

CURRICULUM VITAE

February 11, 2022

Paul H. Edelman

Professor of Mathematics and Law
Vanderbilt University
131 21st Avenue South
Nashville, TN 37203-1181

Education

Swarthmore College, B.A. with Highest Honors in Mathematics, 1976.
Massachusetts Institute of Technology, Ph.D. in Mathematics, 1980.

Positions

Professor of Mathematics and Law, *Emeritus*, Vanderbilt University
Professor of Mathematics and Law, Vanderbilt University, 2000 to 2022.
Olin Visiting Professor of Law, University of Virginia, Fall, 2003.
Professor of Mathematics, University of Minnesota, 1990-2000.
Associate Professor of Mathematics, University of Minnesota, 1986-1990.
Assistant Professor of Mathematics, Carnegie-Mellon University, 1985-1986.
Assistant Professor of Mathematics, University of Pennsylvania, 1980-1985.

Fellowships and Grants

NSF Grants July 1983 - December 1991, July 1992 - December 1994.
Applied Mathematics Fellowship, MIT, September 1976 - January 1978.

Honorary and Professional Societies

Phi Beta Kappa
Sigma Xi

Miscellaneous

Affiliated Faculty, University of Minnesota Law School, 1998-2000.
Board of Editors, **Order**, 1998-2012.
Advisory panel for the NSA Mathematical Sciences Program, 2005-2008.
Affiliated Faculty, Center for the Study of Democratic Institutions, Vanderbilt University, 2011-to date.

Invited Addresses Since 2000

Faculty Seminar, University of Virginia Law School, May, 2019
Colloquium, Math and Democracy Seminar, NYU Center for Data Science, April, 2019
Future of Automated Redistricting Plans, discussant, APSA Annual Meeting, Boston, September, 2018
Mathematics and Democracy, Invited Special Session, MathFest 2017, Chicago, July, 2017
Invited Lecture, Formal Power Series and Algebraic Combinatorics, Chicago, June, 2014
Bernard Lecture, Davidson College, October, 2012.
Keynote Address, Tennessee Mathematics Teachers Association annual meeting, September, 2012.
Workshop on Electoral Methods, KTH, Stockholm, Sweden, May, 2011.
Distinguished Lecture, Middle Tennessee State University, March, 2010.
Mathematics and the Analysis of Fairness in Political Processes, Panel, AAAS Annual Meeting, San Diego, February, 2010.
Math for America, New York, workshop, October, 2009.
Should the Electoral College Stay, Be Reformed, or Be Abolished, Panel, INFORMS, Washington, DC, October, 2008.
Andrew F. Sobczyk Memorial Lecture, Clemson University, April, 2008.
MAA Invited Lecture, Joint Mathematics Meetings, San Diego, January, 2008.
University of California, Berkeley, Mathematics Colloquium, February, 2007.
Keynote Address, 3rd Annual Liberal Arts and Liberal Learning Convocation Series, Belmont University, February, 2006.
International Workshop on Mathematics and Democracy, Erice, Italy, September, 2005.
Plenary Lecture, Public Choice Society Annual Meeting, New Orleans, March, 2005
Analysis and Design of Elections Systems, Oberwolfach, Germany, March, 2004.
University of Virginia Law School, October, 2003.
Northwestern University Law School, September, 2003.
University of Kentucky Mathematics Colloquium, February, 2003.
Rhodes College Colloquium, September, 2002.

MIT Applied Mathematics Colloquium, April 2002.
Author Meets Critics, Maxwell Stearns' *Constitutional Process: Social Choice Analysis of Supreme Court Decision Making*, Panel, Midwest Political Science Association, April 2001.
Cornell University Applied Mathematics Colloquium, March, 2001.
Combinatorists of New England Conference, February, 2001.
Smith College, Alice Dickinson Mathematics Lecture, February 2001.
Vanderbilt University Mathematics Department, January, 2000.

Consulting

Consultant for the Deluxe Corporation, 1997-1998, designing and implementing combinatorial optimization software.

Consultant for the Country Music Association, 2007-2011, evaluating and designing the election methods for the Country Music Awards and Country Music Hall of Fame.

Publications

Law and Public Choice

1. (With J. Chen) The most dangerous justice: The Supreme Court at the bar of mathematics, *S. Cal. L. Rev.*, **70** (1996), 63-111.
2. (With J. Chen) "Duel" diligence: Second thoughts about the Supremes as sultans of swing, *S. Cal. L. Rev.*, **70** (1996), 219-238.
3. A note on voting, *Math. Soc. Sci.*, **34** (1997), 37-50.
4. A tour of mistakes, *NW. U. L. Rev.*, **93** (1998), 343-345.
5. (With J.M. Bilbao) The Shapley value on convex geometries, *Disc. App. Math.*, **103** (2000), 33-40.
6. (With S. Sherry) All or nothing: Explaining the size of Supreme Court majorities, *N.C. L. Rev.*, **78** (2000), 1225-1252.
7. (With P. Fishburn) Fair division of indivisible items among people with similar preferences, *Math. Soc. Sci.*, **41** (2001), 327-347.
8. (With S. Brams and P. Fishburn) Paradoxes in fair division, *J. Phil.*, **98** (2001), 300-314.
9. (With J. Chen) The most dangerous justice rides again: Revisiting the power pageant of the justices, *Minn. L. Rev.*, **86** (2001), 131-226.
10. (With S. Sherry) Pick a number any number: State representation in Congress after the 2000 census, *Cal. L. Rev.*, **90** (2002), 211-222.
11. On legal interpretations of the Condorcet Jury Theorem, *J. Legal Stud.*, **31** (2002), 327-349.
12. The law and large numbers, *Const. Comm.*, **19** (2002), 459-476.

13. (With S. Brams and P. Fishburn) Fair division of indivisible items, *Theory and Decision*, **55** (2003), 147-180.
14. Voting power and at-large representation, *Math. Soc. Sci.*, **47** (2004), 219-232.
15. Law clerks, law reviews & some modest proposals, *Green Bag 2d*, **7** (2004), 335-342.
16. The dimension of the Supreme Court, *Const. Comm.*, **20** (2004), 557-570.
17. (With R. Thomas) Corporate voting and the takeover debate, *Vanderbilt Law Review* **58** (2005), 453-498.
18. Making votes count in local elections: A mathematical appraisal of at-large representation, *Election Law Journal*, **4** (2005), 258-278.
19. (With R. Nagareda and C. Silver) The allocation problem in multiple-claimant representations, *Sup. Ct. Econ. Rev.*, **14** (2006), 95-112.
20. Getting the math right: Why California has too many seats in the House of Representatives, *Vanderbilt Law Review*, **59** (2006), 297-346.
21. Minimum total deviation apportionments in MATHEMATICS AND DEMOCRACY, RECENT ADVANCES IN VOTING SYSTEMS AND COLLECTIVE CHOICE (Bruno Simeone, Friedrich Pukelsheim, eds.), Springer, (2006), 55-64.
22. What are we comparing in comparative negligence? *Washington University Law Review*, **85** (2007), 73-99.
23. (With T. George) Six degrees of Cass Sunstein: Collaboration networks in legal scholarship, *Green Bag 2d*, **11** (2007), 19-36.
24. (With J. Chen) The most dangerous justice rides into the sunset, *Constitutional Commentary*, **24** (2007), 299-319.
25. (With D. Klein and S. Lindquist) Measuring deviations from expected voting patterns on collegial courts, *Journal of Empirical Legal Studies*, **5** (2008), 821-854.
26. (With R. Thompson) Corporate voting, *Vanderbilt Law Review*, **62** (2009), 129-175. (selected by *Corporate Practice Commentator* as one of the Best Corporate and Securities Articles of 2009.)
27. (With T. George) Mr. Sunstein's neighborhood: Won't you be our co-author?, *THE GREEN BAG ALMANAC AND READER* (2009).
28. A derivatives market in legal academia, *Green Bag 2d*, **12** (2009), 157-160.
29. (With N. Alon) The inverse Banzhaf problem, *Social Choice and Welfare*, **34** (2010), 371-377. DOI 10.1007/s00355-009-0402-8.
30. (With D. Klein and S. Lindquist) Consensus, disorder and ideology on the Supreme Court, *Journal of Empirical Legal Studies*, **9** (2012), 129-148.
31. (With R. Thomas) Selectica resets the trigger on the poison pill: Where should the Delaware courts go next?, *Indiana Law Journal*, **87** (2012), 1087-1142.
32. Book review of MAJORITY JUDGMENT: MEASURING, RANKING, AND ELECTING by M. Balinski and R. Laraki, *Public Choice*, **151** (2012), 807-810.
33. The institutional dimension of election design, *Public Choice*, **153** (2012), 287-293.

34. Burden of proof: A Review of MATH ON TRIAL, *Notices of the AMS*, **60** (2013), 910-914.
35. (with R. Thomas and R. Thompson) Shareholder voting in an age of intermediary capitalism, *S. Cal L. Rev.*, **87** (2014), 1359-1434 . (selected by *Corporate Practice Commentator* as one of the Best Corporate and Securities Articles of 2015.)
36. The myth of the Condorcet winner, *Sup. Ct. Econ. Rev.*, **22** (2015), 207-219.
37. (with R. Thomas) The theory and practice of corporate voting at U.S. public companies, in RESEARCH HANDBOOK ON SHAREHOLDER POWER (R. Thomas & J. Hill, eds.) (2015), 459-478.
38. Voting power apportionments, *Social Choice and Welfare*, **44** (2015), 911-925. DOI 10.1007/s00355-015-0869-4.
39. *Evenwel*, voting power and dual districting, *Journal of Legal Studies*, **45** (2016), 203-221.
40. Amicus Brief in *George v Hargett*, No. 16-5563 (6th Cir.).
41. Is Groton the next *Evenwel*?, *Michigan Law Review Online*, **117** (2018), 63-74.
42. (with R. Thomas and W. Jiang) Will Tenure Voting Give Corporate Managers Lifetime Tenure?, *Texas Law Review*, **97** (2018), 991-1029. Reprinted in *Corporate Practice Commentator*, **62** (2020), 1-41.
43. (with John Weymark) Unrestricted domain extensions of dominant strategy implementable allocation functions, SOCIAL DESIGN-ESSAYS IN MEMORY OF LEONID HURWICZ (Trochel, ed.) (2019), 261-276
44. Political hypotheses and mathematical conclusions, in FUTURE OF ECONOMIC DESIGN (Laslier, Moulin, Sanver & Zwicker, eds.) (2019), 395-400. DOI: 10.1007/978-3-030-18050-8-55
45. (with John Weymark) Dominant strategy implementability and zero length cycles, *Economic Theory* **72** (2021), 1091-1120. <https://doi.org/10.1007/s00199-020-01324-7>
46. (with Ed Cheng and Brian Fitzpatrick) Distributing attorney fees in multidistrict litigation, *Journal of Legal Analysis*, **13** (2021), 558-594. Available at <https://doi.org/10.1093/jla/laab002>
47. (with Martin Van der Linden and John Weymark) The core of a transferable utility game as the solution to a public good market demand problem, *Mathematical Programming* (2021), <https://doi.org/10.1007/s10107-021-01729-9>.
48. (with Attila Por) A new axiomatic approach to the impartial nomination problem, *Games and Economic Behavior*, **130** (2021), 443-451. Available at <https://doi.org/10.1016/j.geb.2021.08.014>
49. (with Lynn Stout) Reducing social welfare by making financial markets more complete: Implications for the 2008 crisis, (preprint).

Pure Mathematics

1. Independence ratios of graphs that embed on S_n , *Ars Combin.*, **2** (1976), 197-211.

2. On a fixed point theorem for partially ordered sets, *Disc. Math.*, **15** (1979), 117-119.
3. (With M.E. Saks) Group labelings of graphs, *J. of Graph Th.* **3** (1979), 135-140.
4. Chain enumeration and non-crossing partitions, *Disc. Math.*, **31** (1980), 171-180.
5. Meet-distributive lattices and the anti-exchange closure, *Alg. Univ.*, **10** (1980), 290-299.
6. Zeta polynomials and the Möbius function, *Europ. J. Comb.*, **1** (1980), 335-340.
7. The Bruhat order of the symmetric group is lexicographically shellable, *Proc. Amer. Math. Soc.*, **82** (1981), 355-358.
8. Multichains, non-crossing partitions, and trees, *Disc. Math.*, **40** (1982), 171-179.
9. The lattice of convex sets of an oriented matroid, *J. Combin. Th. Ser. B*, **33** (1982), 239-244.
10. (With P. Klingsberg) The subposet lattice and the order polynomial, *Europ. J. Comb.*, **3** (1982), 341-346.
11. A partial order on the regions of \mathbf{R}^n dissected by hyperplanes, *Trans. Amer. Math. Soc.*, **283** (1984), 617-631.
12. The acyclic sets of an oriented matroid, *J. Combin. Th. Ser. B.*, **36** (1984), 26-31.
13. (With C. Greene) Combinatorial correspondences for Young tableaux, balanced tableaux, and maximal chains in the weak Bruhat order of S_n , in **Combinatorics and Algebra**, ed. by C. Greene, *Contemporary Mathematics Vol. 34*, AMS, Providence, 1984.
14. (With J.W. Walker) The homotopy type of hyperplane posets, *Proc. Amer. Math. Soc.*, **94** (1985), 221-225.
15. (With R.E. Jamison) The theory of convex geometries, *Geom. Ded.*, **19** (1985), 247-270.
16. Abstract convexity and meet-distributive lattices, *Contemporary Mathematics*, **57** (1986), 127-150.
17. (With C. Greene) Balanced tableaux, *Adv. in Math.*, **63** (1987), 42-99.
18. On inversions and cycles in permutations, *Europ. J. Comb.*, **8** (1987), 269-279.
19. (With M.E. Saks) Combinatorial representation and convex dimension of convex geometries, *Order*, **5** (1988), 23-32.
20. Tableaux and chains in a new partial order of S_n , *J. Combin. Th. Ser. A.*, **51** (1989), 181-204.
21. (With A. Björner, and G. Ziegler) Hyperplane arrangements with a lattice of regions, *Disc. & Comp. Geom.*, **5** (1990), 263-288.
22. (With D. White) Codes, transforms, and the spectrum of the symmetric group, *Pac. J. Math.*, **143** (1990), 47-67.
23. (With T. Hibi and R.P. Stanley) A recurrence for linear extensions, *Order*, **6** (1989), 15-18.
24. (With D. Larman) On characterizing collections arising from N -gons in the plane, *Geom. Ded.*, **33** (1990), 83-89.
25. (With R. Simion and D. White) Partition statistics on permutations, *Disc. Math.*, **99** (1992), 63-68.

26. On the average number of k -sets, *Disc. & Comp. Geom.*, **8** (1992), 209-213.
27. (With R. Simion) Chains in the lattice of non-crossing partitions, *Disc. Math.*, **126** (1994), 107-119.
28. (With V. Reiner) A counterexample to Orlik's conjecture, *Proc. Amer. Math. Soc.*, **118** (1993), 927-929.
29. (With V. Reiner) H -shellings and h -complexes, *Adv. in Math.*, **106** (1994), 36-64.
30. (With V. Reiner) Free hyperplane arrangements between A_{n-1} and B_n , *Math. Zeit.*, **215** (1994), 347-365.
31. (With V. Reiner) Not all free arrangements are $K(\pi, 1)$, *Bull. Amer. Math. Soc.*, **32** (1995), 61-65.
32. Lexicographically first reduced words, *Disc. Math.*, **147** (1995), 95-106.
33. (With V. Reiner) Free arrangements and rhombic tilings, *Disc. & Comp. Geom.*, **15** (1996), 307-340.
34. (With V. Reiner) The higher Stasheff-Tamari posets, *Mathematika*, **43** (1996), 127-154.
35. (With V. Reiner) Catalan triangulations of the Möbius band, *Graphs and Comb.*, **13** (1997), 231-243.
36. (With V. Reiner) Visibility complexes and the Baues problem for triangulations in the plane, *Disc. & Comp. Geom.*, **20** (1998), 35-59.
37. (With J. Rambau and V. Reiner) On subdivision posets of cyclic polytopes, *Europ. J. Comb.*, **21** (2000), 85-101.
38. Ordering points by linear functionals, *Europ. J. Comb.*, **21** (2000), 145-152.
39. (With V. Reiner) Counting the interior points of a point configuration, *Disc. & Comp. Geom.*, **23** (2000), 1-13.
40. (With C. Athanasiadis and V. Reiner) Monotone paths on polytopes, *Math. Zeit.*, **235** (2000), 315-334.
41. (With V. Reiner and V. Welker) Convex, pointed, and free sets of an oriented matroid, *Disc. & Comp. Geom.*, **27** (2002), 99-116.
42. (With S. W. Peterson, V. Reiner, and J. Stout) Geochemical phase diagrams and Gale diagrams, *SIAM J. of Applied Mathematics*, **64** (2003), 231-259.
43. (With T. Gvozdeva and A. Slinko) Simplicial complexes obtained from qualitative probability orders, *SIAM J. of Disc. Math.*, **27** (2013), 1820-1843.