Organizer of local conferences STTI'13,'15,'17 (Contemporary trends in computer science).
- Co-organizer/main organizer of Prague Summer School on Discrete Mathematics (since 2016).
- Coach of Charles University ACM ICPC team (since 2015).
- Helping with organization of the national olympiad in informatics (since 1999).
- Helping with organization of the correspondence seminar in programming, in years 1999–2006.
- Prepared tasks for the ACM competition (Czech Technical University Open) in years 2004–2006.
- Contributing to the GCC (GNU Compiler Collection) project in years 2002–2008.

Awards and competitions

- The European Prize in Combinatorics in 2015.
- The prize of the Czech Union of Mathematicians for young mathematicians in 2014.
- The Neuron prize for young mathematicians given by Karel Janecek foundation in 2011.
- The Josef Hlavka award 2004.
- The best student paper award at 9th Scandinavian Workshop on Algorithm Theory (SWAT'04).
- The 13th place at the World Finals of the ACM International Collegiate Programming Contest 2002.
- Gold medal (with the 10th score) at the 11th International Olympiad in Informatics (1999).
- Participated at the 40th International Mathematics Olympiad (1999).