

## Publications of Daniel Bienstock

### Book

*Potential Function Methods for Approximately Solving Linear Programming Problems, Theory and Practice*, ISBN 1-4020-7173-6. Kluwer Academic Publishers, Boston (2002).

### Journal publications

1. A New LP Algorithm for Precedence Constrained Production Scheduling (with M. Zuckerberg). To appear, **IPCO 2010**.
2. Eigenvalue techniques for proving bounds for convex objective, nonconvex programs. To appear, **IPCO 2010, EWMINLP10**.
3. Tightening simple mixed-integer sets with guaranteed bounds (with B. McClosky), to appear, *Math. Programming* (published online 12/2010).
4. The  $N - k$  Problem in Power Grids: New Models, Formulations and Numerical Experiments (with A. Verma), *SIAM J. Optimization* **20** (2010), 2352 – 2380.
5. Approximate formulations for 0-1 knapsack sets, *Operations Research Letters* **36** (2008), 317–320.
6. Computing robust basestock levels (with N. Özbay), *Discrete Optimization* **5** (2008), 389–414.
7. Histogram models for robust portfolio optimization, *J. Computational Finance* **11** (2007), 1–64.
8. Using mixed-integer programming to solve power grid blackout problems (with S. Mattia), *Discrete Optimization* **4** (2007), 115–141.
9. Scalable Optimization for Multi-Period Optical Network Capacity Planning with Elastic Demand, with O. Raskina, I. Saniee and Q. Wang. *Operations Research* **54** (2006), 261-276.
10. Approximate fixed-rank closures of covering problems (with M. Zuckerberg), *Math. Programming* **105** (2006), 9 – 27.
11. Faster approximation algorithms for covering and packing problems (with G. Iyengar), *SIAM J. Computing* **35** (2006) 825-854.
12. Solving fractional packing problems in  $O^*(1/\epsilon)$  iterations (with G. Iyengar), CORC report TR-2003-03. *Proc. 26th Ann. Symp. Theory of Computing* (Chicago, 2004) 146-155.
13. Tree-width and the Sherali-Adams operator (with N. Özbay), CORC report TR-2003-09. *Discrete Optimization* **1** (2004) 13-22.
14. Subset Algebra Lift Operators for 0-1 Integer Programming (with M. Zuckerberg), *SIAM J. Optimization* **15** (2004) 63-95.
15. Approximation Algorithms for Linear Programming: Theory and Practice, *CORE Lecture Series Monograph* ISSN-0771 3894, Core, UCL, Belgium (2001).
16. Asymptotic analysis of the flow deviation method for the maximum concurrent flow problem (with O. Raskina), *Math. Programming* **91** (2002), 379–492. (CORC Report 2000-02, download from <http://www.corc.ieor.columbia/reports/techreports.html>).
17. Approximately solving large-scale linear programs. I: Strengthening lower bounds and accelerating convergence, in preparation. CORC Report 1999-1. (An extended abstract for this work was published in the SODA '00 proceedings).

18. ATM network design: Traffic models and optimization-based heuristics (with I. Saniee), *Telecomm. Systems* **16** (2001), 399–421.
19. Strong inequalities for capacitated survivable network design problems (with G. Muratore), *Math. Programming* **89** (2000), 127-148.
20. Minimum-cost capacity installation for multicommodity flows (with O. Günlük, S. Chopra and C.Y. Tsai) (1996), *Math. Programming* **81** (1998), 177-199.
21. Capacity expansion in networks – new inequalities and computation (with O. Günlük), *ORSA J. Comp.* **8** (1996), 243-260.
22. Computational study of a family of mixed-integer quadratic programming problems, *Math. Programming* **74** (1996), 121-140.
23. A degree sequence problem related to network design (with O. Günlük), *Networks* **24** (1994), 195-205.
24. Probabilistic analysis of tour partitioning heuristics for the capacitated vehicle routing problem with unsplit demands (with J. Bramel and D. Simchi-Levi) *Math. Oper. Res.* **18** (1993), 786-802.
25. Computational experience with a difficult multicommodity flow problem (with O. Günlük), *Math. Programming* **68** (1995), 213-237.
26. Computational experience with an effective heuristic for some capacity expansion problems in local access networks, *Telecomm. Sys.* **1** (1993), 379-400.
27. Algorithmic implications of the Graph Minors project (with M. Langston), in *Handbook of Operations Research* (Ball, Magnanti, Monma, Nemhauser, eds.), North-Holland (1995).
28. Blocking small cuts in a network (with N. Diaz), *SIAM J. Computing* **22** (1993), 482-499.
29. A lot-sizing problem on trees, related to network design, *Math. Oper. Res.* **18** (1993), 402-422.
30. A note on the prize-collecting traveling salesman problem (with M. Goemans, D. Simchi-Levi and D. Williamson), *Math. Programming* **59** (1993), 413-420.
31. New results on rectilinear crossing numbers and plane embeddings (with N. Dean), *J. Graph Theory* **16** (1992), 389-398.
32. Bounds on rectilinear crossing numbers (with N. Dean), *J. Graph Theory* **17** (1993), 333-348.
33. A note on finding saddle points (with F.R.K. Chung, M. Fredman, A. Schäfer, P. Shor and S. Suri), *Amer. Math. Monthly* **98** (1991), 418-419.
34. On obstructions to small face covers in planar graphs (with N. Dean), *J. Comb. Theory B* **55** (1992), 163-189.
35. Further polynomially solvable special cases of the Steiner tree problem in planar networks (with M. Bern), *Annals of Operations Research* **33** (1991), 405-418.
36. Graph searching, path-width and tree-width (a survey), in *Reliability of Computer and Communication Networks* (Roberts, Hwang, Monma, eds.) DIMACS (1991), 33-49.
37. Some provably hard crossing number problems, *Disc. Comput. Geom.* **6** (1991), 443-459.
38. On the complexity of testing for odd holes and induced odd paths, *Discrete Math.* **90** (1991), 85-92. (Corrigendum: *D.M.* **102** (1992) 109 ).
39. Excluding a forest quickly (with N. Robertson, R. Thomas and P.D. Seymour), *J. Comb. Theory (B)* **52** (1991), 274-283.

40. Some generalized max-flow min-cut problems in the plane, *Math. Oper. Res.* **16** (1991), 310-333.
41. Monotonicity in graph searching (with P.D. Seymour), *J. of Algorithms* **12** (1991), 239-245.
42. An extremal problem on sparse 0-1 matrices (with E. Györi), *SIAM J. Disc. Math.* **4** (1991), 17-27.
43. Linear time test for small face covers in any fixed surface, *SIAM J. Comput.* **19** (1990), 907-911.
44. On a network design problem that is intractable on trees (with O. Marcotte), *Math. Oper. Res.* **15** (1990), 530-544.
45. On the structure of minimum-weight k-connected networks (with E.F. Brickell and C.L. Monma), *SIAM J. Disc. Math* **3** (1990), 320-329.
46. On embedding graphs in trees, *J. Comb. Theory B* **49** (1990), 103-136.
47. On the complexity of minimizing various distance measures in a planar graph (with C.L. Monma), *Algorithmica* **5** (1990), 93-109.
48. Optimal enclosing of vertices in a planar graph (with C.L. Monma), *Networks* **19** (1989), 79-94.
49. Average distance in graphs with removed elements (with E. Györi), *J. Graph Theory* **12** (1988), 375-390.
50. Some lattice-theoretic tools for network reliability analysis, *Math. Oper. Res.* **13** (1988), 467-478.
51. Optimizing resource acquisitions by stochastic programming (with J.F. Shapiro), *Mgt. Sci.* **34** (1988), 215-229.
52. On the complexity of covering vertices by faces in a planar graph (with C.L. Monma), *SIAM J. Comput.* **17** (1988), 53-76.
53. Reliability analysis of generalizations of Halin graphs, in *Applications of Discrete Mathematics* (R. Ringeisen and F. Roberts, eds.) SIAM (1988), 87-106.
54. Broadcasting with random faults, *Disc. Appl. Math* **20** (1988), 1-7.
55. Asymptotic analysis of some network reliability problems, *SIAM J. Disc. Math* **1** (1988), 14-21.
56. An algorithm for reliability analysis of planar graphs, *Networks* **16** (1986) 411-422.