

GUY KORTSARZ

PROFESSIONAL PREPARATION

Tel Aviv University	Mathematics and Computer Science	B.Sc, 1988
The Weizmann Institute	Computer Science	M.Sc, 1990
The Weizmann Institute	Computer Science	Ph.D, 1994

APPOINTMENTS

1 July 2008- **Professor**, Dept. of Computer Science, Rutgers University, Camden

2007-2008. **Visiting**. IBM Watson center, NY. (Sabbatical)

2001-2007 **Associate Professor**, Dept. of Computer Science, Rutgers University, Camden.

1996-2001. **Senior Lecturer**, Dept. of Computer Science, The Open University, Israel.

GRANTS

Previously supported by NSF award number 0728787.

For 104000 dollars.

Duration: 15/02/2008 to 31/01/2009.

Previously supported by NFS grant award number 0829959.

For 122000 dollars.

Duration: 2/1/2009 to 31/1/2012

Previously supported by NSF grant 1218620

Awarded with Rajiv Gandhi.

For 485000 dollars.

Duration: 9/1/2012 to 6/30/2017.

Additional funds for the same grant: 8400 dollars.

Awarded at 05/13/2013.

Additional fund for the same grant of: 4800 dollars.

Approved at 07/30/2013

Additional fund for the same grant of: 12050 dollars:

Awarded at 04/30/2014:

Previously supported by NSF grant number 1540547.

Awarded at 08/06/15

For 50000 dollars.

Duration: September 1, 2015

to August 31 2020.

Currently supported by NSF grant number 1910565.
Awarded with Rajiv Gandhi. For 330607 dollars.
Starting October 1 2019 until September 31 2022.

The total grant money allocated to Kortsarz (so far) is 1110565 dollars. Over a million and 100000 dollars.

INTERNS SUPPORTED BY NSF GRANT

May 2010 Spyridon Antonakopoulos from **Columbia university**

May 2013, Hossein Esfandiar from the **University of Maryland**

May 2014, Manish Purohit and Kanthi Sarpatwar from **The university of Maryland**

May 2015. Amey Bhangale from **Rutgers University New Brunswick.**

May 2016. Amey Bhangale from **Rutgers University New Brunswick.**

SERVICE FOR THE COMPUTER SCIENCE COMMUNITY

1) Editing: An editor in the Information Processing Letters Journal

2) Previous Committee membership.

RANDOM-APPROX, Princeton, August 2007

RANDOM-APPROX, Barcelona, August 2010

ESA. France, September 2013.

ESA 2021.

3) A member of *Mathematical Reviews*

(part of The American Math society)

4) Participated In Two NSF panels.

One of Career Awards.

CONFERENCE PUBLICATIONS

1) M. Cygan, M. Halldórsson and G. Kortsarz, A Tight Lower Bounds for Set Cover Approximation in Subexponential time. WAOA, pages 159-173, 2020.

2) X. Guo, G. Kortsarz, B Laekhanukit, S. Li and D. Vaz J and Jiayi Xian.

Approximation Bounded Degree Steiner Network Design problems.

Random Approx, APPROX/RANDOM 39:1-39:21, 2020.

3) Guy Kortsarz and Zeev Nutov.

Approximating Minimum Degree Group Steiner Problems, 31st International Workshop on Combinatorial Algorithms (IWOCA), pages 245-354, 2020.

- 4) Zeev Nutov, Guy Kortsarz and Eli Shalom.
Approximating activation edge-cover and facility location problems.
MFCS, pages 20:1-20:14, 2019.
- 5) G. Calinescu, G. Kortsarz and Z.Nutov, Improved approximation algorithms for minimum power covering problems, Workshop On Approximation and On-Line algorithms (WAOA) pages 134-148, 2018.
- 6) M. M Halldorsson, G. Kortsarz, P. Mitra and T. Tonoyan. Spanning Trees With Edge Conflicts and Wireless Connectivity. 2018. *ICALP*, 158:1-158:15, 2018
- 7) P. Chalermsook, M. Cygan, G. Kortsarz, B. Laekhanukit, P. Manuarangsi and D. Nanongkai and Luca Trevisan. From Gap-ETH to FPT-Inapproximability: Clique, Dominating Set, and More. *FOCS* pages 743-754, November 2017
- 8) E. Chlamtac, M. Dinitz, G. Kortsarz and B. Laekhanukit, Approximating Spanners and Directed Steiner Forest: Upper and Lower Bounds. *SODA*, pages 534-553, January 2017.
- 9) The Densest k -Subhypergraph Problem.
Eden Chlamtáč, Michael Dinitz, C. Konrad, Guy Kortsarz, and G. Rabanca *RANDOM-APPROX*, pages 6:1-6:19. August 2016
- 10) G. Kortsarz and Z. Nutov. Integrality gap LP for the tree augmentation problem. *RANDOM-APPROX*, 13:1-13:16, August 2016.
- 11) A. Bhangale, R. Gandhi, M Hajiaghayi, R. Khandekar, G Kortsarz. Bi-covering: Covering edges with two small subsets of vertices *ICALP* pages 601-612, June 2016.
- 12) Hossein Esfandiari and Guy Kortsarz. Low-Risk Mechanisms for the Kidney Exchange Game. *LATIN 2016*, pages 416-428, March, 2016.
- 13) Hossein Esfandiari and Guy Kortsarz. Low-Risk Mechanisms for the Kidney Exchange Game. *Symposium on Algorithmic game theory*, pages 303,304, 2015.
- 14) R. Gandhi, M. Halldórsson, C. Konrad and G. Kortsarz and H. Oh, Approximation Broadcast aggregation problem. *ALGOSENSORS* , pages 169-182, 2015.
- Remark:** This is an undergraduate research paper. Hoon Oh is a third year undergraduate student at Rutgers Camden.
- 15) Hajiaghayi, Kortsarz MacDavid, Purohit, and Sarpatwar.
Approximating the Connected Max Cut Problem. *ESA 2015*, 693-704.
- Remark:** This is an undergraduate research paper. Robert MacDavid was an undergraduate student in Rutgers Camden when the paper was done.
- 16) G. Kortsarz and Z. Nutov. Approximation for source location and the star SNDP problem. *Workshop on Graph theoretic concepts in computer science (WG)* 203–218, 2015

- 17) M. Dinitz, G. Kortsarz and Z. Nutov. Improved Approximation Algorithm for Steiner k -Forest with Nearly Uniform Weights. *RANDOM-APPROX* pages 115–127, 2014.
- 18) R. Chitnis, H. Esfandiari, M. Hajiaghayi, R. Khandekar, G. Kortsarz, and S. Seddighin. A Tight Algorithm for Strongly Connected Steiner Subgraph On Two Terminals With Demands. *Symposium on Parameterized and Exact Computation (IPEC)*, pages 159-171, 2014.
- 19) R. Gandhi and G. Kortsarz, On edge expansion problems and the small set expansion conjecture. *Workshop On Graph Theory (WG)*, pages 189-200, 2014.
- 20) M. Hajiaghayi, R. Khandekar, G. Kortsarz, and Z. Nutov, Fixed cost k -flow problems, *Workshop on Approximation and Online Algorithms (WAOA)*, pages 49-60, 2013
- 21) R. Chitnis, M. Hajiaghayi and G. Kortsarz. Fixed Parameter and approximation algorithms: a new look. *Symposium on Parameterized and Exact Computation (IPEC)*, pages 110-122, 2013. No journal version.
- 22) M. Hajiaghayi, R. Khandekar, M. Khani and G. Kortsarz, Approximation Algorithms for Movement Repairman. *RANDOM-APPROX*, pages 218-232, 2013.
- 23) M. Dinitz and G. Kortsarz, Matroid Secretary for Regular and Decomposable Matroids, *SODA* 2013, pages 108-117, January 2013.
- 24) M. Cygan, G. Kortsarz and Z. Nutov, Steiner Forest Orientation Problems, *ESA*, pages 361-372, August 2012.
- 25) M. Dinitz G. Kortsarz and R. Raz. Labelcover with large girth and the hardness of basic spanners. *ICALP*, pages 290-301, July 2012.
- 26) R. Khandekar and G. Kortsarz and V. Mirrokni, On the advantage of overlap in minimizing conductance. *LATIN*, 495-505, April 2012.
- 27) R. Khandekar and G. Kortsarz and Zeev Nutov. Approximating some network design problem with degree bounds. *RANDOM-APPROX*, 289-301, August 2011.
- 28) M. Hajiaghayi and R. Khandekar and G. Kortsarz and V. Liaghat, On a local protocol for Concurrent File transfers, *23rd ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)*, pages 269-278, June 2011.
- 29) M. Hajiaghayi and R. Khandekar and G. Kortsarz and J. Mestre, The checkpoint problem, *RANDOM-APPROX*, 219-231, August, 2010.
- 30) M. Hajiaghayi, R. Khandekar and G. Kortsarz, The Red-Blue Median Problem and its Generalization, *ESA*, 314-325, September, 2010.
- 31) M. Hajiaghayi and R. Khandekar and G. Kortsarz and Z. Nutov, Prize Collecting Steiner Network Problem and Extensions, *IPCO* 71-84, May, 2010.

- 32) R. Khandekar and G. Kortsarz and Z. Nutov, The fault tolerance Group Steiner problem, *Foundations of Software Technology and Theoretical Computer Science FSTTCS*, pages 263-274, November, 2009.
- 33) G. Kortsarz and Z. Nutov, Approximating some network design problems with node costs, *RANDOM-APPROX*, pages 231-343, September, 2009.
- 34) M. Feldman, G. Kortsarz and Z. Nutov, Improved results for the directed version of the k Steiner forest problem, *SODA*, 922-931, January, 2009.
- 35) R. Khandekar, G. Kortsarz, V. Mirrokni, M. Salavatipour, Approximation and hardness results for Robust Network design with Exponential Scenarios, *ESA*, 589-600, September 2008.
- 36) G. Kortsarz, M. Landberg and Z. Nutov. Approximating Maximum Subgraphs Without Short Cycles, *RANDOM-APPROX*, pages 118-131, August 2008.
- 37) M. Halldórsson, G. Kortsarz and M. Sviridenko. Min Sum Edge Coloring in General Multigraphs via Configuration LP, *IPCO*, pages 359-373, May 2008.
- 38) G. Kortsarz, V. Mirrokni, Z. Nutov and E. Tsanko, Approximating min-power connectivity problems, *Latin American Theoretical Informatics Symposium (LATIN)*, pages 423-435, April 2008.
- 39) C. Chekuri, M. Hajiaghayi, G. Kortsarz and M. Salavatipour, Approximating non-uniform buy at bulk network design with node costs, *SODA*, pages 1265-1274, January 2007.
- 40) C. Chekuri, M. Hajiaghayi, G. Kortsarz and M. Salavatipour, Polylogarithmic approximation for non-uniform multicommodity buy at bulk network design, *FOCS*, pages 677-686, October 2006.
- 41) M. Hajiaghayi, G. Kortsarz and M. Salavatipour, Approximation k shallow-light trees and k -Steiner buy at bulk trees, *RANDOM-APPROX*, pages 152-163, August 2006.
- 42) G. Kortsarz and Z. Nutov, Tight bounds for connectivity augmentation problems, *ICALP*, pages 443-452, July 2006.
- 43) M. Hajiaghayi, G. Kortsarz, V. Mirrokni and Z. Nutov, Power optimization for connectivity problems, *IPCO*, pages 349-361, May 2006.
- 44) M. Elkin and G. Kortsarz, Improved broadcast schedule for radio networks, *SODA*, pages 222-231, January, 2005.
- 45) G. Kortsarz, J. Radhakrishnan and S. Sivasubramanian, Complete partitions of graphs, *SODA*, pages 860-869, January 2005.
- 46) Y. Kortsars, G. Kortsarz and Z. Nutov, Approximating directed multicuts, *The second workshop on approximation and online algorithms (WAOA)*, pages 61-67, 2004.

- 47) R. Gandhi, M. Halldórsson, G. Kortsarz and H. Shachnai, Improved bounds for weighted completion sum of dependent jobs, *The second workshop on approximation and online algorithms (WAOA)*, pages 68-82, 2004.
- 48) S. Khuller, G. Kortsarz and K. R. Rohloff, Approximating the minimal sensor selection for supervisory control, *Workshop on Discrete Event Systems (WODES)*, pages 85-90, 2004.
- 49) M. Halldórsson, G. Kortsarz, Multicoloring: problems and techniques, *Mathematical Foundation of computer science (MFCS)*, pages 25-41, 2004.
- 50) M. Elkin and G. Kortsarz, Polylog inapproximability for radio broadcast, *RANDOM-APPROX*, pages 105–116, 2004.
- 51) R. Gandhi, M. Halldórsson, G. Kortsarz and H. Shachnai. Improved results for data migration and open-shop scheduling, *ICALP*, pages 658-669, 2004.
- 52) J. Chuzhoy, S. Guha, E. Halperin, S. Khanna, G. Kortsarz, and S. Naor, Tight $\log^* n$ lower bound for approximating directed metric k -center, *STOC*, pages 21–27, 2004.
- 53) G. Kortsarz and Z. Nutov, Improved approximation algorithms for the min-cost vertex k -connectivity problem via critical sets, *STOC*, pages 138–145, 2004.
- 54) L. Gaspero, J. Gärtner, G. Kortsarz, N. Musliu, A. Schaerf and W. Slany, A hybrid network flow Tabu search heuristic for the minimum shift design problem, *Metaheuristics International Conference (MIC)*, 2003.
- 55) G. Kortsarz and S. Shende, Approximating the achromatic number problem on bipartite graphs, *ESA*, pages 385–396, 2003.
- 56) L. Di Gaspero, J. Gärtner, G. Kortsarz, N. Musliu, A. Schaerf and W. Slany, Theory and practice of shift scheduling, *ESA*, pages 593–604, 2003.
- 57) M. Elkin and G. Kortsarz, Approximating telephone multicast on directed graphs, *ICALP*, pages 212–223, 2003.
- 58) R. Gandhi, E. Halperin, S. Khuller, G. Kortsarz and A. Srinivasan, An improved approximation algorithm for vertex cover with hard capacities, *ICALP*, pages 164–175, 2003.
- 59) E. Halperin, G. Kortsarz, R. Krauthgamer, A. Srinivasan and N. Wang, Integrality ratio for group Steiner trees and directed Steiner trees, *SODA*, pages 275–284, 2003.
- 60) M. Elkin and G. Kortsarz, A sublogarithmic approximation algorithm for the undirected telephone broadcast problem: a path out of a jungle, *SODA*, pages 76–85, 2003.
- 61) G. Kortsarz, R. Krauthgamer and J. Lee, On the hardness of approximating vertex connectivity problems, *RANDOM-APPROX*, pages 185–199, 2002.
- 62) M. Elkin and G. Kortsarz, A Combinatorial logarithmic approximation algorithm for the directed telephone broadcast problem, *STOC*, pages 438–447, 2002.

- 63) G. Even and G. Kortsarz, An approximation algorithm for the group Steiner problem, *SODA*, pages 49–58, 2002.
- 64) G. Even, G. Kortsarz and W. Slany, On network design: fixed charge flows and the covering Steiner problem, *Scandinavian Symposium on Algorithms SWAT*, pages 318–329, 2002.
- 65) M. Halldórsson, G. Kortsarz and H. Shachnai, Scheduling tasks on dedicated processors and interval graphs, *RANDOM-APPROX*, pages 114–126, 2001.
- 66) G. Even, J. Feldman, G. Kortsarz and Z. Nutov, A $3/2$ -approximation for augmenting a connected graph into a two-connected graph, *RANDOM-APPROX*, pages 194–205, 2001
- 67) G. Kortsarz and R. Krauthgamer, On the approximation of the achromatic number, *SODA*, pages 309–318, 2001.
- 68) U. Feige, M. Halldórsson and G. Kortsarz, Approximating the domatic number, *STOC*, pages 134–143, 2000.
- 69) D. Handke and G. Kortsarz, The Steiner tree-spanner problem and related tree-covering problems, *Workshop on Graph-Theoretic Concepts in Computer Science WG*, 2000. No Journal Version.
- 70) G. Kortsarz and Z. Nutov, Approximating small vertex connectivity problems via Set-Covers, *RANDOM-APPROX*, pages 194–205, 2000.
- 71) M. Halldórsson and G. Kortsarz, Multicoloring planar graphs and partial k -trees, *RANDOM-APPROX*, pages 73–84, 1999.
- 72) M. Halldórsson, G. Kortsarz, A. Proskurowski, R. Salman, H. Shachnai and J. A. Telle, Sum multicoloring trees, *International Computing and Combinatorics Conference (COCOON)*, pages 171–180, 1999.
- 73) A. Bar-Noy, M. Halldórsson, G. Kortsarz, R. Salman and H. Shachnai, Minimum sum multicoloring of graphs, *ESA*, pages 390–401, 1999.
- 74) G. Kortsarz. On the hardness of approximating spanners, *RANDOM-APPROX*, pages 135–146, 1998.
- 75) A. Bar-Noy and G. Kortsarz. The minimum color-sum of bipartite graphs, *ICALP*, pages 738–748, 1997.
- 76) G. Kortsarz and D. Peleg. Approximating shallow-light trees, *SODA*, pages 103–110, 1997.
- 77) J. Bar-Ilan, G. Kortsarz and D. Peleg, On submodular cover problems, *Israeli Symposium on the Theory of Computing and System (ISTCS)*, pages 110–118, 1996.

- 78) G. Kortsarz and D. Peleg. Generating low-degree 2-spanners, *SODA*, pages 556–563, 1994.
- 79) G. Kortsarz and D. Peleg, On choosing a dense subgraph, *FOCS*, pages 692–701, 1993.
- 80) G. Kortsarz and D. Peleg, Generating sparse 2-spanners, *Scandinavian Workshop on Algorithm Theory (SWAT)*, pages 73–82, 1992.
- 81) G. Kortsarz and D. Peleg, Approximation algorithms for minimum time broadcast, *Israeli Symposium on the Theory of Computing and System (ISTCS)*, pages 67–78, 1992.
- 82) G. Kortsarz and D. Peleg, Traffic light scheduling on the grid, *International Workshop on Distributed Algorithms (WDAG)*, pages 238–252, 1992.

INVITED PRESENTATIONS: A SAMPLE FROM 2000 FORWARD

- 1) G. Kortsarz. Approximating the Domatic Number, invited talk, Weekly seminar, Computer Science, Tel Aviv University, 2000.
- 2) G. Kortsarz, Approximating the Domatic Number problem, invited talk at the the computer Science weekly seminar, University of Pennsylvania, 2001.
- 3) G. Kortsarz, The achromatic number problem, invited talk, at Dagstuhl seminars, Germany. 2003.
- 4) G. Kortsarz, Rare approximation ratios, invited talk, at DIMACS, Theoretical Computer Science Seminar, 2006
- 5) G. Kortsarz, Approximating non-uniform multicommodity buy at bulk, invited talk at the Workshop on approximation algorithms, Montreal, Canada, 2006. Organized by Goemans and Cheriyan.
- 6) G. Kortsarz, Comparing min-cost and min-power connectivity problems. Invited talk at Conference on Operations Research, Euro 2006, Iceland, 2006
- 7) G. Kortsarz, Comparing min-cost and min-power connectivity problems, invited talk at INFORMS, Pittsburgh, 2006
- 8) G. Kortsarz. Rare approximation ratios. 2007, invited talk. at Bell Labs Computer Science weekly seminar.
- 9) G. Kortsarz, Approximating Buy at Bulk problems, invited talk, at the IBM Watson Watson Weekly computer Science Seminar, 2007.
- 10) G. Kortsarz, Approximating the p Directed Steiner Forest problem, invited talk at INFORMS, Washington D.C, 2008.
- 11) G. Kortsarz, Survey on approximation connectivity algorithms via survey of techniques, invited talk at Parameterized complexity and approximation algorithms. Seminar At Schloss Dagstuhl, 2009.

- 12) G. Kortsarz On the Achromatic number problem, invited talk at Drexel, Weekly Seminar in Math. 2010.
- 13) G. Kortsarz, Tools for multicoloring with applications for bounded tree width graphs and planar graphs, invited talk at Dagstuhl seminars. Bidimensional Structures: Algorithms, Combinatorics and Logic. 2013.
- 14) G. Kortsarz, The interesting behavior of the source location problem, invited talk for Maryland CS weekly Seminar. 2014.
- 15) G. Kortsarz, Optimal time for exact and approximation algorithms, invited talk at "Satisfiability Lower Bounds and Tight Results for Parameterized and Exponential-Time Algorithms," Simons, institute of theory and computing, Berkeley University, November 2-6, 2015.
- 16) Guy Kortsarz, A survey on approximating spanners. Invited talk at the *DIMACS Workshop on Algorithms for Data Center Networks*, June 5 - 7, 2017. Organized by B. Schieber, H. Shachnai, and L. Zhang,
- 17) Guy Kortsarz. On David Peleg from the viewpoint of his first Ph. D. Student. Invited talk in workshop at PODC 2017. Organized by Prof Boaz Patt-Shamir and Pro Yuval Emek.
- 18) Improved approximation for minimum covering problem using Iterative randomized rounding. Invited talk in: The 9th Workshop on Flexible Network Design May 22-25, 2018 Organized by Mohammad Taghi Hajiaghayi and Samir Khuller.
- 19) A Survey On the Directed Steiner Forest. Invited talk in John Hopkins weekly seminar. October 2019
- 20) Group Steiner with degree bounds on trees and bounded tree width graphs. Invited talk in the International Symposium on Algorithms and Computation (ISAAC) 2020. **Remark:** Talk (and conference) was by Remote.

SHORT VISITS AND TALKS: A SMALL SAMPLE

- 1) G. Kortsarz. Augmenting graph connectivity from 1 to 2. Stanford university, Palo Alto 2003.
- 2) G. Kortsarz. Augmenting graph connectivity from 1 to 2. The university of Waterloo, Canada. 2004

- 3) G. Kortsarz. The directed Multicut problem.
MIT, Boston 2005
- 4) G. Kortsarz, On the Directed p Steiner Forest problem.
In the weekly Seminar in CS Maryland university, 2006.
- 5) G. Kortsarz, Rare approximation ratios. Bell Labs. 2006.
- 6) G. Kortsarz. Approximating min-power connectivity problems.
Microsoft Research, Seattle, 2008.
- 7) G. Kortsarz. Augmenting connectivity from 1 to 2.
Max Plack institute at Saarbrcken, Germany, 2009.
- 8)G. Kortsarz. A survey of connectivity problems via survey of techniques.
Warwick University, England, 2011,
- 9)G. Kortsarz. A survey on approximating spanners.
Liverpool University, England, 2014,
- 10) G. Kortsarz, What did I learn on cut expansion and density problems?
Johns Hopkins university, 2014.
- 11) G. Kortsarz, Visited Marek Cygan at Wydział Matematyki, Informatyki Mechaniki
- 12) G. Kortsarz, Approximating activation edge-cover and facility location problems. Max
Planck institute, at Saarbrucken Germany, 2019.
- 13) G. Kortsarz. Visited Shi Li in the University of Buffalo, in the USA. 2021.

CHAPTERS IN BOOKS

- 1) G. Kortsarz and Z. Nutov, Approximating minimum-cost connectivity problems, In: Ed-
itor Teofilo F. Gonzales, Handbook on Approximation Algorithms and Metaheuristics, Pub-
lished by Chapman and Hall, CRC, Taylor and Francis Group, Book Chapter, 58 (30 pages)
2007
- 2) G. Kortsarz, Fixed parameter approximation and hardness. Encyclopedia of Algorithms,
Springer 2015, ISBN 978-3-642-27848-8
- 3) Magnus Halldorsson and Guy Kortsarz. Chromatic sums, multicoloring and schedul-
ing dependent jobs. A book chapter for the Handbook on Approximation Algorithms and
Metaheuristics, Published by Chapman and Hall, CRC, Taylor and Francis Group.

JOURNAL PUBLICATIONS

- 1) Guy Kortsarz and Zeev Nutov. Bounded-Degree Group Steiner problems, Accepted to Discrete Applied Math Preliminary version in 31st International Workshop on Combinatorial Algorithms (IWOCA), pages 243-254, 2020.
- 2) X. Guo, G. Kortsarz, B. Laekhanukit, S. Li, D. Vaz and J. Xian. Approximation Bounded Degree Steiner Tree and Bounded Degree Group Steiner tree. Accepted to Algorithmica.
- 3) M. M Halldorsson, G. Kortsarz, P. Mitra and T. Tonoyan. Spanning Trees With Edge Conflicts and Wireless Connectivity. 2020. Algorithmica 83(11): 3469-3490, 2021
- 4) P. Chalermsook, M. Cygan, G. Kortsarz, B. Laekhanukit, P. Manuarangsi and D. Nanongkai and Luca Trevisan. From Gap-ETH to FPT-Inapproximability: Clique, Dominating Set, and More. SICOMP, 49(4): 772-810 (2020)
- 5) E. Chlamtac, M. Dinitz, G. Kortsarz and B. Laekhanukit, Approximating Spanners and Directed Steiner Forest: Upper and Lower Bounds. TALG, 16(3): 33:1-33:31, 2020.
- 6) Hajiaghayi, Kortsarz MacDavid, Purohit, and Sarpatwar. Approximating the Connected Max Cut Problem. Theoretical Computer Science, Volume 814(24):74-85, 2020.
- 7) R. Gandhi, M. Halldorsson, C Konrad, G. Kortsarz and O. Hoon. Radio Aggregation Scheduling. Theoretical Computer Science, 840: 143-153 (2020) Special issue of papers from Algosensors 2015 and 2016.
- 8) Gruia Calinescu, Guy Kortsarz and Zeev Nutov. Improved approximation algorithms for minimum power covering problems Theoretical Computer Science, 20:1-20:14, 2019
- 9) The Densest k -Subhypergraph Problem. Eden Chlamtáč, Michael Dinitz, C Konrad, Guy Kortsarz and George Rabanca. SIAM Journal on Discrete Math, 32(2): 1458-1477, 2018
- 10) Hossein Esfandiar and G. Kortsarz. Risk free Kidney exchange, Discrete Applied math, volume 243, pages 46-53, 2018.
- 11) G. Kortsarz and Z. Nutov. Integrality gap LP for the tree augmentation problem, Discrete Applied Math. Volume 239, April 2018, Pages 94-105.
- 12) The tree with maximum profit on the leaves problem and the connected max-cut problem. R. Gandhi, M. Hajiaghayi, G. Kortsarz M Purohit, and K. Sarpatwar, IPL, 129: 31-34, January 2018.

- 13) A. Bhangale, R. Gandhi, M Hajiaghayi, R. Khandekar, G. Kortsarz. Bic-overing: Covering edges with two small subsets of vertices. *SIAM Journal of Discrete Math*, 31(4): 2626-2646, 2017
- 14) M. Dinitz, G. Kortsarz and Z. Nutov. Approximating the Steiner k -forest problem, with nearly uniform capacity, *Transaction on Algorithms*, 13(3): 40:1-40:16, 2017.
- 15) G. Kortsarz and Z. Nutov. Approximation source location problems and the star SNDP problem. *Theoretical Computer Science*, 77(4):1216-1239, 2017
- 16) R. Chitnis, H. Esfandiari, M. Hajiaghayi, R. Khandekar, G. Kortsarz, and Seddighin A Tight Algorithm for Strongly Connected Steiner Subgraph On Two Terminals With Demands. *Algorithmica*, 77(4): 1216-1239, 2017
- 17) M. Hajiaghayi, R. Khandekar, G, Kortsarz, and Z. Nutov, Fixed cost k -flow problems, *Theoretical computer science* 58(1): 4-18, 2016. Special Issue of papers selected from WAOA 2013.
- 18) G. Kortsarz and Z. Nutov. A simplified algorithm for the tree augmentation problem. *Transaction on algorithms (TALG)* 12(2):25, 2016
- 19) M. Dinitz G. Kortsarz and R. Raz. Labelcover with large girth and the hardness of basic spanners. *TALG*, 12(2):23, 2016
- 20) M. Hajiaghayi, R. Khandekar, M. R. Khani and G. Kortsarz, Approximation Algorithms for Movement Repairman. *TALG*, 12(4): 54, 2016.
- 21) R. Gandhi and G. Kortsarz. On edge expansion problems and the small set expansion conjecture. *Discrete Applied Mathematics (DAM)* 194: 93-101, 2015
- 22) R. Khandekar and G. Kortsarz and V. Mirrokni, On the advantage of overlap in minimizing conductance. *Algorithmica* 69(4):844-863, 2014.
- 23) M. Hajiaghayi and R. Khandekar and G. Kortsarz and V. Liaghat, On a local protocol for Concurrent File transfers. *Theory Comput. Syst.* Special issue of papers selected from SPAA (2011). 55(3): 613-636, 2014
- 24) M. Dinitz and G. Kortsarz, Matroid Secretary for Regular and Decomposable Matroids. *SICOMP* 43(5): 1807-1830, 2014.
- 25) R. Khandekar and G. Kortsarz and V. Mirrokni and M. Salavatipour, Two stage Robust Network design with Exponential Scenarios, *Algorithmica* 65(2): 391-408 January, 2013
- 26) G. Kortsarz R. Khandekar and Zeev Nutov. Approximating some network design problem with degree constrains. *JCSS*, 79(5)725-736, 2013.
- 27) M. Cygan, G. Kortsarz and Z. Nutov, Steiner Forest Orientation Problems, *SIAM journal on Discrete Math (SJDm)*, Vol. 27, Issue 3, pages 1503–1513, 2013.

- 28) Rajiv Gandhi, Magns M. Halldrsson, Guy Kortsarz, Hadas Shachnai. Corrigendum: Improved results for data migration and open shop scheduling. *TALG* 9(4):34, 2013.
- Remark:** M. Sviridenko found a mistake in paper 31. But we could both, correct the mistake, and improve the ratio. See the corrected draft in my homepage.
- 29) M. Hajiaghayi and R. Khandekar and G. Kortsarz, Local search for the Red-Blue Median problem. *Algorithmica*, 63(4):795-814, 2012. Special issue of papers selected from *ESA 2010*.
- 30) M. Feldman and G. Kortsarz and Z. Nutov, Improved results for the directed version of the k Steiner forest problem, *JCSS*, 78(1): 279-292, 2012.
- 31) M. Hajiaghayi and R. Khandekar and G. Kortsarz and Z. Nutov, Prize Collecting Steiner Network Problem and Extensions, *TALG*, 9(1): 2, 2012.
- 32) R. Khandekar and G. Kortsarz and Z. Nutov, Approximating fault-tolerant group-Steiner problems *TCS*, 416(27):55-64, 2012.
- 33) M. Hajiaghayi and R. Khandekar and G. Kortsarz and J. Mestre, The checkpoint problem, *TCS*, 452:88-99, 2012
- 34) G. Kortsarz, V. Mirrokni, Z. Nutov and E. Tsanko, Approximating Minimum-Power Degree and Connectivity Problems, *Algorithmica*, 60(4):735-742, 2011.
- 35) G. Even, G. Kortsarz and Z. Nutov, A 1.5-approximation for augmenting a connected graph into a two-connected graph, *IPL* 111(6): 296-300, 2011.
- Remark:** This paper has a mistaken definition. A corrected, self contained version (the journal version of the APPROX paper) appeared in *TALG* in 2016.
- 36) M. Halldórsson and G. Kortsarz and M. Sviridenko. Min Sum Edge Coloring in General Multigraphs via Configuration LP, *TALG*, Vol 7, number 2, March, 2011.
- 37) G. Kortsarz and Z. Nutov, Approximating some network design problems with node costs, *TCS*, 412(35):4482-4492, August, 2011.
- 38) C. Chekuri, M. Hajiaghayi, G. Kortsarz and M. Salavatipour, Polylogarithmic approximation for multicommodity buy at bulk, *SICOMP* 1265–1274, January, 2010.
- 39) G. Kortsarz and M. Landberg and Z. Nutov. Approximating Maximum Subgraphs Without Short Cycles, *SJDM*, 24(10):255-269, June, 2010.
- 40) G. Kortsarz and Z. Nutov, Approximating Minimum-Power Edge-Covers and 2, 3-Connectivity, *DAM*, 157(8):1840-1847, April, 2009.
- 41) G. Even, J. Feldman, G. Kortsarz and Z. Nutov, A 1.8-approximation for augmenting a connected graph into a two-connected graph, *TALG*, 5(2): 2009
- 42) Hajiaghayi, G. Kortsarz and M. Salavatipour, Approximating buy at bulk and shallow-light k -Steiner trees, *Algorithmica*, 53(1):89-103, January, 2009.

- 43) G. Kortsarz and Zeev Nutov, Tight bounds for connectivity augmentation problems, *JCSS*, April, 2008.
- 44) G. Kortsarz and Z. Nutov, A note on two problems in source location, *Journal of Discrete Algorithms* (74):662-670, September, 2008.
- 45) R. Gandhi, M. Halldórsson, G. Kortsarz and H. Shachnai, Improved bounds for the weighted sum of completion times of dependent jobs, *TALG*, 4(1) 2008.
- 46) L. Di Gaspero, J. Gärtner, G. Kortsarz, N. Musliu, A. Schaerf and Wolfgang Slany, Theory and practice of shift scheduling, *Annals on Operations Research (special Volume on "Personnel Scheduling and Planning")*, 155(1):119-142, 2007.
- 47) M. M. Halldórsson, G. Kortsarz, J. Radhakrishnan and S. Sivasubramanian, Complete partitions of Graphs, *Combinatorica*, 27(5):519-550, 2007.
- 48) G. Kortsarz, A lower bound for approximating Grundy numbering, *Discrete Mathematics and TCS*, 9(1):7-22, January, 2007.
- 49) M. Hajiaghayi, G. Kortsarz, V. Mirrokni and Z. Nutov, Power optimization for connectivity problems, *Mathematical programming series B*. Special issue of papers selected from IPCO (2005), 110(1):195-208, July, 2007.
- 50) E. Halperin, G. Kortsarz, R. Krauthgamer, A. Srinivasan and N. Wang, Integrality ratio for group Steiner trees and directed Steiner trees, *SICOMP*, 36(5):1494-1511, February, 2007.
- 51) G. Kortsarz and S. Shende, Approximating the achromatic number problem on bipartite graphs, *SJDM*, 21(2):361-373, May, 2007.
- 52) M. Elkin and G. Kortsarz, Improved schedule for radio broadcast, *TALG*, 3(1):, May, 2007.
- 53) M. Elkin and G. Kortsarz, An approximation algorithm for directed telephone multicast, *Algorithmica*, 45(4):569-583, 2006.
- 54) C. Chekuri, G. Even and G. Kortsarz, Greedy approximation algorithm for the group Steiner problem on graphs, *DAM*, 154(1):15-34, 2006.
- 55) S. Khuller, G. Kortsarz and Kurt R. Rohloff, Approximating the minimal sensor selection for supervisory control, *Journal of Discrete Event Dynamic Systems: Theory and Applications*. Special issue for papers selected from WODES 2004, (16):149-178, 2006.
- 56) E. Halperin, R. Gandhi, S. Khuller, G. Kortsarz and A. Srinivasan, An improved approximation algorithm for vertex cover with hard capacities, *JCSS*, 72(1):16-33, 2006.
- 57) M. Elkin and G. Kortsarz, Sublogarithmic approximation for undirected telephone multicast, *Journal of Computing and System Sciences*, 72(4):648-659, 2006.

- 58) R. Gandhi, M. M. Halldórsson, G. Kortsarz and H. Shachnai, Improved results for data migration and open shop scheduling, *TALG*, 2(1):116-129, January, 2006.
- 59) J. Chuzhoy, S. Guha, E. Halperin, S. Khanna, G. Kortsarz, R. Krauthgamer and S. Naor, Asymmetric k -center is $\log^* n$ -hard to approximate, *Journal of the ACM*, 52(4):538-551, 2005.
- 60) Y. Kortsarts, G. Kortsarz and Z. Nutov, Greedy approximation for directed multicuts, *Networks*, 45(4):214-217, 2005.
- 61) G. Kortsarz and Z. Nutov, Approximating k -node connected subgraphs via critical graphs problem via critical sets, *SICOMP*, 35(1):247-257, 2005.
- 62) M. Elkin and G. Kortsarz, Combinatorial logarithmic approximation algorithm for directed broadcast, *SICOMP*, 35(3):672-689, 2005.
- 63) M. Elkin and G. Kortsarz, Polylogarithmic inapproximability for radio broadcast, *SJDM*, 19(4):881-899, 2005.
- 64) G. Even, G. Kortsarz and W. Slany, On network design: fixed charge flows and the covering Steiner problem, *TALG*, 1(1):74-101, 2005.
- 65) M. Elkin and G. Kortsarz, Logarithmic lower bound for radio Broadcast, *Journal of Algorithms (JOA)*, 52(1):8-25, 2004.
- 66) G. Kortsarz, R. Krauthgamer and J. Lee, Hardness of approximating vertex connectivity network design problems, *SICOMP*, 33(3):704-720, 2004.
- 67) G. Kortsarz and Z. Nutov, Approximating vertex connectivity problems via set covers, *Algorithmica*, 37:75-92, 2003.
- 68) M. Halldórsson, G. Kortsarz and H. Shachnai, Sum coloring interval and k claw-free graphs with applications to scheduling dependent jobs *Algorithmica*, 37:187-209, 2003.
- 69) M. Halldórsson, G. Kortsarz, A. Proskurowski, R. Salman, H. Shachnai and J. A. Telle, Multicoloring trees, *Information and Computing*, 180:113-129, 2003.
- 70) M. Halldórsson and G. Kortsarz, Tools for multicoloring with applications for planar graphs and partial k -trees, *Journal on Algorithms*, 42:334-366, 2002.
- 71) U. Feige, M. M. Halldórsson, G. Kortsarz and A. Srinivasan, Approximating the domatic number, *SICOMP*, 32(1):172-195, 2002.
- 72) U. Feige, G. Kortsarz and D. Peleg, The dense k -subgraph problem, *Algorithmica*, 29(3):410-421, 2001.
- 73) G. Kortsarz, On the hardness of approximating spanners, *Algorithmica*, special APPROX-98 issue, 30(3):432-450, 2001.

74) J. Bar-Ilan, G. Kortsarz and D. Peleg, Generalized submodular cover problems and applications, *TCS*, 250:179-200, 2001.

75) G. Kortsarz and R. Krauthgamer, On the approximation of the achromatic number, *SJDM*, 4(3):408-422, 2000.

76) A. Bar-Noy, M. Halldórsson, G. Kortsarz, R. Salman and H. Shachnai, Sum multicoloring of graphs, *Journal of Algorithms (JOA)*, 37(2):422-450, 2000.

77) G. Kortsarz and D. Peleg, Approximating the weight of shallow Steiner trees, *DAM*, 93:265-285, 1999.

Remark: This paper was chosen into a special edition of Editors choice papers of 1999 for Discrete Applied Math, See: <http://www.elsevier.com/inca/publications/store/5/0/5/6/0/9/>

78) A. Bar-Noy, M. Halldórsson and G. Kortsarz, A matched approximation bound for the sum of a greedy coloring, *IPL*, 71:135-140, 1999.

79) A. Bar-Noy and G. Kortsarz, Minimum color-sum of bipartite graphs, *JOA*, 28(2):339-365, 1998.

80) G. Kortsarz and D. Peleg, Generating low-degree 2-spanners, *SICOMP*, 27(5):1438-1456, 1998.

81) G. Kortsarz and D. Peleg, Approximation algorithms for minimum time broadcast, *SJDM*, 8:401-427, 1995.

82) G. Kortsarz and D. Peleg, Traffic light scheduling *DAM*, 3(1-3): 211-234 1994.

83) J. Bar-Ilan, G. Kortsarz and D. Peleg, Information Center Allocation, *The Electronic Library*, 12:361-365, 1994.

84) G. Kortsarz and D. Peleg, Generating sparse 2-spanners, *JOA*, 17:222-236, 1994.

85) Judith Bar-Ilan, Guy Kortsarz, David Peleg: How to Allocate Network Centers. *JOA*, 15(3): 385-415, 1993.

PAPERS SUBMITTED TO A CONFERENCE OR A JOURNAL

1) Zeev Nutov, Guy Kortsarz and Eli Shalom
Approximating activation edge-cover and facility location problems
Submitted to Theoretical Computer Science.

WORKING PAPERS

1) Zeev Nutov, Guy Kortsarz and Elad Shoham. Approximating Min Coverage and Min Quota, θ -bounded, Facility Location problems.

UNPUBLISHED MANUSCRIPTS

M. Hajiaghayi, R. Khandekar and G. Kortsarz. FPT-hardness for clique and set cover with super exponential time in k .

Remark: This is the first paper ever to give super exponential time, super constant hardness, for Set Cover and Clique under the ETH.