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Optimization and approximation on systems of geometric objects

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Bibliography

- [1] Abramson, N., “Development of the ALOHNET”, *IEEE Transactions on Information Theory* IT-31:2 (March 1985), pp. 119–123. Cited on p. 3
- [2] Agarwal, P.K., Mustafa, N.H., “Independent set of intersection graphs of convex objects in 2D”, *Computational Geometry* 34:2 (May 2006), pp. 83–95. Cited on p. 44, 45
- [3] Agarwal, P.K., Procopiuc, C.M., “Exact and Approximation Algorithms for Clustering”, *Algorithmica* 33:2 (December 2002), pp. 201–226. Cited on p. 163
- [4] Agarwal, P.K., van Kreveld, M.J., Suri, S., “Label Placement by Maximum Independent Set in Rectangles”, *Computational Geometry* 11:3–4 (December 1998), pp. 209–218. Cited on p. 2, 4, 45
- [5] Akyildiz, I.F., Su, W., Sankarasubramaniam, Y., Cayirci, E., “Wireless sensor networks: a survey”, *Computer Networks* 38:4 (March 2002), pp. 393–422. Cited on p. 3
- [6] Alber, J., Bodlaender, H.L., Fernau, H., Kloks, T., Niedermeier, R., “Fixed Parameter Algorithms for DOMINATING SET and Related Problems on Planar Graphs”, *Algorithmica* 33:4 (August 2002), pp. 461–493. Cited on p. 50, 57, 59
- [7] Alber, J., Fiala, J., “Geometric separation and exact solutions for the parameterized independent set problem on disk graphs”, *Journal of Algorithms* 52:2 (August 2004), pp. 134–151. Cited on p. 70
- [8] Alber, J., Niedermeier, R., “Improved Tree Decomposition Based Algorithms for Domination-like Problems” in Rajsbaum, S. (ed.) *LATIN 2002: Theoretical Informatics, 5th Latin American Symposium, Cancun, Mexico, April 3-6, 2002, Proceedings*, Lecture Notes in Computer Science 2286, Springer-Verlag, Berlin, 2002, pp. 613–628. Cited on p. 50, 57, 59
- [9] Alimonti, P., Kann, V., “Some APX-completeness results for cubic graphs”, *Theoretical Computer Science* 237:1–2 (April 2000), pp. 123–134. Cited on p. 148, 150, 200

- [10] Alon, N., Katchalski, M., Pulleyblank, W.R., “Cutting Disjoint Disks by Straight Lines”, *Discrete and Computational Geometry* 4:1 (December 1989), pp. 239–243. Cited on p. 69
- [11] Alt, H., Arkin, E.M., Brönnimann, H., Erickson, J., Fekete, S.P., Knauer, C., Lenchner, J., Mitchell, J.S.B., Whittlesey, K., “Minimum-Cost Coverage of Point Sets by Disks” in Amenta, N., Cheong, O. (eds.) *Proceedings of the 22nd ACM Symposium on Computational Geometry, Sedona, Arizona, USA, June 5-7, 2006*, Association for Computing Machinery, 2006, pp. 449–458. Cited on p. 163
- [12] Alzoubi, K.M., Wan, P.J., Frieder, O., “Distributed Heuristics for Connected Dominating Sets in Wireless Ad Hoc Networks”, *Journal of Communications and Networks* 4:1 (March 2002), pp. 22–29. Cited on p. 47
- [13] Ambühl, C., Erlebach, T., Mihalák, M., Nunkesser, M., “Constant-Factor Approximation for Minimum-Weight (Connected) Dominating Sets in Unit Disk Graphs” in Díaz, J., Jansen, K., Rolim, J.D.P., Zwick, U. (eds.) *Approximation, Randomization, and Combinatorial Optimization, Algorithms and Techniques, 9th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems, APPROX 2006, and 10th International Workshop on Randomization and Computation, RANDOM 2006, Barcelona, Spain, August 28-30 2006, Proceedings*, Lecture Notes in Computer Science 4110, Springer-Verlag, Berlin, 2006, pp. 3–14. Cited on p. 47, 83, 161, 183
- [14] Ambühl, C., Wagner, U., “The Clique Problem in Intersection Graphs of Ellipses and Triangles”, *Theory of Computing Systems* 38:3 (May 2005), pp. 279–292. Cited on p. 48
- [15] Armitage, P., “An Overlap Problem Arising in Particle Counting”, *Biometrika* 36:3/4 (December 1949), pp. 257–266. Cited on p. 4
- [16] Arora, S., Lund, C., Motwani, R., Sudan, M., Szegedy, M., “Proof Verification and the Hardness of Approximation Problems”, *Journal of the ACM* 45:3 (May 1998), pp. 501–555. Cited on p. 148
- [17] Asano, T., “Difficulty of the Maximum Independent Set Problem on Intersection Graphs of Geometric Objects” in Alavi, Y., Chartrand, G., Oellermann, O.R., Schwenk, A.J. (eds.) *Proceedings of the Sixth Quadrennial International Conference on the Theory and Applications of Graphs, Western Michigan University, Kalamazoo, Michigan, May 30-June 3, 1988*, Graph Theory, Combinatorics, and Applications 4, John Wiley & Sons, New York, 1991, pp. 9–18. Cited on p. 2, 44, 68
- [18] Åslund, N., “Informationsteoriens Fundamentalsatser, II”, *Nordisk Matematisk Tidskrift* 9:3 (1961), pp. 97–108. Cited on p. 72

- [19] Ausiello, G., Crescenzi, P., Gambosi, G., Kann, V., Marchetti-Spaccamela, A., Protasi, M., *Complexity and Approximation – Combinatorial Optimization Problems and Their Approximability Properties*, Springer-Verlag, Berlin, 1999. Cited on p. 11, 12, 44
- [20] Bădoiu, M., Har-Peled, S., Indyk, P., “Approximate clustering via core-sets” in *Proceedings of the Thirty-Fourth Annual ACM Symposium on Theory of Computing, May 19 - 21, 2002, Montreal, Quebec, Canada*, Association for Computing Machinery, 2002, pp. 250–257. Cited on p. 163
- [21] Bafna, V., Narayanan, B., Ravi, R., “Nonoverlapping local alignments (weighted independent sets of axis-parallel rectangles)”, *Discrete Applied Mathematics* 71:1–3 (December 1996), pp. 41–53. Cited on p. 44
- [22] Baker, B.S., “Approximation Algorithms for NP-Complete Problems on Planar Graphs”, *Journal of the ACM* 41:1 (January 1994), pp. 153–180. Cited on p. 45, 71, 88, 90, 91, 128
- [23] Bang-Jensen, J., Reed, B., Schacht, M., Šámal, R., Toft, B., Wagner, U., “Topics in Discrete Mathematics”, Algorithms and Combinatorics 26, Springer-Verlag, Berlin, 2006, pp. 613–627. Cited on p. 48
- [24] Bar-Yehuda, R., Even, S., “A Linear-Time Approximation Algorithm for the Weighted Vertex Cover Problem”, *Journal of Algorithms* 2:2 (June 1981), pp. 198–203. Cited on p. 128
- [25] Bar-Yehuda, R., Even, S., “A Local-Ratio Theorem for Approximating the Weighted Vertex Cover Problem” in Ausiello, G., Lucertini, M. (eds.) *Analysis and Design of Algorithms for Combinatorial Problems*, Annals of Discrete Mathematics 25, North-Holland, Amsterdam, 1985, pp. 27–46. Cited on p. 46
- [26] Bazgan, C., *Schémas d’approximation et complexité paramétrée*, Rapport de stage de DEA d’Informatique, Université Paris-Sud, Orsay, 1995. Cited on p. 13, 14, 87
- [27] Becker, H.W., “Rooks and Rhymes”, *Mathematics Magazine* 22:1 (September - October 1948), pp. 23–26. Cited on p. 63
- [28] Becker, H.W., “Planar Rhyme Schemes”, *Bulletin of the American Mathematical Society* 58 (1952), p. 39. Cited on p. 63
- [29] Bell, E.T., “Exponential Polynomials”, *Annals of Mathematics* 35:2 (April 1934), pp. 258–277. Cited on p. 62
- [30] Bell, E.T., “The Iterated Exponential Integers”, *Annals of Mathematics* 39:3 (July 1938), pp. 539–557. Cited on p. 62

- [31] Berman, P., “A $d/2$ Approximation for Maximum Weight Independent Set in d -Claw Free Graphs” in Halldórsson, M.M. (ed.) *Algorithm Theory - SWAT 2000, 7th Scandinavian Workshop on Algorithm Theory, Bergen, Norway, July 5-7, 2000, Proceedings*, Lecture Notes in Computer Science 1851, Springer-Verlag, Berlin, 2000, pp. 214–219. Cited on p. 44
- [32] Berman, P., DasGupta, B., Muthukrishnan, S., Ramaswami, S., “Efficient Approximation Algorithms for Tiling and Packing Problems with Rectangles”, *Journal of Algorithms* 41:2 (November 2001), pp. 443–470. Cited on p. 46
- [33] Besicovitch, A.S., “On Crum’s problem”, *Journal of the London Mathematical Society* 22:4 (October 1947), pp. 285–287. Cited on p. 25
- [34] Bilò, V., Caragiannis, I., Kaklamanis, C., Kanellopoulos, P., “Geometric Clustering to Minimize the Sum of Cluster Sizes” in Brodal, G.S., Leonardi, S. (eds.) *Algorithms - ESA 2005, 13th Annual European Symposium, Palma de Mallorca, Spain, October 3-6, 2005, Proceedings*, Lecture Notes in Computer Science 3669, Springer-Verlag, Berlin, 2005, pp. 460–471. Cited on p. 163
- [35] Blumer, A., Ehrenfeucht, A., Haussler, D., Warmuth, M.K., “Learnability and the Vapnik-Chervonenkis dimension”, *Journal of the ACM* 36:4 (October 1989), pp. 929–965. Cited on p. 114
- [36] Bodlaender, H.L., “A partial k -arboretum of graphs with bounded treewidth”, *Theoretical Computer Science* 209:1–2 (December 1998), pp. 1–45. Cited on p. 50, 70
- [37] Bodlaender, H.L., “Treewidth: Characterizations, Applications, and Computations” in Fomin, F.V. (ed.) *Graph-Theoretic Concepts in Computer Science, 32nd International Workshop, WG 2006, Bergen, Norway, June 22-24, 2006, Revised Papers*, Lecture Notes in Computer Science 4271, Springer-Verlag, Berlin, 2006, pp. 1–14. Cited on p. 50
- [38] Booth, K.S., Lueker, G.S., “Testing for the Consecutive Ones Property, Interval Graphs, and Graph Planarity Using PQ-Tree Algorithms”, *Journal of Computer and System Sciences* 13:3 (December 1976), pp. 335–379. Cited on p. 17, 19
- [39] Boppana, R.B., Halldórsson, M.M., “Approximating Maximum Independent Sets by Excluding Subgraphs”, *BIT* 32:2 (1992), pp. 180–196. Cited on p. 44
- [40] Breu, H., *Algorithmic Aspects of Constrained Unit Disk Graphs*, PhD thesis, The University of British Columbia, 1996. Cited on p. 20

- [41] Breu, H., Kirkpatrick, D.G., “On the Complexity of Recognizing Intersection and Touching Graphs of Disks” in Brandenburg, F.J. (ed.) *Graph Drawing, Symposium on Graph Drawing, GD '95, Passau, Germany, September 20-22, 1995, Proceedings*, Lecture Notes in Computer Science 1027, Springer-Verlag, Berlin, 1995, pp. 88–98. Cited on p. 17, 21, 23, 26
- [42] Breu, H., Kirkpatrick, D.G., “Unit disk graph recognition is NP-hard”, *Computational Geometry* 9:1–2 (January 1998), pp. 3–24. Cited on p. 17, 21, 22, 23
- [43] Brightwell, G.R., Scheinerman, E.R., “Representations of Planar Graphs”, *SIAM Journal on Discrete Mathematics* 6:2 (1993), pp. 214–229. Cited on p. 27
- [44] Brönnimann, H., “Towards Faster Linear-Sized Nets for Axis-Aligned Boxes in the Plane” in Akiyama, J., Kano, M., Tan, X. (eds.) *Discrete and Computational Geometry, Japanese Conference, JCDCG 2004, Tokyo, Japan, October 8-11, 2004, Revised Selected Papers*, Lecture Notes in Computer Science 3742, Springer-Verlag, Berlin, 2005, pp. 54–61. Cited on p. 114
- [45] Brönnimann, H., Goodrich, M.T., “Almost Optimal Set Covers in Finite VC-Dimension”, *Discrete and Computational Geometry* 14:1 (December 1995), pp. 463–479. Cited on p. 116, 118, 161
- [46] Buneman, P., “A characterisation of rigid circuit graphs”, *Discrete Mathematics* 9:3 (September 1974), pp. 205–212. Cited on p. 18, 26
- [47] Butman, A., Hermelin, D., Lewenstein, M., Rawitz, D., “Optimization problems in multiple-interval graphs” in Bansal, N., Pruhs, K., Stein, C. (eds.) *Proceedings of the Eighteenth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2007, New Orleans, Louisiana, USA, January 7-9, 2007*, Association for Computing Machinery, 2007, pp. 268–277. Cited on p. 125
- [48] Cai, L., Fellows, M.R., Juedes, D.W., Rosamond, F.A., “The Complexity of Polynomial-Time Approximation”, *Theory of Computing Systems* 41:3 (October 2007), pp. 459–477. Cited on p. 14
- [49] Călinescu, G., Mandoiu, I.I., Wan, P.J., Zelikovsky, A., “Selecting forwarding neighbors in wireless ad hoc networks” in *Proceedings of the 5th International Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIAL-M 2001), Rome, Italy, July 21, 2001*, Association for Computing Machinery, 2001, pp. 34–43. Cited on p. 161

- [50] Cannon, A.H., Cowen, L.J., “Approximation Algorithms for the Class Cover Problem”, *Annals of Mathematics and Artificial Intelligence* 40:3–4 (March 2004), pp. 215–223. Cited on p. 163
- [51] Canny, J.F., “Some Algebraic and Geometric Computations in PSPACE” in *Proceedings of the Twentieth Annual ACM Symposium on Theory of Computing, 2-4 May 1988, Chicago, Illinois, USA*, Association for Computing Machinery, 1988, pp. 460–467. Cited on p. 23
- [52] Carmi, P., Katz, M.J., Lev-Tov, N., “Covering Points by Unit Disks of Fixed Location” in Tokuyama, T. (ed.) *Algorithms and Computation, 18th International Symposium, ISAAC 2007, Sendai, Japan, December 17-19, 2007, Proceedings*, Lecture Notes in Computer Science 4835, Springer-Verlag, Berlin, 2007, pp. 644–655. Cited on p. 161
- [53] Cesati, M., Trevisan, L., “On the efficiency of polynomial time approximation schemes”, *Information Processing Letters* 64:4 (November 1997), pp. 165–171. Cited on p. 13, 14, 87
- [54] Chalermsook, P., Chuzhoy, J., “Maximum Independent Set of Rectangles” in Mathieu, C. (ed.) *Proceedings of the Twentieth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '09)*, Association for Computing Machinery, 2009. Cited on p. 46
- [55] Chalopin, J., Gonçalves, D., “Every planar graph is the intersection graph of segments in the plane” in *Proceedings of the Forty-First Annual ACM Symposium on Theory of Computing, May 31 - June 2, 2009, Bethesda, Maryland, USA, 2009*. Cited on p. 27
- [56] Chalopin, J., Gonçalves, D., Ochem, P., “Planar Graphs are in 1-STRING” in Bansal, N., Pruhs, K., Stein, C. (eds.) *Proceedings of the Eighteenth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2007, New Orleans, Louisiana, USA, January 7-9, 2007*, Association for Computing Machinery, 2007, pp. 609–617. Cited on p. 27
- [57] Chan, T.M., “Polynomial-time Approximation Schemes for Packing and Piercing Fat Objects”, *Journal of Algorithms* 46:2 (February 2003), pp. 178–189. Cited on p. 45, 92, 104, 164
- [58] Chan, T.M., “A Note on Maximum Independent Sets in Rectangle Intersection Graphs”, *Information Processing Letters* 89:1 (January 2004), pp. 19–23. Cited on p. 45, 46
- [59] Chan, T.M., Har-Peled, S., “Approximation Algorithms for Maximum Independent Set of Pseudo-Disks” in *Proceedings of the 25th ACM Symposium on Computational Geometry, Aarhus, Denmark, June 8-10, 2009*, 2009. Cited on p. 45, 46

- [60] Chandra, A.K., Hirschberg, D.S., Wong, C.K., “Approximate Algorithms for Some Generalized Knapsack Problems”, *Theoretical Computer Science* 3:3 (December 1976), pp. 293–304. Cited on p. 185
- [61] Chang, M.S., “Efficient Algorithms for the Domination Problems on Interval and Circular-Arc Graphs”, *SIAM Journal on Computing* 27:6 (1998), pp. 1671–1694. Cited on p. 125
- [62] Chazelle, B., Friedman, J., “A Deterministic View of Random Sampling and Its Use in Geometry”, *Combinatorica* 10:3 (September 1990), pp. 229–249. Cited on p. 114, 115
- [63] Chen, Z., Fu, B., Tang, Y., Zhu, B., “A PTAS for a Disc Covering Problem using Width-Bounded Separators”, *Journal of Combinatorial Optimization* 11:2 (March 2006), pp. 203–217. Cited on p. 164
- [64] Cheng, X., Huang, X., Li, D., Wu, W., Du, D.Z., “A Polynomial-Time Approximation Scheme for the Minimum-Connected Dominating Set in Ad Hoc Wireless Networks”, *Networks* 42:4 (December 2003), pp. 202–208. Cited on p. 47, 82
- [65] Chlebík, M., Chlebíková, J., “The Complexity of Combinatorial Optimization Problems on d -Dimensional Boxes”, *SIAM Journal on Discrete Mathematics* 21:1 (2007), pp. 158–169. Cited on p. 44, 46, 47, 68, 114, 146, 150
- [66] Chvátal, V., “A Greedy Heuristic for the Set-Covering Problem”, *Mathematics of Operations Research* 4:3 (1979), pp. 233–235. Cited on p. 46, 113, 119, 129, 161
- [67] Clark, B.N., Colbourn, C.J., Johnson, D.S., “Unit Disk Graphs”, *Discrete Mathematics* 86:1–3 (December 1990), pp. 165–177. Cited on p. 2, 44, 48, 68, 77, 161, 181
- [68] Clarkson, K.L., Varadarajan, K.R., “Improved Approximation Algorithms for Geometric Set Cover”, *Discrete and Computational Geometry* 37:1 (January 2007), pp. 43–58. Cited on p. 2, 114, 115, 161
- [69] Clementi, A.E.F., Monti, A., Pasquale, F., Silvestri, R., “Optimal Gossiping in Directed Geometric Radio Networks in Presence of Dynamical Faults” in Kucera, L., Kucera, A. (eds.) *Mathematical Foundations of Computer Science 2007, 32nd International Symposium, MFCS 2007, Český Krumlov, Czech Republic, August 26–31, 2007, Proceedings*, Lecture Notes in Computer Science 4708, Springer-Verlag, Berlin, 2007, pp. 430–441. Cited on p. 24
- [70] Corneil, D.G., Kim, H., Natarajan, S., Olariu, S., Sprague, A.P., “Simple linear time recognition of unit interval graphs”, *Information Processing Letters* 55:2 (July 1995), pp. 99–104. Cited on p. 20, 30, 36

- [71] Cozzens, M.B., *Higher and multi-dimensional analogues of interval graphs*, PhD thesis, Rutgers University, New Brunswick, New Jersey, 1981. Cited on p. 20
- [72] Czyzowicz, J., Dobrev, S., Fevens, T., González-Aguilar, H., Kranakis, E., Opatrny, J., Urrutia, J., “Local Algorithms for Dominating and Connected Dominating Sets of Unit Disk Graphs with Location Aware Nodes” in Laber, E.S., Bornstein, C.F., Nogueira, L.T., Faria, L. (eds.) *LATIN 2008: Theoretical Informatics, 8th Latin American Symposium, Búzios, Brazil, April 7-11, 2008, Proceedings*, Lecture Notes in Computer Science 4957, Springer-Verlag, Berlin, 2008, pp. 158–169. Cited on p. 47
- [73] Czyzowicz, J., Kranakis, E., Krizanc, D., Urrutia, J., “Discrete Realizations of Contact and Intersection Graphs” in Battista, G.D. (ed.) *Graph Drawing, 5th International Symposium, GD '97, Rome, Italy, September 18-20, 1997, Proceedings*, Lecture Notes in Computer Science 1353, Springer-Verlag, Berlin, 1997, pp. 359–370. Cited on p. 20, 30, 33, 36
- [74] Dai, D., Yu, C., “A $5 + \epsilon$ -approximation algorithm for minimum weighted dominating set in unit disk graph”, *Theoretical Computer Science* 410:8–10 (March 2009), pp. 756–765. Cited on p. 2, 47, 83, 208
- [75] Damian, M., Pemmaraju, S.V., “APX-hardness of domination problems in circle graphs”, *Information Processing Letters* 97:6 (March 2006), pp. 231–237. Cited on p. 146, 148
- [76] Damian-Iordache, M., Pemmaraju, S.V., “A $(2 + \epsilon)$ -Approximation Scheme for Minimum Domination on Circle Graphs”, *Journal of Algorithms* 42:2 (February 2002), pp. 255–276. Cited on p. 146
- [77] de Castro, N., Cobos, F.J., Dana, J.C., Márquez, A., Noy, M., “Triangle-Free Planar Graphs and Segment Intersection Graphs”, *Journal of Graph Algorithms and Applications* 6:1 (2002), pp. 7–26. Cited on p. 27
- [78] de Fraysseix, H., de Mendez, P.O., “Representations by Contact and Intersection of Segments”, *Algorithmica* 47:4 (April 2007), pp. 453–463. Cited on p. 27
- [79] de Fraysseix, H., de Mendez, P.O., Pach, J., “Representation of planar graphs by segments” in Böröczky, K., Tóth, G.F. (eds.) *Intuitive Geometry: International Conference held by the János Bolyai Mathematical Society, Szeged, Hungary, September 2-7, 1991*, Colloquia Mathematica Societatis János Bolyai 63, János Bolyai Mathematical Society, Budapest, 1994, pp. 109–117. Cited on p. 27, 28
- [80] de Fraysseix, H., de Mendez, P.O., Rosenstiehl, P., “On Triangle Contact Graphs”, *Combinatorics, Probability and Computing* 3:2 (June 1994), pp. 233–246. Cited on p. 17, 21, 28

- [81] de Groot, C., Peikert, R., Würtz, D., *The optimal packing of ten equal circles in a square*, Technical Report IPS Research Report No. 90-12, ETH Zürich, Zürich, Switzerland, 1990. Cited on p. 106
- [82] de Moraes Cordeiro, C., Agrawal, D.P., *Ad Hoc & Sensor Networks: Theory And Applications*, World Scientific Publishing Company, 2006. Cited on p. 3
- [83] Demaine, E.D., Feige, U., Hajiaghayi, M., Salavatipour, M.R., “Combination Can Be Hard: Approximability of the Unique Coverage Problem”, *SIAM Journal on Computing* 38:4 (2008), pp. 1464–1483. Cited on p. 159, 160, 162, 199
- [84] Demaine, E.D., Hajiaghayi, M.T., “Bidimensionality: new connections between FPT algorithms and PTASs” in *Proceedings of the Sixteenth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2005, Vancouver, British Columbia, Canada, January 23-25, 2005*, Association for Computing Machinery, 2005, pp. 590–601. Cited on p. 50, 63, 88
- [85] Demaine, E.D., Hajiaghayi, M., “Equivalence of Local Treewidth and Linear Local Treewidth and its Algorithmic Applications” in *Proceedings of the Fifteenth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '04)*, Association for Computing Machinery, 2004, pp. 840–849. Cited on p. 88, 89
- [86] DeWitt, H.K., Krieger, M.M., “Expected Structure of Euclidean Graphs” in Traub, J.F. (ed.) *Proceedings of a Symposium on New Directions and Recent Results in Algorithms and Complexity, held by the Computer Science Department Carnegie-Mellon University, April 7-9, 1976*, Academic Press, New York, 1976, p. 451. Cited on p. 22
- [87] Dinur, I., Safra, S., “The importance of being biased” in *Proceedings of the Thirty-Fourth Annual ACM Symposium on Theory of Computing, May 19 - 21, 2002, Montreal, Quebec, Canada*, Association for Computing Machinery, 2002, pp. 33–42. Cited on p. 46
- [88] Dobiński, G., “Summierung der Reihe $\sum \frac{n^m}{n!}$ für $m = 1, 2, 3, 4, 5, \dots$ ”, *Archiv der Mathematik und Physik* 61 (1877), pp. 333–336. Cited on p. 62
- [89] Dorn, F., “Dynamic Programming and Fast Matrix Multiplication” in Azar, Y., Erlebach, T. (eds.) *Algorithms - ESA 2006, 14th Annual European Symposium, Zurich, Switzerland, September 11-13, 2006, Proceedings*, Lecture Notes in Computer Science 4168, Springer-Verlag, Berlin, 2006, pp. 280–291. Cited on p. 50, 90
- [90] Dorn, F., Fomin, F.V., Thilikos, D.M., “Subexponential Parameterized Algorithms” in Arge, L., Cachin, C., Jurdzinski, T., Tarlecki, A. (eds.)

Automata, Languages and Programming, 34th International Colloquium, ICALP 2007, Wroclaw, Poland, July 9-13, 2007, Proceedings, Lecture Notes in Computer Science 4596, Springer-Verlag, Berlin, 2007, pp. 15–27. Cited on p. 63

- [91] Dorn, F., Fomin, F.V., Thilikos, D.M., “Catalan structures and dynamic programming in H-minor-free graphs” in Teng, S.H. (ed.) *Proceedings of the Nineteenth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2008, San Francisco, California, USA, January 20-22, 2008*, Association for Computing Machinery, 2008, pp. 631–640. Cited on p. 63, 89
- [92] Downey, R.G., Fellows, M.R., *Parameterized Complexity*, Springer, New York, 1999. Cited on p. 14
- [93] Du, D.Z., Thai, M.T., Li, Y., Liu, D., Zhu, S., “Strongly Connected Dominating Sets in Wireless Sensor Networks with Unidirectional Links” in Zhou, X., Li, J., Shen, H.T., Kitsuregawa, M., Zhang, Y. (eds.) *Frontiers of WWW Research and Development - APWeb 2006, 8th Asia-Pacific Web Conference, Harbin, China, January 16-18, 2006, Proceedings*, Lecture Notes in Computer Science 3841, Springer-Verlag, Berlin, 2006, pp. 13–24. Cited on p. 24
- [94] Du, H., Jia, X., Li, D., Wu, W., “Coloring of Double Disk Graphs”, *Journal of Global Optimization* 28:2 (January 2004), pp. 115–119. Cited on p. 24
- [95] Duchet, P., “Classical perfect graphs” in Berge, C., Chvátal, V. (eds.) *Topics on Perfect Graphs*, Annals of Discrete Mathematics 21, North-Holland, Amsterdam, 1984, pp. 67–96. Cited on p. 26
- [96] Efrat, A., Hoffmann, F., Knauer, C., Kriegel, K., Rote, G., Wenk, C., “Covering with Ellipses”, *Algorithmica* 38:1 (October 2003), pp. 145–160. Cited on p. 163
- [97] Efrat, A., Sharir, M., “The Complexity of the Union of Fat Objects in the Plane”, *Discrete and Computational Geometry* 23:2 (February 2000), pp. 171–189. Cited on p. 83, 104, 149
- [98] Ehrlich, G., Even, S., Tarjan, R.E., “Intersection Graphs of Curves in the Plane”, *Journal of Combinatorial Theory, Series B* 21:1 (August 1976), pp. 8–20. Cited on p. 20, 25
- [99] Eppstein, D., “Diameter and Treewidth in Minor-Closed Graph Families”, *Algorithmica* 27:3 (June 2000), pp. 275–291. Cited on p. 88, 89, 90

- [100] Eppstein, D., Miller, G.L., Teng, S.H., “A Deterministic Linear Time Algorithm for Geometric Separators and its Applications”, *Fundamenta Informaticae* 22:4 (April 1995), pp. 309–329. Cited on p. 99
- [101] Erlebach, T., Fiala, J., “Independence and Coloring Problems on Intersection Graphs of Disks” in Erlebach, T., Kaklamanis, C. (eds.) *Approximation and Online Algorithms, 4th International Workshop, WAOA 2006, Zurich, Switzerland, September 14-15, 2006, Revised Papers*, Lecture Notes in Computer Science 4368, Springer-Verlag, Berlin, 2006, pp. 135–155. Cited on p. 48
- [102] Erlebach, T., Hagerup, T., Jansen, K., Minzloff, M., Wolff, A., “Trimming of Graphs, with Application to Point Labeling” in Albers, S., Weil, P. (eds.) *STACS 2008, 25th Annual Symposium on Theoretical Aspects of Computer Science, Bordeaux, France, February 21-23, 2008, Proceedings*, Dagstuhl Seminar Series 08001, Internationales Begegnungs- und Forschungszentrum für Informatik (IBFI), Schloss Dagstuhl, Germany, 2008, pp. 265–276. Cited on p. 4
- [103] Erlebach, T., Jansen, K., Seidel, E., “Polynomial-time Approximation Schemes for Geometric Intersection Graphs”, *SIAM Journal on Computing* 34:6 (2005), pp. 1302–1323. Cited on p. 2, 45, 46, 91, 92, 99, 104, 113
- [104] Erlebach, T., van Leeuwen, E.J., “Approximating Geometric Coverage Problems” in Teng, S.H. (ed.) *Proceedings of the Nineteenth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2008, San Francisco, California, USA, January 20-22, 2008*, Association for Computing Machinery, 2008, pp. 1267–1276. Cited on p. 7
- [105] Erlebach, T., van Leeuwen, E.J., “Domination in Geometric Intersection Graphs” in Laber, E.S., Bornstein, C.F., Nogueira, L.T., Faria, L. (eds.) *LATIN 2008: Theoretical Informatics, 8th Latin American Symposium, Búzios, Brazil, April 7-11, 2008, Proceedings*, Lecture Notes in Computer Science 4957, Springer-Verlag, Berlin, 2008, pp. 747–758. Cited on p. 6
- [106] Even, G., Lotker, Z., Ron, D., Smorodinsky, S., “Conflict-Free Colorings of Simple Geometric Regions with Applications to Frequency Assignment in Cellular Networks”, *SIAM Journal on Computing* 33:1 (2003), pp. 94–136. Cited on p. 48
- [107] Even, G., Rawitz, D., Shahar, S.M., “Hitting Sets When the VC-Dimension is Small”, *Information Processing Letters* 95:2 (July 2005), pp. 358–362. Cited on p. 118
- [108] Feige, U., “A Threshold of $\ln n$ for Approximating Set Cover”, *Journal of the ACM* 45:4 (July 1998), pp. 634–652. Cited on p. 46, 113, 146, 149, 161

- [109] Fishburn, P.C., “On the sphericity and cubicity of graphs”, *Journal of Combinatorial Theory, Series B* 35:3 (December 1983), pp. 309–318. Cited on p. 22
- [110] Fowler, R.J., Paterson, M.S., Tanimoto, S.L., “Optimal Packing and Covering in the Plane are NP-Complete”, *Information Processing Letters* 12:3 (June 1981), pp. 133–137. Cited on p. 2, 161, 163
- [111] Frank, A., Gyárfás, A., “How to orient the edges of a graph?” in Hajnal, A., Sós, V.T. (eds.) *Combinatorics, Proceedings of the 5th Hungarian Combinatorial Colloquium, Keszthely, Hungary, June 28–July 3, 1976*, Colloquia Mathematica Societatis János Bolyai 18, North-Holland, Amsterdam, 1978, pp. 353–364. Cited on p. 129
- [112] Fu, B., “Theory and Application of Width Bounded Geometric Separator” in Durand, B., Thomas, W. (eds.) *STACS 2006, 23rd Annual Symposium on Theoretical Aspects of Computer Science, Marseille, France, February 23–25, 2006, Proceedings*, Lecture Notes in Computer Science 3884, Springer-Verlag, Berlin, 2006, pp. 277–288. Cited on p. 70
- [113] Gandhi, R., Khuller, S., Srinivasan, A., “Approximation algorithms for partial covering problems”, *Journal of Algorithms* 53:1 (October 2004), pp. 55–84. Cited on p. 163
- [114] Garey, M.R., Johnson, D.S., “The Rectilinear Steiner Tree Problem is NP-Complete”, *SIAM Journal on Applied Mathematics* 32:4 (1977), pp. 826–834. Cited on p. 181
- [115] Garey, M.R., Johnson, D.S., *Computers and Intractability - A Guide to the Theory of NP-Completeness*, W.H. Freeman and Company, San Francisco, 1979. Cited on p. 12, 43, 44
- [116] Garey, M.R., Johnson, D.S., Stockmeyer, L.J., “Some Simplified NP-Complete Graph Problems”, *Theoretical Computer Science* 1:3 (February 1976), pp. 237–267. Cited on p. 201
- [117] Garwood, F., “The Variance of the Overlap of Geometrical Figures with Reference to a Bombing Problem”, *Biometrika* 34:1/2 (January 1947), pp. 1–17. Cited on p. 4
- [118] Gavril, F., “The intersection graphs of subtrees in trees are exactly the chordal graphs”, *Journal of Combinatorial Theory, Series B* 16:1 (February 1974), pp. 47–56. Cited on p. 18, 26
- [119] Geelen, J., Guo, A., McKinnon, D., “Straight line embeddings of cubic planar graphs with integer edge lengths”, *Journal of Graph Theory* 58:3 (July 2008), pp. 270–274. Cited on p. 27

- [120] Gens, G.V., Levner, E.V., “Computational Complexity of Approximation Algorithms for Combinatorial Problems” in Becvár, J. (ed.) *Mathematical Foundations of Computer Science 1979, Proceedings, 8th Symposium, Olomouc, Czechoslovakia, September 3-7, 1979*, Lecture Notes in Computer Science 74, Springer-Verlag, Berlin, 1979, pp. 292–300. Cited on p. 185
- [121] Ghosh, A., Das, S.K., “Coverage and connectivity issues in wireless sensor networks: A survey”, *Pervasive and Mobile Computing* 4:3 (June 2008), pp. 303–334. Cited on p. 3
- [122] Gilbert, E.N., “Random Plane Networks”, *Journal of the Society for Industrial and Applied Mathematics* 9:4 (December 1961), pp. 533–543. Cited on p. 2
- [123] Gilmore, P.C., Hoffman, A.J., “A characterization of comparability graphs and of interval graphs”, *Canadian Journal of Mathematics* 16 (1964), pp. 539–548. Cited on p. 19
- [124] Glaßer, C., Reith, S., Vollmer, H., “The complexity of base station positioning in cellular networks”, *Discrete Applied Mathematics* 148:1 (April 2005), pp. 1–12. Cited on p. 3, 164
- [125] Glaßer, C., Reitwießner, C., Schmitz, H., “Multiobjective Disk Cover Admits a PTAS” in Hong, S.H., Nagamochi, H., Fukunaga, T. (eds.) *Algorithms and Computation, 19th International Symposium, ISAAC 2008, Gold Coast, Australia, December 15-17, 2008, Proceedings*, Lecture Notes in Computer Science 5369, Springer-Verlag, Berlin, 2008, pp. 40–51. Cited on p. 162, 163
- [126] Golumbic, M.C., *Algorithmic Graph Theory and Perfect Graphs*, Second Edition, 57, Elsevier, 2004. Cited on p. 19
- [127] Golumbic, M.C., Trenk, A.N., *Tolerance Graphs*, Cambridge University Press, Cambridge, 2004. Cited on p. 19
- [128] Gonzalez, T.F., “Covering a Set of Points in Multidimensional Space”, *Information Processing Letters* 40:4 (November 1991), pp. 181–188. Cited on p. 163
- [129] Gräf, A., Stumpf, M., Weißenfels, G., *On Coloring Unit Disk Graphs*, Technical Report Musikinformatik & Medientechnik 17/94, Johannes Gutenberg-Universität Mainz, Mainz, Germany, 1994. Cited on p. 24
- [130] Gräf, A., Stumpf, M., Weißenfels, G., “On Coloring Unit Disk Graphs”, *Algorithmica* 20:3 (March 1998), pp. 277–293. Cited on p. 48

- [131] Grohe, M., “Local Tree-Width, Excluded Minors, and Approximation Algorithms”, *Combinatorica* 23:4 (December 2003), pp. 613–632. Cited on p. 88, 90
- [132] Guha, S., Khuller, S., “Approximation Algorithms for Connected Dominating Sets”, *Algorithmica* 20:4 (April 1998), pp. 374–387. Cited on p. 46
- [133] Guo, S., Yang, O.W.W., “Energy-aware multicasting in wireless ad hoc networks: A survey and discussion”, *Computer Communications* 30:9 (June 2007), pp. 2129–2148. Cited on p. 3
- [134] Guruswami, V., Trevisan, L., “The Complexity of Making Unique Choices: Approximating 1-in- k SAT” in Chekuri, C., Jansen, K., Rolim, J.D.P., Trevisan, L. (eds.) *Approximation, Randomization and Combinatorial Optimization, Algorithms and Techniques, 8th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems, APPROX 2005 and 9th International Workshop on Randomization and Computation, RANDOM 2005, Berkeley, CA, USA, August 22-24, 2005, Proceedings*, Lecture Notes in Computer Science 3624, Springer-Verlag, Berlin, 2005, pp. 99–110. Cited on p. 162
- [135] Gyárfás, A., Lehel, J., “A Helly-type problem in trees” in Erdős, P., Rényi, A., Sós, V.T. (eds.) *Combinatorial Theory and its Applications II*, Colloquia Mathematica Societatis János Bolyai 4, North-Holland, Amsterdam, 1970, pp. 571–584. Cited on p. 18, 26
- [136] Hale, W.K., “Frequency Assignment: Theory and Applications”, *Proceedings of the IEEE* 68:12 (December 1980), pp. 1497–1514. Cited on p. 3
- [137] Halldórsson, M.M., “Approximating Discrete Collections via Local Improvements” in *Proceedings of the Sixth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 1995, San Francisco, California, USA, January 22-24, 1995*, Association for Computing Machinery, 1995, pp. 160–169. Cited on p. 44
- [138] Halperin, E., “Improved Approximation Algorithms for the Vertex Cover Problem in Graphs and Hypergraphs”, *SIAM Journal on Computing* 31:5 (2002), pp. 1608–1623. Cited on p. 46
- [139] Hansen, L.J., “On the Rodin and Sullivan Ring Lemma”, *Complex Variables: Theory and Application* 10 (1988), pp. 23–30. Cited on p. 26
- [140] Har-Peled, S., Smorodinsky, S., “Conflict-Free Coloring of Points and Simple Regions in the Plane”, *Discrete and Computational Geometry* 34:1 (July 2005), pp. 47–70. Cited on p. 48

- [141] Hartman, I.B.A., Newman, I., Ziv, R., “On grid intersection graphs”, *Discrete Mathematics* 87:1 (January 1991), pp. 41–52. Cited on p. 27, 28
- [142] Hästad, J., “Clique is hard to approximate within $n^{1-\epsilon}$ ”, *Acta Mathematica* 182:1 (March 1999), pp. 105–142. Cited on p. 44
- [143] Haussler, D., Welzl, E., “ ϵ -Nets and Simplex Range Queries”, *Discrete and Computational Geometry* 2:1 (December 1987), pp. 127–151. Cited on p. 114
- [144] Havel, T.F., *The Combinatorial Distance Geometry Approach to the Calculation of Molecular Conformation*, PhD thesis, University of California, Berkeley, 1982. Cited on p. 22
- [145] Havel, T.F., Kuntz, I.D., Crippen, G.M., “The Combinatorial Distance Geometry Method for the Calculation of Molecular Conformation I: A New Approach to an Old Problem”, *Journal of Theoretical Biology* 104:3 (October 1983), pp. 359–381. Cited on p. 22
- [146] Hliněný, P., “Touching Graphs of Unit Balls” in Battista, G.D. (ed.) *Graph Drawing, 5th International Symposium, GD '97, Rome, Italy, September 18-20, 1997, Proceedings*, Lecture Notes in Computer Science 1353, Springer-Verlag, Berlin, 1997, pp. 350–358. Cited on p. 23
- [147] Hliněný, P., Kratochvíl, J., “Representing graphs by disks and balls (a survey of recognition-complexity results)”, *Discrete Mathematics* 229:1-3 (February 2001), pp. 101–124. Cited on p. 23, 83
- [148] Hochbaum, D.S., “Approximation Algorithms for the Set Covering and Vertex Cover Problems”, *SIAM Journal on Computing* 11:3 (1982), pp. 555–556. Cited on p. 127
- [149] Hochbaum, D.S., “Approximating Covering and Packing Problems: Set Cover, Vertex Cover, Independent Set, and Related Problems” in Hochbaum, D.S. (ed.) *Approximation Algorithms for NP-hard Problems*, PWS Publishing Company, Boston, 1997, pp. 46–93. Cited on p. 119, 129, 161, 162
- [150] Hochbaum, D.S., Maass, W., “Approximation Schemes for Covering and Packing Problems in Image Processing and VLSI”, *Journal of the ACM* 32:1 (January 1985), pp. 130–136. Cited on p. 2, 4, 45, 71, 92, 163, 195
- [151] Hochbaum, D.S., Pathria, A., *Analysis of the greedy approach in covering problems*, unpublished manuscript, 1994. Cited on p. 162
- [152] Hopcroft, J., Tarjan, R.E., “Efficient Planarity Testing”, *Journal of the ACM* 21:4 (October 1974), pp. 549–568. Cited on p. 23

- [153] Huang, Y., Gao, X., Zhang, Z., Wu, W., “A Better Constant-Factor Approximation for Weighted Dominating Set in Unit Disk Graph”, *Journal of Combinatorial Optimization* (2008), doi: 10.1007/s10878-008-9146-0. Cited on p. 47, 83
- [154] Hunt III, H.B., Marathe, M.V., Radhakrisnan, V., Ravi, S.S., Rosenkrantz, D.J., Stearns, R.E., “NC-Approximation Schemes for NP- and PSPACE-Hard Problems for Geometric Graphs”, *Journal of Algorithms* 26:2 (February 1998), pp. 238–274. Cited on p. 2, 45, 46, 47, 68, 71, 74, 76, 78, 79, 84
- [155] Imai, H., Asano, T., “Finding the Connected Components and a Maximum Clique of an Intersection Graph of Rectangles in the Plane”, *Journal of Algorithms* 4:4 (December 1983), pp. 310–323. Cited on p. 48
- [156] Johnson, D.S., “Approximation algorithms for combinatorial problems”, *Journal of Computer and System Sciences* 9:3 (December 1974), pp. 256–278. Cited on p. 46, 113, 119, 129, 161
- [157] Johnson, D.S., “The NP-Completeness Column: An Ongoing Guide”, *Journal of Algorithms* 3:2 (June 1982), pp. 182–195. Cited on p. 2, 161, 163
- [158] Kalinin, V.B., “A Problem of Berge”, *Mathematical Notes* 34:1 (July 1983), pp. 551–552, (translated from *Matematicheskie Zametki*, 34:1 (July 1983), pp. 131–133). Cited on p. 25
- [159] Karmarkar, N., “A new polynomial-time algorithm for linear programming”, *Combinatorica* 4:4 (December 1984), pp. 373–396. Cited on p. 118
- [160] Kaufmann, M., Kratochvíl, J., Lehmann, K.A., Subramanian, A.R., “Max-tolerance graphs as intersection graphs: cliques, cycles, and recognition” in *Proceedings of the Seventeenth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 2006, Miami, Florida, USA, January 22-26, 2006*, Association for Computing Machinery, 2006, pp. 832–841. Cited on p. 4, 21, 48, 122
- [161] Kedem, K., Livne, R., Pach, J., Sharir, M., “On the Union of Jordan Regions and Collision-Free Translational Motion Amidst Polygonal Obstacles”, *Discrete and Computational Geometry* 1:1 (December 1986), pp. 59–70. Cited on p. 115
- [162] Kelmans, A.K., “On convex embeddings of planar 3-connected graphs”, *Journal of Graph Theory* 33:2 (February 2000), pp. 120–124. Cited on p. 27

- [163] Khachiyan, L.G., “A Polynomial Algorithm in Linear Programming”, *Soviet Mathematics Doklady* 20:1 (1979), pp. 191–194, (translated from *Doklady Akademii Nauk SSSR* 244 (1979), pp. 1093–1096). Cited on p. 118
- [164] Khanna, S., Muthukrishnan, S., Paterson, M., “On Approximating Rectangle Tiling and Packing” in *Proceedings of the Ninth Annual ACM-SIAM Symposium on Discrete Algorithms, SODA 1998, San Francisco, California, United States, January 25-27, 1998*, Association for Computing Machinery, 1998, pp. 384–393. Cited on p. 46
- [165] Khuller, S., Moss, A., Naor, J.S., “The Budgeted Maximum Coverage Problem”, *Information Processing Letters* 70:1 (April 1999), pp. 39–45. Cited on p. 162, 179
- [166] Kiess, W., Mauve, M., “A survey on real-world implementations of mobile ad-hoc networks”, *Ad Hoc Networks* 5:3 (April 2007), pp. 324–339. Cited on p. 3
- [167] Kim, S.J., Kostochka, A.V., Nakprasit, K., “On the Chromatic Number of Intersection Graphs of Convex Sets in the Plane”, *The Electronic Journal of Combinatorics* 11:1 (August 2004), p. R52. Cited on p. 48, 124
- [168] Kloks, T., *Treewidth: Computation and Approximation*, Lecture Notes in Computer Science 842, Springer-Verlag, Berlin, 1994. Cited on p. 52, 56, 59
- [169] Koebe, P., “Kontaktprobleme der konformen Abbildung”, *Berichte über die Verhandlungen der Sächsischen Akademie der Wissenschaften Leipzig, Mathematische-Physische Klasse* Sitzung vom 11. Februar 1935, 88 (1936), pp. 141–164. Cited on p. 17, 23, 26, 91, 128
- [170] Komlós, J., Pach, J., Woeginger, G.J., “Almost Tight Bounds for ϵ -Nets”, *Discrete and Computational Geometry* 7:2 (December 1992), pp. 163–173. Cited on p. 114
- [171] Kozyrev, V.P., Yushmanov, S.V., “Representations of graphs and networks (coding, layouts and embeddings)”, *Journal of Mathematical Sciences* 61:3 (September 1992), pp. 2152–2194, (translated from *Itoyi Nauki i Tekhniki, Seriya Teoriya Veroyatnostei, Matematicheskaya Statistika, Teoreticheskaya Kibernetika*, 27 (1990), pp. 129–196). Cited on p. 18, 19
- [172] Kratochvíl, J., “String graphs. II. recognizing string graphs is NP-hard”, *Journal of Combinatorial Theory, Series B* 52:1 (May 1991), pp. 67–78. Cited on p. 20

- [173] Kratochvíl, J., “A Special Planar Satisfiability Problem and a Consequence of Its NP-completeness”, *Discrete Applied Mathematics* 52:3 (August 1994), pp. 233–252. Cited on p. 19, 20
- [174] Kratochvíl, J., “Intersection Graphs of Noncrossing Arc-Connected Sets in the Plane” in North, S.C. (ed.) *Graph Drawing, Symposium on Graph Drawing, GD '96, Berkeley, California, USA, September 18-20, Proceedings*, Lecture Notes in Computer Science 1190, Springer-Verlag, Berlin, 1996, pp. 257–270. Cited on p. 17, 21, 23, 27
- [175] Kratochvíl, J., *Geometric representations of graphs*, Course notes, Graph Theory Course at UPC Barcelona, April 5-21, 2005. Cited on p. 20
- [176] Kratochvíl, J., “Geometric Representations of Graphs” in *New Directions in Algorithms, Combinatorics, and Optimization, A Conference Honoring the 65th Birthday of William T. Trotter, Atlanta, Georgia, USA, May 5-9, 2008*, 2008. Cited on p. 21, 28
- [177] Kratochvíl, J., Kuběna, A., “On intersection representations of co-planar graphs”, *Discrete Mathematics* 178:1–3 (January 1998), pp. 251–255. Cited on p. 28
- [178] Kratochvíl, J., Matoušek, J., “NP-Hardness Results for Intersection Graphs”, *Commentationes Mathematicae Universitatis Carolinae* 30:4 (1989), pp. 761–773. Cited on p. 21
- [179] Kratochvíl, J., Matoušek, J., “Intersection Graphs of Segments”, *Journal of Combinatorial Theory, Series B* 62:2 (November 1994), pp. 289–315. Cited on p. 19, 20, 23
- [180] Kratochvíl, J., Pergel, M., “Two Results on Intersection Graphs of Polygons” in Liotta, G. (ed.) *Graph Drawing, 11th International Symposium, GD 2003, Perugia, Italy, September 21-24, 2003, Revised Papers*, Lecture Notes in Computer Science 2912, Springer-Verlag, Berlin, 2003, pp. 59–70. Cited on p. 21
- [181] Kratochvíl, J., Pergel, M., “Geometric Intersection Graphs: Do Short Cycles Help?” in Lin, G. (ed.) *Computing and Combinatorics, 13th Annual International Conference, COCOON 2007, Banff, Canada, July 16-19, 2007, Proceedings*, Lecture Notes in Computer Science 4598, Springer-Verlag, Berlin, 2007, pp. 118–128. Cited on p. 21
- [182] Kratochvíl, J., Pergel, M., “Intersection graphs of homothetic polygons”, *Electronic Notes in Discrete Mathematics* 31 (August 2008), pp. 277–280. Cited on p. 21
- [183] Kreweras, G., “Sur les partitions non croisées d’un cycle”, *Discrete Mathematics* 1:4 (February 1972), pp. 333–350. Cited on p. 63

- [184] Kuhn, F., Moscibroda, T., Wattenhofer, R., “Unit Disk Graph Approximation” in Basagni, S., Phillips, C.A. (eds.) *Proceedings of the 2004 Joint Workshop on Foundations of Mobile Computing, DIALM-POMC '04, Philadelphia, PA, USA, 2004*, Association for Computing Machinery, 2004, pp. 17–23. Cited on p. 17, 22, 24
- [185] Kuhn, F., Nieberg, T., Moscibroda, T., Wattenhofer, R., “Local Approximation Schemes for Ad Hoc and Sensor Networks” in *Proceedings of the 2005 Joint Workshop on Foundations of Mobile Computing, DIALM-POMC '05, Cologne, Germany, 2005*, Association for Computing Machinery, 2005, pp. 97–103. Cited on p. 47
- [186] Kuhn, F., von Rickenbach, P., Wattenhofer, R., Welzl, E., Zollinger, A., “Interference in Cellular Networks: The Minimum Membership Set Cover Problem” in Wang, L. (ed.) *Computing and Combinatorics, 11th Annual International Conference, COCOON 2005, Kunming, China, August 16-29, 2005, Proceedings*, Lecture Notes in Computer Science 3595, Springer-Verlag, Berlin, 2005, pp. 188–198. Cited on p. 163, 200
- [187] Kuhn, F., Wattenhofer, R., Zollinger, A., “Ad hoc networks beyond unit disk graphs”, *Wireless Networks* 14:5 (October 2008), pp. 715–729. Cited on p. 24
- [188] Laue, S., “Geometric Set Cover and Hitting Sets for Polytopes in \mathbb{R}^3 ” in Albers, S., Weil, P. (eds.) *STACS 2008, 25th Annual Symposium on Theoretical Aspects of Computer Science, Bordeaux, France, February 21-23, 2008, Proceedings*, Dagstuhl Seminar Series 08001, Internationales Begegnungs- und Forschungszentrum für Informatik (IBFI), Schloss Dagstuhl, Germany, 2008, pp. 479–490. Cited on p. 114, 115, 116, 126, 162, 179
- [189] Lekkerkerker, C.G., Boland, J.C., “Representation of a finite graph by a set of intervals on the real line”, *Fundamenta Informaticae* 51 (1962), pp. 45–62. Cited on p. 18
- [190] Lev-Tov, N., Peleg, D., “Exact Algorithms and Approximation Schemes for Base Station Placement Problems” in Penttonen, M., Schmidt, E.M. (eds.) *Algorithm Theory - SWAT 2002, 8th Scandinavian Workshop on Algorithm Theory, Turku, Finland, July 3-5, 2002 Proceedings*, Lecture Notes in Computer Science 2368, Springer-Verlag, Berlin, 2002, pp. 90–99. Cited on p. 163
- [191] Lev-Tov, N., Peleg, D., “Polynomial time approximation schemes for base station coverage with minimum total radii”, *Computer Networks* 47:4 (March 2005), pp. 489–501. Cited on p. 161, 163
- [192] Li, X.Y., Wang, Y., “Simple approximation algorithms and PTASs for various problems in wireless ad hoc networks”, *Journal of Parallel and*

- Distributed Computing* 66:4 (April 2006), pp. 515–530. Cited on p. 45, 46
- [193] Liao, C., Hu, S., “Polynomial time approximation schemes for minimum disk cover problems”, *Journal of Global Optimization* (2009), doi: 10.1007/s10878-009-9216-y. Cited on p. 161
- [194] Lichtenstein, D., “Planar Formulae and Their Uses”, *SIAM Journal on Computing* 11:2 (May 1982), pp. 329–343. Cited on p. 68
- [195] Lin, M.C., Szwarcfiter, J.L., “Unit Circular-Arc Graph Representations and Feasible Circulations”, *SIAM Journal on Discrete Mathematics* 22:1 (2008), pp. 409–423. Cited on p. 19
- [196] Lingas, A., Wahlen, M., “A note on maximum independent set and related problems on box graphs”, *Information Processing Letters* 93:4 (February 2005), pp. 169–171. Cited on p. 20, 30
- [197] Lovász, L., “On the ratio of optimal integral and fractional covers”, *Discrete Mathematics* 13:4 (1975), pp. 383–390. Cited on p. 46, 113, 119, 129, 161
- [198] Maehara, H., “Space graphs and sphericity”, *Discrete Applied Mathematics* 7:1 (January 1984), pp. 55–64. Cited on p. 22, 83
- [199] Malesińska, E., *Graph-Theoretical Models for Frequency Assignment Problems*, PhD thesis, Technical University of Berlin, Berlin, Germany, 1997. Cited on p. 22, 24, 27, 46, 48
- [200] Malitz, S.M., Papakostas, A., “On the Angular Resolution of Planar Graphs”, *SIAM Journal on Discrete Mathematics* 7:2 (1994), pp. 173–183. Cited on p. 26
- [201] Marathe, M.V., Breu, H., Hunt III, H.B., Ravi, S.S., Rosenkrantz, D.J., “Simple Heuristics for Unit Disk Graphs”, *Networks* 25 (1995), pp. 59–68. Cited on p. 2, 44, 46, 48
- [202] Marx, D., “Efficient Approximation Schemes for Geometric Problems?” in Brodal, G.S., Leonardi, S. (eds.) *Algorithms - ESA 2005, 13th Annual European Symposium, Palma de Mallorca, Spain, October 3-6, 2005, Proceedings*, Lecture Notes in Computer Science 3669, Springer-Verlag, Berlin, 2005, pp. 448–459. Cited on p. 46, 70, 76, 77, 87, 88, 99
- [203] Marx, D., “Parameterized Complexity of Independence and Domination Problems on Geometric Graphs” in Bodlaender, H.L., Langston, M.A. (eds.) *Parameterized and Exact Computation, Second International Workshop, IWPEC 2006, Zürich, Switzerland, September 13-15, 2006, Proceedings*, Lecture Notes in Computer Science 4169, Springer-Verlag, Berlin, 2006, pp. 154–165. Cited on p. 70, 87, 88

- [204] Marx, D., “On the Optimality of Planar and Geometric Approximation Schemes” in *48th Annual IEEE Symposium on Foundations of Computer Science, FOCS 2007, October 20-23, 2007, Providence, RI, USA, Proceedings*, IEEE Computer Society, 2007, pp. 338–348. Cited on p. 84, 85, 86, 88, 90
- [205] Matoušek, J., Seidel, R., Welzl, E., “How to Net a Lot with Little: Small ϵ -Nets for Disks and Halfspaces” in *Proceedings of the 6th Annual Symposium on Computational Geometry, Berkley, California, USA, 1990*, Association for Computing Machinery, 1990. Cited on p. 114
- [206] Matsui, T., “Approximation Algorithms for Maximum Independent Set Problems and Fractional Coloring Problems on Unit Disk Graph” in Akiyama, J., Kano, M., Urabe, M. (eds.) *Discrete and Computational Geometry, Japanese Conference, JCDCG’98, Tokyo, Japan, December 9-12, 1998, Revised Papers*, Lecture Notes in Computer Science 1763, Springer-Verlag, Berlin, 1998, pp. 194–200. Cited on p. 45
- [207] McConnell, R.M., “Linear-Time Recognition of Circular-Arc Graphs”, *Algorithmica* 37:2 (October 2003), pp. 93–147. Cited on p. 19
- [208] McKee, T.A., McMorris, F.R., *Topics in Intersection Graph Theory*, Society for Industrial and Applied Mathematics, Philadelphia, 1999. Cited on p. 18, 19
- [209] Mihalák, M., *Optimization Problems in Communication Networks*, PhD thesis, University of Leicester, Leicester, UK, 2006. Cited on p. 161, 165, 177, 187
- [210] Miller, G.L., Teng, S.H., Thurston, W.P., Vavasis, S.A., “Separators for Sphere-Packings and Nearest Neighbor Graphs”, *Journal of the ACM* 44:1 (January 1992), pp. 1–29. Cited on p. 91, 127, 128
- [211] Mohar, B., “A polynomial time circle packing algorithm”, *Discrete Mathematics* 117:1–3 (July 1993), pp. 257–263. Cited on p. 27
- [212] Mohar, B., “Circle Packings of Maps in Polynomial Time”, *European Journal of Combinatorics* 18:7 (October 1997), pp. 785–805. Cited on p. 27
- [213] Mohar, B., Thomassen, C., *Graphs on Surfaces*, The John Hopkins University Press, Baltimore, 2001. Cited on p. 27
- [214] Monien, B., Speckenmeyer, E., “Ramsey Numbers and an Approximation Algorithm for the Vertex Cover Problem”, *Acta Informatica* 22:1 (April 1985), pp. 115–123. Cited on p. 46

- [215] Moscibroda, T., O'Dell, R., Wattenhofer, M., Wattenhofer, R., "Virtual Coordinates for Ad Hoc and Sensor Networks" in Basagni, S., Phillips, C.A. (eds.) *Proceedings of the 2004 Joint Workshop on Foundations of Mobile Computing, DIALM-POMC '04, Philadelphia, PA, USA, 2004*, Association for Computing Machinery, 2004, pp. 8–16. Cited on p. 22
- [216] Moser, H., Raman, V., Sikdar, S., "The Parameterized Complexity of the Unique Coverage Problem" in Tokuyama, T. (ed.) *Algorithms and Computation, 18th International Symposium, ISAAC 2007, Sendai, Japan, December 17-19, 2007, Proceedings*, Lecture Notes in Computer Science 4835, Springer-Verlag, Berlin, 2007, pp. 621–631. Cited on p. 162
- [217] Mustafa, N., Ray, S., "PTAS for Geometric Hitting Set Problems via Local Search" in *Proceedings of the 25th ACM Symposium on Computational Geometry, Aarhus, Denmark, June 8-10, 2009, 2009*. Cited on p. 161, 165, 208
- [218] Narayanappa, S., Vojtěchovský, P., "An Improved Approximation Factor For The Unit Disk Covering Problem" in *Proceedings of the 18th Annual Canadian Conference on Computational Geometry, CCCG 2006, August 14-16, 2006, Queen's University, Ontario, Canada, 2006*. Cited on p. 161
- [219] Nieberg, T., Hurink, J., Kern, W., "Approximation schemes for wireless networks", *ACM Transactions on Algorithms* 4:4 (2008), pp. 49:1–49:17. Cited on p. 24, 45, 46, 47, 84
- [220] Papadimitriou, C.H., Yannakakis, M., "Optimization, Approximation, and Complexity Classes", *Journal of Computer and System Sciences* 43:3 (December 1991), pp. 425–440. Cited on p. 150
- [221] Paz, A., Moran, S., "Non deterministic polynomial optimization problems and their approximations", *Theoretical Computer Science* 15:3 (1981), pp. 251–277. Cited on p. 12
- [222] Peeters, R., *On Coloring j -Unit Sphere Graphs*, Technical Report FEW 512, Department of Economics, Tilburg University, Tilburg, The Netherlands, 1991. Cited on p. 48
- [223] Peikert, R., Würtz, D., Monagan, M., de Groot, C., "Packing Circles in a Square: A Review and New Results" in Kall, P. (ed.) *System Modelling and Optimization, Proceedings of the 15th IFIP Conference Zurich, Switzerland, September 2-6, 1991*, Lecture Notes in Control and Information Sciences 180, Springer-Verlag, Berlin, 1991, pp. 45–54. Cited on p. 106
- [224] Pergel, M., "Recognition of Polygon-Circle Graphs and Graphs of Interval Filaments Is NP-Complete" in Brandstädt, A., Kratsch, D., Müller,

- H. (eds.) *Graph-Theoretic Concepts in Computer Science, 33rd International Workshop, WG 2007, Dornburg, Germany, June 21-23, 2007, Revised Papers*, Lecture Notes in Computer Science 4769, Springer-Verlag, Berlin, 2007, pp. 238–247. Cited on p. 21
- [225] Perkins, C.E., *Ad Hoc Networking*, Addison Wesley, Reading, Massachusetts, 2001. Cited on p. 3
- [226] Pyrga, E., Ray, S., “New Existence Proofs for ϵ -nets” in Teillaud, M. (ed.) *Proceedings of the 24th ACM Symposium on Computational Geometry, College Park, MD, USA, June 9-11, 2008*, Association for Computing Machinery, 2008, pp. 199–207. Cited on p. 23, 114, 115
- [227] Rado, R., “A sequence of polyhedra having intersections of specified dimensions”, *Journal of the London Mathematical Society* 22:4 (October 1947), pp. 287–289. Cited on p. 25
- [228] Roberts, F.S., “On the boxicity and cubicity of a graph” in Tutte, W.T. (ed.) *Recent Progress in Combinatorics: Proceedings of the Third Waterloo Conference on Combinatorics*, Academic Press, New York, 1969, pp. 301–310. Cited on p. 20
- [229] Robertson, N., Seymour, P.D., “Graph Minors. I. Excluding a Forest”, *Journal of Combinatorial Theory, Series B* 35:1 (August 1983), pp. 39–61. Cited on p. 50
- [230] Robertson, N., Seymour, P.D., “Graph minors. X. Obstructions to tree-decomposition”, *Journal of Combinatorial Theory, Series B* 52:2 (July 1991), pp. 153–190. Cited on p. 50
- [231] Sachs, H., “Coin graphs, polyhedra, and conformal mapping”, *Discrete Mathematics* 134:1–3 (November 1994), pp. 133–138. Cited on p. 23, 26
- [232] Santi, P., “Topology control in wireless ad hoc and sensor networks”, *ACM Computing Surveys* 37:2 (June 2005), pp. 164–194. Cited on p. 3
- [233] Schaefer, M., Sedgwick, E., Štefankovič, D., “Recognizing string graphs in NP”, *Journal of Computer and System Sciences* 67:2 (September 2003), pp. 365–380. Cited on p. 20
- [234] Scheinerman, E.R., *Intersection classes and multiple intersection parameters of graphs*, PhD thesis, Princeton University, 1984. Cited on p. 27
- [235] Scheinerman, E.R., West, D.B., “The interval number of a planar graph: Three intervals suffice”, *Journal of Combinatorial Theory, Series B* 35:3 (December 1983), pp. 224–239. Cited on p. 26

- [236] Schmid, S., Wattenhofer, R., “Algorithmic Models for Sensor Networks” in *20th International Parallel and Distributed Processing Symposium (IPDPS 2006), Proceedings, 25-29 April 2006, Rhodes Island, Greece*, IEEE Computer Society, 2006. Cited on p. 24
- [237] Schramm, O., *Packing two-dimensional bodies with prescribed combinatorics and applications to the construction of conformal and quasiconformal mappings*, PhD thesis, Princeton, 1990. Cited on p. 17, 28
- [238] Schramm, O., “Conformal Uniformization and Packings”, *Israel Journal of Mathematics* 93:1 (December 1996), pp. 399–428. Cited on p. 28
- [239] Seese, D., “Tree-partite graphs and the complexity of algorithms” in Budach, L. (ed.) *Fundamentals of Computation Theory, FCT '85, Cottbus, GDR, September 9-13, 1985*, Lecture Notes in Computer Science 199, Springer-Verlag, Berlin, 1985, pp. 412–421. Cited on p. 52
- [240] Simion, R., “Noncrossing partitions”, *Discrete Mathematics* 217:1–3 (April 2000), pp. 367–409. Cited on p. 63
- [241] Sinden, F.W., “Topology of Thin Film RC-Circuits”, *The Bell System Technical Journal* 45 (November 1966), pp. 1639–1662. Cited on p. 20, 25
- [242] Sinden, F.W., “Topology of Thin Film RC-Circuits” in Rosenstiehl, P. (ed.) *Theory of Graphs, International Symposium, International Computation Centre, Rome, July 1966*, Gordon and Breach, New York, 1967, pp. 389–393. Cited on p. 20, 25
- [243] Smith, W.D., *Accurate Circle Configurations and Numerical Conformal Mapping in Polynomial Time*, unpublished, 1991. Cited on p. 27
- [244] Smith, W.D., Wormald, N.C., “Geometric Separator Theorem & Applications” in *39th Annual Symposium on Foundations of Computer Science, FOCS '98, November 8-11, 1998, Palo Alto, California, USA*, IEEE Computer Society, 1998, pp. 232–243. Cited on p. 70
- [245] Smorodinsky, S., “On the Chromatic Number of Geometric Hypergraphs”, *SIAM Journal on Discrete Mathematics* 21:3 (2007), pp. 676–687. Cited on p. 48
- [246] Spinrad, J.P., *Efficient Graph Representations*, Field Institute Monographs 19, American Mathematical Society, Providence, Rhode Island, 2003. Cited on p. 18
- [247] Stein, S.K., “Convex Maps”, *Proceedings of the American Mathematical Society* 2:3 (June 1951), pp. 464–466. Cited on p. 27

- [248] Szpilrajn-Marczewski, E., “Sur deux propriétés des classes d’ensembles”, *Fundamenta Informaticae* 33 (1945), pp. 303–307. Cited on p. 18
- [249] Telle, J.A., Proskurowski, A., “Practical Algorithms on Partial k -Trees with an Application to Domination-like Problems” in Dehne, F.K.H.A., Sack, J.R., Santoro, N., Whitesides, S. (eds.) *Algorithms and Data Structures, Third Workshop, WADS '93, Montréal, Canada, August 11-13, 1993, Proceedings*, Springer-Verlag, Berlin 709, Springer-Verlag, Berlin, 1993, pp. 610–621. Cited on p. 50, 55
- [250] Thomassen, C., “Planarity and duality of finite and infinite graphs”, *Journal of Combinatorial Theory, Series B* 29:2 (October 1980), pp. 244–271. Cited on p. 28
- [251] Thomassen, C., “Interval Representations of Planar Graphs”, *Journal of Combinatorial Theory, Series B* 40:1 (February 1986), pp. 9–20. Cited on p. 17, 28
- [252] Toh, C.K., *Ad Hoc Mobile Wireless Networks: Protocols and Systems*, Prentice-Hall, 2002. Cited on p. 3
- [253] Tucker, A., “Structure theorems for some circular-arc graphs”, *Discrete Mathematics* 7:1–2 (1974), pp. 167–195. Cited on p. 19
- [254] Tutte, W.T., “Convex Representations of Graphs”, *Journal of the London Mathematical Society* 10:1 (1960), pp. 304–320. Cited on p. 27
- [255] Valiant, L.G., “Universality Considerations in VLSI Circuits”, *IEEE Transactions on Computers* 30:2 (1981), pp. 135–140. Cited on p. 182, 201
- [256] van Leeuwen, E.J., *A Proof of the Clarkson-Varadarajan Result*, unpublished. Cited on p. 115
- [257] van Leeuwen, E.J., *Approximation Algorithms for Unit Disk Graphs*, Technical Report UU-CS-2004-066, Institute of Information and Computing Sciences, Utrecht University, Utrecht, The Netherlands, 2004. Cited on p. 22
- [258] van Leeuwen, E.J., *Optimization Problems on Mobile Ad Hoc Networks – Algorithms for Disk Graphs*, Master’s thesis INF/SCR-04-32, Institute of Information and Computing Sciences, Utrecht University, Utrecht, The Netherlands, 2004. Cited on p. 53, 68, 70, 92
- [259] van Leeuwen, E.J., “Approximation Algorithms for Unit Disk Graphs” in Kratsch, D. (ed.) *Graph-Theoretic Concepts in Computer Science, 31st International Workshop, WG 2005, Metz, France, June 23-25, 2005, Revised Selected Papers*, Lecture Notes in Computer Science 3787, Springer-Verlag, Berlin, 2005, pp. 351–361. Cited on p. 6

- [260] van Leeuwen, E.J., “Better Approximation Schemes for Disk Graphs” in Arge, L., Freivalds, R. (eds.) *Algorithm Theory - SWAT 2006, 10th Scandinavian Workshop on Algorithm Theory, Riga, Latvia, July 6-8, 2006, Proceedings*, Lecture Notes in Computer Science 4059, Springer-Verlag, Berlin, 2006, pp. 316–327. Cited on p. 6
- [261] van Leeuwen, E.J., van Leeuwen, J., *Convex Polygon Intersection Graphs*, submitted. Cited on p. 21, 30, 36
- [262] van Leeuwen, E.J., van Leeuwen, J., *On the Representation of Disk Graphs*, Technical Report UU-CS-2006-037, Department of Information and Computing Sciences, Utrecht University, Utrecht, The Netherlands, 2006. Cited on p. 5, 38
- [263] van Leeuwen, E.J., van Leeuwen, J., *Structure of Polynomial-Time Approximation*, manuscript, 2008. Cited on p. 5
- [264] Vohra, R., Hall, N.G., “A Probabilistic Analysis of the Maximal Covering Location Problem”, *Discrete Applied Mathematics* 43:2 (May 1993), pp. 175–183. Cited on p. 162
- [265] Walter, J.R., “Representations of chordal graphs as subtrees of a tree”, *Journal of Graph Theory* 2:3 (1978), pp. 265–267. Cited on p. 18, 26
- [266] Wan, P.J., Alzoubi, K.M., Frieder, O., “Distributed Construction of Connected Dominating Set in Wireless Ad Hoc Networks”, *Mobile Networks and Applications* 9:2 (April 2004), pp. 141–149. Cited on p. 47
- [267] Wang, D.W., Kuo, Y.S., “A Study on Two Geometric Location Problems”, *Information Processing Letters* 28:6 (August 1988), pp. 281–286. Cited on p. 2, 44, 68
- [268] Wegner, G., *Eigenschaften der Nerven homologisch-einfacher Familien im \mathbb{R}^n* , PhD thesis, Georg-August-Universität, Göttingen, 1967. Cited on p. 17, 19, 25, 27
- [269] West, D.B., Shmoys, D.B., “Recognizing graphs with fixed interval number is NP-complete”, *Discrete Applied Mathematics* 8:3 (July 1984), pp. 295–305. Cited on p. 19
- [270] Wiese, A., Kranakis, E., “Local PTAS for Independent Set and Vertex Cover in Location Aware Unit Disk Graphs” in Nikolettseas, S.E., Chlebus, B.S., Johnson, D.B., Krishnamachari, B. (eds.) *Distributed Computing in Sensor Systems, 4th IEEE International Conference, DCOSS 2008, Santorini Island, Greece, June 11-14, 2008, Proceedings*, Lecture Notes in Computer Science 5067, Springer-Verlag, Berlin, 2008, pp. 415–431. Cited on p. 47, 75

- [271] Wilf, H.S., *generatingfunctionology*, Second Edition, Academic Press, New York, 1994. Cited on p. 62
- [272] Xu, J., Berger, B., “Fast and Accurate Algorithms for Protein Side-Chain Packing”, *Journal of the ACM* 53:4 (July 2006), pp. 533–557. Cited on p. 4, 45
- [273] Yannakakis, M., “The Complexity of the Partial Order Dimension Problem”, *SIAM Journal on Algebraic and Discrete Methods* 3:3 (September 1982), pp. 351–358. Cited on p. 20
- [274] Yick, J., Mukherjee, B., Ghosal, D., “Wireless sensor network survey”, *Computer Networks* 52:12 (August 2008), pp. 2292–2330. Cited on p. 3
- [275] Young, N.E., “Sequential and Parallel Algorithms for Mixed Packing and Covering” in *42nd Annual Symposium on Foundations of Computer Science, FOCS 2001, 14-17 October 2001, Las Vegas, Nevada, USA*, IEEE Computer Society, 2001, pp. 538–546. Cited on p. 118
- [276] Yu, G., Goldschmidt, O., “On Locally Optimal Independent Sets and Vertex Covers”, *Naval Research Logistics* 43:5 (August 1996), pp. 737–748. Cited on p. 44
- [277] Yu, G., Kouvelis, P., Luo, S., “Weighted Vertex Packing Problem for Specially Structured Geometric Graphs”, *Naval Research Logistics* 42:1 (February 1995), pp. 81–102. Cited on p. 44
- [278] Zhang, Z., Gao, X., Wu, W., Du, D.Z., “PTAS for Minimum Connected Dominating Set in Unit Ball Graph” in Li, Y., Huynh, D.T., Das, S.K., Du, D.Z. (eds.) *Wireless Algorithms, Systems, and Applications, Third International Conference, WASA 2008, Dallas, TX, USA, October 26-28, 2008, Proceedings*, Lecture Notes in Computer Science 5258, Springer-Verlag, Berlin, 2008, pp. 154–161. Cited on p. 47, 82
- [279] Zou, F., Li, X., Kim, D., Wu, W., “Two Constant Approximation Algorithms for Node-Weighted Steiner Tree in Unit Disk Graphs” in Yang, B., Du, D.Z., Wang, C.A. (eds.) *Combinatorial Optimization and Applications, Second International Conference, COCOA 2008, St. John's, NL, Canada, August 21-24, 2008, Proceedings*, Lecture Notes in Computer Science 5165, Springer-Verlag, Berlin, 2008, pp. 278–285. Cited on p. 2, 47