

David Pokrass Jacobs
Curriculum Vitae

Personal

US Citizen, born October 27, 1949.

contact: dpj@clemsun.edu

member: AMS, ILAS, Brazilian Society of Applied Mathematics and Computation

webpage: <http://people.cs.clemson.edu/~dpj/dpj.html>

Education

Georgia Institute of Technology, 1981, M.S, Information and Computer Science.

University of Missouri-Columbia, 1976, Ph.D., Mathematics.

University of Missouri-Columbia, 1972, M.A., Mathematics.

DePauw University, 1971, B.A., Mathematics.

Research interests

Spectral graph theory, algorithm design, discrete mathematics.

Teaching

Over forty years experience teaching a wide variety of computer science and mathematics courses, both undergraduate and graduate.

Professional Experience

2013–present, Clemson University, Professor Emeritus of Computer Science.

1999–2013, Clemson University, Professor of Computer Science.

1995, Universidade Federal do Rio Grande do Sul, Brazil, Visiting Professor, Instituto de Matemática.

1990–1999, Clemson University, Associate Professor of Computer Science.

1986–1990, Clemson University, Assistant Professor of Computer Science.

1984–1986, Motorola Inc., Cellular Division, Arlington Heights, Senior Staff.

1981–1984, Motorola Inc., Corporate Offices, Schaumburg, Senior Software Instructor.

1979–1981, Lanier Business Products, Atlanta, Software Engineer.

1976–1978, Emory University, Department of Mathematics, Assistant Professor.

1971–1976, University of Missouri-Columbia, Department of Mathematics, Teaching Assistant.

Awards and Activities

Special Visiting Researcher, Science Without Borders, Universidade Federal do Rio Grande do Sul, Brazil, September, 2016.

Visiting Researcher, Universidade de Aveiro, Portugal, May 23–27, 2016.

Special Visiting Researcher, Science Without Borders, Universidade Federal do Rio Grande do Sul, Brazil, October, 2015.

Visiting Researcher, Universidade Federal Fluminense, Nitorói, Brazil, November, 2014.

Special Visiting Researcher, Science Without Borders, Universidade Federal do Rio Grande do Sul, Brazil, October, 2014.

Hosted visiting scholar, Fernando Tura, PhD student from Brazil, during Fall, 2012.

co-PI, CI-SEEDS, National Science Foundation, \$898,978, 2012.

Fulbright Review Committee, 2010–2012.

Award for Faculty Excellence, Clemson University, 2007.

Fulbright Scholarship, *Theory and New Frontiers for Self-stabilizing Algorithms*, Universidade Federal do Rio Grande do Sul, Brazil, 2006.

Visiting Researcher, Universidade Federal do Rio Grande do Sul, Brazil, December, 2005.

co-PI, East Coast Computer Algebra Day, 2003-2004, National Science Foundation, with Shuhong Gao, \$11,150, 2003.

co-PI, ITR: Self-Stabilizing Networking Protocols for Distributed Systems, National Science Foundation, with Pradip Srimani and Stephen T. Hedetniemi. \$394,433, 2002–2005.

co-PI, Design and Evaluation Modules for a Collaborative Vehicle Design Framework, Army Tank-Automotive and Armaments Command (TACOM), with Georges Fadel, Wei Chen, J. McGregor, B. Malloy, D. Stevenson, R. Pargas, R. Geist. \$463,157, 1998.

Balanced Inventory Flow Replenishment System, Defense Logistics Agency, Clemson Apparel Research, summer 1997.

co-PI, U.S.-Sweden Workshop: Worldwide Access of Emerging Mathematical Technology, National Science Foundation, co-principal investigator, with B. Malloy, \$16,400, 1995.

Visiting Researcher, University of São Paulo, Brazil, July 19 - 29, 1995.

Visiting Professor, Instituto de Matemática, Universidade Federal do Rio Grande do Sul, Brazil, 1995.

PI, Deciding Identities in Nonassociative Algebras with Dynamic Programming, National Science Foundation, \$30,188, 1989.

University Research Grant, Clemson University, Algorithms for Verifying Identities in Right Alternative Algebras, \$496, 1987.

Instructor, Emory University summer program for high ability secondary school students, National Science Foundation, 1977, 1978.

Graduate Teaching Award, University of Missouri, 1975.

Selected Presentations

Some Recent Results on Domination and Laplacian Eigenvalues, invited talk, September 8, 2016, CNMAC2016, Gramado, Brazil.

Domination Number and Laplacian Eigenvalues, March 5, 2016, Recent Advances in Linear Algebra and Graph Theory, Chattanooga.

Some Classic Parameters, Domination, and an Algorithm for Trees, November 3, 2015, Universidade Federal do Rio Grande do Sul, Brazil.

Diagonalization, Eigenvalues and Trees, invited colloquium talk, November 19, 2014, Fluminense Federal University, Brazil.

Inertia, Diagonalization and Energy in Threshold Graphs, invited colloquium talk, November 17, 2014, Federal University of Rio de Janeiro, Brazil.

Locating Eigenvalues of Graphs, with Vilmar Trevisan, ILAS 2013, Providence, June 6, 2013.

Introduction to Self-Stabilizing Algorithms, two invited lectures, Workshop on Graph Theory and Applications, Universidade Federal do Rio Grande do Sul, Brazil, November 20-21, 2006.

Designing Self-Stabilizing Algorithms, invited colloquium talk, Instituto de Matemática, Universidade Federal do Rio Grande do Sul, Brazil, December 15, 2005

Algorithms, computation, and nonassociative identities, invited talk, Topics in Linear Algebra, Iowa State University, September 14, 2002.

Designing Self-Stabilizing Algorithms, Department of Mathematical Sciences, Clemson University, February 28, 2002.

On the Complexity of Sign-Nonsingularity and Equal Unions of Sets, 38th ACM SE Conference, Clemson, April 8, 2000.

Mathematical legerdemain or Do you believe in magic?, invited colloquium talk, Converse College, Spartanburg, October 21, 1997.

Determinants and Characteristic Polynomials for Trees, invited colloquium talk, Dept. of Mathematics and Computer Science, Georgia State University, Atlanta, February 21, 1997.

A Nonassociative Commutativity Theorem, invited colloquium talk, Department of Mathematics, University of São Paulo, Brazil. July 26, 1995.

The Strangest Identity I Know, invited colloquium talk, Department of Mathematics, University of São Paulo, Brazil. July 25, 1995.

Interactive Computational Nonassociative Algebra, invited talk, A Workshop on New Technology for Symbolic Computational Mathematics and Applications to Research & Education, Rutgers University, June 9, 1994.

A Curious Identity, invited colloquium talk, Dept. of Mathematics, Wright State University, Dayton, October 29, 1993

Some Variations on Winkler's r -Neighborhood Problem, invited talk, Special Session, Combinatorial problems on partially ordered sets, Meeting of the American Mathematical Society, Tuscaloosa, Alabama, March 13, 1992, Abstracts of the Amer. Math. Soc., March, 1992, abstract 872-03-81.

Deciding Identities: Nonassociative Algebraic Computation, contributed talk, SIAM Annual Meeting, Chicago, July, 1990.

Algebras, Identities, and Dynamic Programming, invited colloquium talk, Dept. of Mathematics and Computer Science, Emory University, Atlanta, October 27, 1988.

The Computation of Fractional Dominating Functions of Graphs, contributed talk, Fourth SIAM Conference on Discrete Mathematics, San Francisco, June, 1988.

In a Right Alternative Algebra an Alternator Need not Cube to Zero, with I.R. Hentzel, 94th Annual Meeting of the American Mathematical Society, Atlanta, January, 1988, Notices of the American Math. Soc., abstract 839-17-01.

An Algebraic Problem, a Computational Solution, invited colloquium talk, Dept. of Mathematics and Computer Science, Wake Forest University, Winston-Salem, November 6, 1987.

Right Nilpotent Generalized Alternative Rings, contributed talk, 84th Annual Meeting of the American Mathematical Society, Atlanta, January, 1978, Notices of the Amer. Math. Soc., abstract 752-17-5.

Publications

- [1] David J. Pokrass and David Rodabaugh. Solvable assosymmetric rings are nilpotent. *Proceedings of the American Mathematical Society*, 64:30–34, 1977.
- [2] David J. Pokrass and David Rodabaugh. On the nilpotency of generalized alternative algebras. *Journal of Algebra*, 49:191–205, 1977.
- [3] David J. Pokrass. Some radical properties of rings with $(a,b,c)=(c,a,b)$. *Pacific Journal of Mathematics*, 76:479–483, 1978.
- [4] David J. Pokrass. Levitzki radical for certain varieties. *Canadian Journal of Mathematics*, 31:1005–1011, 1979.
- [5] David J. Pokrass. Solvability and nilpotency in generalized alternative rings. *Communications in Algebra*, 7:225–239, 1979.
- [6] David J. Pokrass. Associativity in a ring – advanced problem 6263. *The American Mathematical Monthly*, 88:154, 1981.
- [7] David J. Pokrass and B. F. Wu. An operating systems project using structured methodology. *SIGSCE Bulletin*, 14:7–10, 1982.
- [8] Gary Bray and David J. Pokrass. *Understanding Ada - A Software Engineering Approach*. John Wiley & Sons, New York, 1985.
- [9] Keith Allen and David J. Pokrass. Logic and functional programming. *IEEE Potentials*, 6(3):21–24, 1987.
- [10] David J. Pokrass. A note on distance increasing reducibility. *Indian Journal of Pure and Applied Mathematics*, 19:250–254, 1988.
- [11] Irvin Roy Hentzel and David J. Pokrass. Practical solution for a large sparse matrix. *Software-Practice and Experience*, 18:279–283, 1988.
- [12] Irvin Roy Hentzel and David J. Pokrass. A computational and graph theoretic approach to nonassociative algebras. *Congressus Numerantium*, 62:241–258, 1988. presented at 18th Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, February, 1987.
- [13] David J. Pokrass. Some program anomalies and the parameter theorem. *Mathematics Magazine*, 62(2):125–131, 1989.
- [14] Irvin Roy Hentzel and David P. Jacobs. Jordan and right alternative counterexamples. *Comptes Rendus Math. Rep. Acad. Sci. Canada*, 11:77–81, 1989.
- [15] Stephen T. Hedetniemi, David P. Jacobs, and Renu C. Laskar. Inequalities involving the rank of a graph. *J. of Combinatorial Mathematics and Combinatorial Computing*, 6:173–176, 1989.
- [16] Irvin Roy Hentzel and David J. Pokrass. Verification of non-identities in algebras. In P. Gianni, editor, *Lecture Notes in Computer Science*, volume 358, pages 496–507. Springer Verlag, 1989. presented at 1988 International Symposium on Symbolic and Algebraic Computation, July, Rome.

- [17] Grant A. Cheston, Gerd Fricke, Stephen T. Hedetniemi, and David P. Jacobs. On the computational complexity of upper fractional domination. *Discrete Applied Mathematics*, 27:195–207, 1990.
- [18] Gerd Fricke, Eleanor O. Hare, David P. Jacobs, and A. Majumdar. On integral and fractional total domination. *Congressus Numerantium*, 77:87–95, 1990.
- [19] Sandra M. Hedetniemi, Stephen T. Hedetniemi, and David P. Jacobs. Private domination: Theory and algorithms. *Congressus Numerantium*, 79:147–157, 1990. presented at 21st Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, February, 1990.
- [20] Irvin Roy Hentzel and David P. Jacobs. Complexity and unsolvability properties of nilpotency. *SIAM Journal on Computing*, 19:32–43, 1990.
- [21] Irvin Roy Hentzel and David J. Pokrass. Proofs for non-identities using characteristic functions. *Congressus Numerantium*, 78:123–134, 1990. presented at 21st Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, February, 1990.
- [22] Frank Harary, Irvin Roy Hentzel, and David P. Jacobs. Digitizing sum graphs over the reals. *Caribb. J. Math. Comput. Sci.*, 1:1–4, 1991.
- [23] Irvin Roy Hentzel and David P. Jacobs. A dynamic programming method for building free algebras. *Computers & Mathematics with Applications*, 22(12):61–66, 1991.
- [24] David P. Jacobs. Probabilistic checking of associativity in algebras. *Information Processing Letters*, 37:187–191, 1991.
- [25] Irvin Roy Hentzel and David P. Jacobs. A condition guaranteeing commutativity. *International Journal of Algebra and Computation*, 2(3):291–296, 1992.
- [26] Irvin Roy Hentzel and David P. Jacobs. Fast change of basis in algebras. *Applicable Algebra in Engineering, Communication, and Computing*, 3(4):257–261, 1992.
- [27] Phil Bernhard, Stephen T. Hedetniemi, and David P. Jacobs. Efficient sets in graphs. *Discrete Applied Math.*, 44:99–108, 1993.
- [28] Sandra M. Hedetniemi, Stephen T. Hedetniemi, and David P. Jacobs. Total irredundance in graphs: Theory and algorithms. *Ars Combinatoria*, 35A:271–284, 1993.
- [29] Irvin Roy Hentzel, David P. Jacobs, and Erwin Kleinfeld. Rings with $(a,b,c)=(a,c,b)$ and $(a,[b,c],d)=0$: A case study using Albert. *Int. J. of Computer Mathematics*, 49:19–27, 1993.
- [30] Irvin Roy Hentzel, David P. Jacobs, and Veeraseshararao Muddana. Experimenting with the identity $(xy)z=y(zx)$. *Journal of Symbolic Computation*, 16:289–293, 1993. Erratum in *Journal of Symbolic Computation*, 17(2), 1994.
- [31] David P. Jacobs and Veeraseshararao Muddana. The word problem for free partially commutative, partially associative groupoids. *Journal of Symbolic Computation*, 16:557–562, 1993.
- [32] David P. Jacobs, Veeraseshararao Muddana, and A. J. Offutt. A computer algebra system for nonassociative identities. In H. C. Myung, editor, *Hadronic Mechanics and Nonpotential Interactions*. Nova Science Publishers, 1993. presented at Fifth International Conference, August, 1990, Cedar Falls.
- [33] Michael R. Fellows, Gerd Fricke, Stephen T. Hedetniemi, and David P. Jacobs. The private neighbor cube. *SIAM Journal of Discrete Mathematics*, 7:41–47, 1994.
- [34] Irvin Roy Hentzel, David P. Jacobs, Luiz A. Peresi, and Sergei R. Sverchkov. Solvability of the ideal of all weight zero elements in bernstein algebras. *Communications in Algebra*, 22(9):3265–3275, 1994.

- [35] David P. Jacobs. Undecidability of Winkler’s r -neighborhood problem for covering digraphs. *J. of Combinatorial Theory, Ser. B*, 60:254–267, 1994.
- [36] David P. Jacobs. The Albert nonassociative algebra system: A progress report. In *Proceedings of International Symposium on Symbolic and Algebraic Computation (ISSAC-94)*, pages 41–44, Oxford, England, July 1994.
- [37] David P. Jacobs. Deciding identities in finite dimensional algebras. In *Proceedings of Congresso Nacional de Matemática Aplicada e Computacional (CNMAC’95)*, Curitiba, Brazil, August 1995.
- [38] Gerd Fricke, Stephen T. Hedetniemi, David P. Jacobs, and Vilmar Trevisan. Reducing the adjacency matrix of a tree. *Electronic Journal of Linear Algebra*, 1:34–43, 1996.
- [39] Gerd Fricke, Stephen T. Hedetniemi, and David P. Jacobs. Maximal irredundant functions. *Discrete Applied Mathematics*, 68(3):267–277, 1996.
- [40] Irvin Roy Hentzel, David P. Jacobs, and Luiz A. Peresi. A basis for free assosymmetric algebras. *Journal of Algebra*, 183:306–318, 1996.
- [41] David P. Jacobs, D. Lee, S. V. Muddana, A. J. Offut, K. Prabhu, and T. Whiteley. Albert’s user guide, version 3.0. Technical report, Clemson University, 1996.
- [42] David P. Jacobs and Vilmar Trevisan. The determinant of a tree’s neighborhood matrix. *Linear Algebra and Its Applications*, 256:235–48, 1997.
- [43] David P. Jacobs. A course in computational nonassociative algebra. *Journal of Symbolic Computation*, 23:497–502, 1997.
- [44] Gerd Fricke, Stephen T. Hedetniemi, and David P. Jacobs. Independence and irredundance in k -regular graphs. *Ars Combinatoria*, 49:271–279, 1998.
- [45] J. Ghoshal, David P. Jacobs, Renu C. Laskar, and D. Pillone. Partitions in tournaments. *Congressus Numerantium*, 132:145–155, 1998. presented at 29th Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, March, 1998.
- [46] David P. Jacobs and Vilmar Trevisan. Constructing the characteristic polynomial of a tree’s adjacency matrix. *Congressus Numerantium*, 134:139–145, 1998. presented at 29th Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, March, 1998.
- [47] David P. Jacobs and Vilmar Trevisan. How to construct the characteristic polynomial of a tree. Technical report, 1998.
- [48] Sandra M. Hedetniemi, Stephen T. Hedetniemi, and David P. Jacobs. Rank independent domination for trees. *Bulletin of Institute of Combinatorics and its Applications*, 27:62–68, 1999.
- [49] David P. Jacobs and Vilmar Trevisan. Linear-time LUP decomposition of forest-like matrices. *Computers and Mathematics with Applications*, 37:37–50, 1999.
- [50] Edward Doyle and David P. Jacobs. 2-split graphs. *Congressus Numerantium*, 142:65–73, 2000. presented at 31st Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, 2000.
- [51] Jean E. Dunbar, Sandra M. Hedetniemi, Stephen T. Hedetniemi, David P. Jacobs, James Knisely, Renu C. Laskar, and Doug F. Rall. Fall colorings of graphs. *J. of Combinatorial Mathematics and Combinatorial Computing*, 33:257–273, 2000.
- [52] David P. Jacobs and Robert E. Jamison. Complexity of recognizing equal unions in families of sets. *Journal of Algorithms*, 37:495–504, 2000.

- [53] David P. Jacobs, John S. Davis, and Jack C. Peck. A simple heuristic for maximizing service of carousel storage. *Computers and Operations Research*, 27:1351–1356, 2000.
- [54] David P. Jacobs, John S. Davis, and Jack C. Peck. A fast algorithm for shelf optimization: a note. *Research Journal of Textile and Apparel*, 4(2):47–51, 2000.
- [55] David P. Jacobs, Robert E. Jamison, and Alice A. McRae. On the complexity of sign-nonsingularity and equal unions of sets. In *Proceedings of the 38th ACM SE Conference*, pages 232–234, Clemson, April 2000.
- [56] Jean R.S. Blair, Sandra M. Hedetniemi, Stephen T. Hedetniemi, and David P. Jacobs. Self-stabilizing maximum matchings. *Congressus Numerantium*, 153:151–159, 2001. presented at 32nd Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Baton Rouge, 2001.
- [57] Teresa W. Haynes, Sandra M. Hedetniemi, Stephen T. Hedetniemi, David P. Jacobs, James Knisely, and Lucas C. van der Merwe. Domination subdivision numbers. *Discussiones Mathematicae Graph Theory*, 21(2):239–253, 2001.
- [58] Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Maximal matching stabilizes in time $O(m)$. *Information Processing Letters*, 80:221–223, 2001.
- [59] David P. Jacobs. *Handbook of Computer Algebra: Foundations, Applications, Systems*, chapter Building nonassociative algebras with Albert, pages 346–348. Springer-Verlag, Heidelberg, 2001. eds. Johannes Grabmeier, Erich Kaltofen and Volker Weispfenning.
- [60] David P. Jacobs and Robert E. Jamison. A note on equal unions in families of sets. *Discrete Mathematics*, 241:387–393, 2001. Selected Papers in honor of Helge Tverberg.
- [61] David P. Jacobs, Catia M. S. Machado, and Vilmar Trevisan. An $O(n^2)$ algorithm for the characteristic polynomial of a tree. In *Brazilian Symposium on Graphs, Algorithms and Combinatorics*, volume 7 of *Electron. Notes Discrete Math.*, page 4. Elsevier Sci. B. V., Amsterdam, 2001.
- [62] David P. Jacobs and Robert E. Jamison. NP-completeness for equal unions in families of sets. In *Proceedings of the 39th ACM SE Conference*, pages 73–75, Athens, March 2001.
- [63] David P. Jacobs and Brian A. Malloy. An application-centered course on data-driven web sites. In *Proceedings of Frontiers in Education*, pages F2D10–F2D14, Reno, October 2001.
- [64] Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Fault tolerant distributed coloring algorithms that stabilize in linear time. In *Proc. IEEE IPDPS-2002 Workshop on Advances in Parallel and Distributed Computational Models*, pages 1–5, Orlando, April 2002.
- [65] Sandra M. Hedetniemi, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Self-stabilizing algorithms for minimal dominating sets and maximal independent sets. *Computers & Mathematics with Applications*, 46:805–811, 2003.
- [66] Wayne D. Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Self stabilizing protocols for maximal matching and maximal independent sets for ad hoc networks. In *Proceedings of fifth IPDPS workshop on Advances in Parallel and Distributed Computational Models*, Nice, France, April 2003.
- [67] Wayne D. Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. A robust distributed generalized matching protocol that stabilizes in linear time. In *Proceedings of the ICDCS International Workshop on Mobile Distributed Computing (MDC03)*, Providence, May 2003.

- [68] Wayne D. Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. A self-stabilizing distributed algorithm for minimal total domination in an arbitrary system graph. In *Proceedings of the IPDPS workshop on Formal methods on parallel programming: Theory and Applications (FMPPTA-2003)*, Nice, France, April 2003.
- [69] Wayne D. Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Self-stabilizing distributed algorithm for strong matching in a system graph. In *International Conference on High Performance Computing (HiPC2003)*, volume 2913 of *Lecture Notes in Computer Science*, pages 66–73, Hyderabad, India, 2003. Springer Verlag.
- [70] Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Linear time self-stabilizing colorings. *Information Processing Letters*, 87:251–255, 2003.
- [71] Wayne D. Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Fault tolerant algorithms for orderings and colorings. In *Proceedings of the IPDPS Workshop on Advances in Parallel and Distributed Computational Models (APDCM04)*, Santa Fe, April 2004.
- [72] Martin Gairing, Wayne Goddard, Stephen T. Hedetniemi, and David P. Jacobs. Self-stabilizing maximal k -dependent sets in linear time. *Parallel Processing Letters*, 14:75–82, 2004.
- [73] Wayne Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Self-stabilizing algorithms for orderings and colorings. *International Journal on Foundations of Computer Science*, 16(1):19–36, 2005.
- [74] Wayne Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Self-stabilizing global optimization algorithms for large network graphs. *International Journal of Distributed Sensor Networks*, 1:329–344, 2005.
- [75] David P. Jacobs, Catia M. S. Machado, and Vilmar Trevisan. An $O(n^2)$ algorithm for the characteristic polynomial of a tree. *J Comb. Math. and Comb. Comp*, 54:213–221, 2005.
- [76] Wayne Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Vilmar Trevisan. Distance- k information in self-stabilizing algorithms. In *Proc. of 13th Colloquium on Structural Information and Communication Complexity (SIROCCO)*, volume 4056 of *Lecture Notes in Computer Science*, pages 349–356, Chester, July 2006. Springer Verlag.
- [77] Gerd Fricke, Stephen T. Hedetniemi, and David P. Jacobs. On the equivalence of the upper irredundance and fractional upper irredundance numbers of a graph. *Bulletin of Institute of Combinatorics and its Applications*, 48:99–106, 2006.
- [78] Wayne Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Introduction to the self-stabilizing algorithmic model. In *Proc. Workshop on Graph Theory and Applications*, Porto Alegre, November 2006.
- [79] David P. Jacobs and Robert E. Jamison. Polynomial recognition of equal unions in hypergraphs with few vertices of large degree. *Journal of Discrete Algorithms*, 4(2):201–208, 2006.
- [80] Wayne Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Vilmar Trevisan. Distance- k knowledge in self-stabilizing algorithms. *Theoretical Computer Science*, 399:118–127, 2008.
- [81] Wayne Goddard, Stephen T. Hedetniemi, David P. Jacobs, Pradip K. Srimani, and Z. Xu. Self-stabilizing graph protocols. *Parallel Processing Letters*, 18(1):189–199, 2008.
- [82] Wayne Goddard, Stephen T. Hedetniemi, David P. Jacobs, and Pradip K. Srimani. Anonymous daemon conversion in self-stabilizing algorithms by randomization in constant space. In *Proc. 9th Int. Conf. on Distributed Computing and Networking*, volume 4904 of *Lecture Notes in Computer Science*, pages 182–190. Springer Verlag, 2008.

- [83] David P. Jacobs, Vilmar Trevisan, and Mohamed O. Rayes. Randomized compositeness testing with Chebyshev polynomials. *International Journal of Pure and Applied Mathematics*, 44(3):347–362, 2008.
- [84] David P. Jacobs, Vilmar Trevisan, and Mohamed O. Rayes. Characterization of Chebyshev numbers. *Algebra and Discrete Mathematics*, 2:65–82, 2008.
- [85] David P. Jacobs, Catia M.S. Machado, Elaine C. Pereira, and Vilmar Trevisan. Computing the inverse of a tree’s incidence matrix. *Congressus Numerantium*, 189:169–176, 2008. presented at Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, March.
- [86] A. E. Brouwer, Renata R. Del-Vecchio, David P. Jacobs, Vilmar Trevisan, and Cybele T. M. Vinagre. Integral trees homeomorphic to a double star. *Bull. Inst. Comb. Appl.*, 61:77–80, 2011.
- [87] David P. Jacobs, Vilmar Trevisan, and Mohamed O. Rayes. The resultant of Chebyshev polynomials. *Canadian Mathematical Bulletin*, 54:288–296, 2011.
- [88] David P. Jacobs and Vilmar Trevisan. Locating the eigenvalues of trees. *Linear Algebra and Its Applications*, 434:81–88, 2011.
- [89] C.T. Cook, S. Drachova, J.O. Hallstrom, J. Hollingsworth, D.P. Jacobs, J. Krone, and M. Sitaraman. A systematic approach to teaching abstraction and mathematical modeling. In *ITiCSE2012 - ACM SIGCSE Conference on Innovation and Technology in Computer Science Education*, Haifa, July 2012.
- [90] Stephen T. Hedetniemi, David P. Jacobs, and Ken E. Kennedy. Linear-time self-stabilizing algorithms for disjoint independent sets. *The Computer Journal*, 56:1381–1387, 2013.
- [91] David P. Jacobs, Vilmar Trevisan, and Fernando C. Tura. Distance eigenvalue location in threshold graphs. In A. Andrioni, R. de Freitas, C. Lavor, L. Liberti, N. Maculanand, and A. Mucherino, editors, *Proc. of Workshop on Distance Geometry and its Application*, pages 157–161, Manaus, 2013.
- [92] David P. Jacobs, Vilmar Trevisan, and Fernando C. Tura. Eigenvalue location in threshold graphs. *Linear Algebra and Its Applications*, 439:2762–2773, 2013.
- [93] David P. Jacobs, Vilmar Trevisan, and Fernando C. Tura. Computing the characteristic polynomial of threshold graphs. *Journal of Graph Algorithms and Applications*, 18(5):709–719, 2014.
- [94] David P. Jacobs, Vilmar Trevisan, and Fernando C. Tura. Eigenvalues and energy in threshold graphs. *Linear Algebra and Its Applications*, 465:412–425, 2015.
- [95] Renata R. Del-Vecchio, David P. Jacobs, Vilmar Trevisan, and Cybele T. M. Vinagre. Diagonalization of generalized lollipop graphs. *Electron. Notes Discrete Math.*, 50:41–46, Dec. 2015.
- [96] Stephen T. Hedetniemi, David P. Jacobs, and Ken E. Kennedy. A theorem of Ore and self-stabilizing algorithms for disjoint minimal dominating sets. *Theoretical Computer Science*, 593:132–138, 2015.
- [97] Luiz Emilio Allem, David P. Jacobs, and Vilmar Trevisan. Normalized Laplacian energy change and edge deletion. *MATCH Commun. Math. Comput. Chem.*, 75(2):343–353, 2016.
- [98] Stephen T. Hedetniemi, David P. Jacobs, and Vilmar Trevisan. Domination number and Laplacian eigenvalue distribution. *European Journal of Combinatorics*, 53:66–71, 2016.
- [99] David P. Jacobs and Vilmar Trevisan. A conjecture on Laplacian eigenvalues of trees. In Raluca Gera, Teresa Haynes, and Steve Hedetniemi, editors, *Graph Theory – Favorite Conjectures and Open Problems*, volume II of *Problem Books in Mathematics*. Springer Verlag, 2017.
- [100] Domingos M. Cardoso, David P. Jacobs, and Vilmar Trevisan. Laplacian distribution and domination. *Graphs and Combinatorics*, 33(5):1283–1295, September 2017.

- [101] David P. Jacobs, Vilmar Trevisan, and Fernando C. Tura. Eigenvalue location in cographs. *Discrete Applied Math.*, 245:220–235, 2018.
- [102] Martin Fürer, Carlos Hoppen, David P. Jacobs, and Vilmar Trevisan. Locating the eigenvalues for graphs of small clique-width. In *LATIN 2018*, Buenos Aires, April 2018.
- [103] Martin Fürer, Carlos Hoppen, David P. Jacobs, and Vilmar Trevisan. Eigenvalue location in graphs of small clique-width. *Linear Algebra and Its Applications*, 560:56–85, 2019.
- [104] Carlos Hoppen, David P. Jacobs, and Vilmar Trevisan. Domination and spectral graph theory. In Teresa Haynes, Steve T. Hedetniemi, and Mike Henning, editors, *Topics in Domination*. Springer Verlag, 2020.
- [105] David P. Jacobs, Elismar Oliveira, and Vilmar Trevisan. Most laplacian eigenvalues of a tree are small. *J. of Combinatorial Theory, Ser. B*, 146:1–33, January 2021.
- [106] Carlos Hoppen, David P. Jacobs, and Vilmar Trevisan. *Locacting Eigenvalues in Graphs–Algorithms and Applications*. SBMAC SpringerBriefs in Mathematics. Springer, 2022.