

# Pablo A Parrilo

## List of Publications by Year in Descending Order

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**Version:** 2024-04-29

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

131  
papers

8,291  
citations

36  
h-index

90  
g-index

139  
ext. papers

9,905  
ext. citations

2.3  
avg, IF

6.56  
L-index

#	Paper	IF	Citations
131	Why random reshuffling beats stochastic gradient descent. <i>Mathematical Programming</i> , <b>2021</b> , 186, 49-84.	4.1	7
130	Lyapunov Exponent of Rank-One Matrices: Ergodic Formula and Inapproximability of the Optimal Distribution. <i>SIAM Journal on Control and Optimization</i> , <b>2020</b> , 58, 510-528	1.9	1
129	Minimum-strain symmetrization of Bravais lattices. <i>Physical Review Research</i> , <b>2020</b> , 2,	3.9	1
128	Sums of squares in Macaulay2. <i>The Journal of Software For Algebra and Geometry: Macaulay2</i> , <b>2020</b> , 10, 17-24	0.8	3
127	Certifying Unstability of Switched Systems Using Sum of Squares Programming. <i>SIAM Journal on Control and Optimization</i> , <b>2020</b> , 58, 2616-2638	1.9	
126	Dimension reduction for semidefinite programs via Jordan algebras. <i>Mathematical Programming</i> , <b>2020</b> , 181, 51-84	2.1	2
125	An Entropy-Based Bound for the Computational Complexity of a Switched System. <i>IEEE Transactions on Automatic Control</i> , <b>2019</b> , 64, 4623-4628	5.9	2
124	Semidefinite Approximations of the Matrix Logarithm. <i>Foundations of Computational Mathematics</i> , <b>2019</b> , 19, 259-296	2.7	25
123	Pricing Equilibria and Graphical Valuations. <i>ACM Transactions on Economics and Computation</i> , <b>2018</b> , 6, 1-26	1.6	1
122	Partial facial reduction: simplified, equivalent SDPs via approximations of the PSD cone. <i>Mathematical Programming</i> , <b>2018</b> , 171, 1-54	2.1	19
121	Chordal Networks of Polynomial Ideals. <i>SIAM Journal on Applied Algebra and Geometry</i> , <b>2017</b> , 1, 73-110	1.5	8
120	A Characterization of Lyapunov Inequalities for Stability of Switched Systems. <i>IEEE Transactions on Automatic Control</i> , <b>2017</b> , 62, 3062-3067	5.9	22
119	On the Convergence Rate of Incremental Aggregated Gradient Algorithms. <i>SIAM Journal on Optimization</i> , <b>2017</b> , 27, 1035-1048	2	41
118	Sum of Squares Certificates for Stability of Planar, Homogeneous, and Switched Systems. <i>IEEE Transactions on Automatic Control</i> , <b>2017</b> , 62, 5269-5274	5.9	5
117	How to Flatten a Soccer Ball. <i>Springer INdAM Series</i> , <b>2017</b> , 141-162	0.4	3
116	Sampling Algebraic Varieties for Sum of Squares Programs. <i>SIAM Journal on Optimization</i> , <b>2017</b> , 27, 2381-2404	8	
115	Equivariant Semidefinite Lifts of Regular Polygons. <i>Mathematics of Operations Research</i> , <b>2017</b> , 42, 472-494	5	1

114	. <i>IEEE Transactions on Automatic Control</i> , <b>2017</b> , 62, 1896-1910	5.9	42
113	Some Recent Directions in Algebraic Methods for Optimization and Lyapunov Analysis. <i>Springer Tracts in Advanced Robotics</i> , <b>2017</b> , 89-112	0.5	1
112	Self-scaled bounds for atomic cone ranks: applications to nonnegative rank and cp-rank. <i>Mathematical Programming</i> , <b>2016</b> , 158, 417-465	2.1	11
111	Convex Solution to a Joint Attitude and Spin-Rate Estimation Problem. <i>Journal of Guidance, Control, and Dynamics</i> , <b>2016</b> , 39, 118-127	2.1	4
110	Exploiting Chordal Structure in Polynomial Ideals: A Gröbner Bases Approach. <i>SIAM Journal on Discrete Mathematics</i> , <b>2016</b> , 30, 1534-1570	0.7	11
109	Sparse sums of squares on finite abelian groups and improved semidefinite lifts. <i>Mathematical Programming</i> , <b>2016</b> , 160, 149-191	2.1	9
108	Generating Unstable Trajectories for Switched Systems via Dual Sum-Of-Squares Techniques <b>2016</b> ,		7
107	An efficient tree decomposition method for permanents and mixed discriminants. <i>Linear Algebra and Its Applications</i> , <b>2016</b> , 493, 45-81	0.9	8
106	The 2013 Newton Institute Programme on polynomial optimization. <i>Mathematical Programming</i> , <b>2015</b> , 151, 375-377	2.1	
105	A globally convergent incremental Newton method. <i>Mathematical Programming</i> , <b>2015</b> , 151, 283-313	2.1	12
104	Iterative Auction Design for Tree Valuations. <i>Operations Research</i> , <b>2015</b> , 63, 751-771	2.3	11
103	Positive semidefinite rank. <i>Mathematical Programming</i> , <b>2015</b> , 153, 133-177	2.1	46
102	Weighted $\ell_1$ -Minimization for Generalized Non-Uniform Sparse Model. <i>IEEE Transactions on Information Theory</i> , <b>2015</b> , 61, 4424-4439	2.8	5
101	Equivariant Semidefinite Lifts and Sum-of-Squares Hierarchies. <i>SIAM Journal on Optimization</i> , <b>2015</b> , 25, 2212-2243	2	8
100	Semidefinite Descriptions of the Convex Hull of Rotation Matrices. <i>SIAM Journal on Optimization</i> , <b>2015</b> , 25, 1314-1343	2	22
99	Finding sparse, equivalent SDPs using minimal coordinate projections <b>2015</b> ,		2
98	Sparse sum-of-squares certificates on finite abelian groups <b>2015</b> ,		9
97	Approximate cone factorizations and lifts of polytopes. <i>Mathematical Programming</i> , <b>2015</b> , 151, 613-637	2.1	4

96	Lower bounds on nonnegative rank via nonnegative nuclear norms. <i>Mathematical Programming</i> , <b>2015</b> , 153, 41-66	2.1	7
95	Polynomial-sized semidefinite representations of derivative relaxations of spectrahedral cones. <i>Mathematical Programming</i> , <b>2015</b> , 153, 309-331	2.1	9
94	Joint Spectral Radius and Path-Complete Graph Lyapunov Functions. <i>SIAM Journal on Control and Optimization</i> , <b>2014</b> , 52, 687-717	1.9	62
93	Towards scalable algorithms with formal guarantees for Lyapunov analysis of control systems via algebraic optimization <b>2014</b> ,		8
92	Semidefinite relaxations for optimization problems over rotation matrices <b>2014</b> ,		4
91	Basis selection for SOS programs via facial reduction and polyhedral approximations <b>2014</b> ,		13
90	Optimal output feedback architecture for triangular LQG problems <b>2014</b> ,		12
89	$\mathcal{H}_2$ -Optimal Decentralized Control Over Posets: A State-Space Solution for State-Feedback. <i>IEEE Transactions on Automatic Control</i> , <b>2013</b> , 58, 3084-3096	5.9	58
88	NP-hardness of deciding convexity of quartic polynomials and related problems. <i>Mathematical Programming</i> , <b>2013</b> , 137, 453-476	2.1	61
87	Lifts of Convex Sets and Cone Factorizations. <i>Mathematics of Operations Research</i> , <b>2013</b> , 38, 248-264	1.5	94
86	Dynamics in near-potential games. <i>Games and Economic Behavior</i> , <b>2013</b> , 82, 66-90	1.1	35
85	A Complete Characterization of the Gap between Convexity and SOS-Convexity. <i>SIAM Journal on Optimization</i> , <b>2013</b> , 23, 811-833	2	37
84	Convex algebraic geometry and semidefinite optimization <b>2013</b> ,		8
83	Near-Potential Games. <i>ACM Transactions on Economics and Computation</i> , <b>2013</b> , 1, 1-32	1.6	16
82	Diagonal and Low-Rank Matrix Decompositions, Correlation Matrices, and Ellipsoid Fitting. <i>SIAM Journal on Matrix Analysis and Applications</i> , <b>2012</b> , 33, 1395-1416	1.5	19
81	A convex polynomial that is not sos-convex. <i>Mathematical Programming</i> , <b>2012</b> , 135, 275-292	2.1	31
80	The Convex Geometry of Linear Inverse Problems. <i>Foundations of Computational Mathematics</i> , <b>2012</b> , 12, 805-849	2.7	590
79	Chapter 3: Polynomial Optimization, Sums of Squares, and Applications <b>2012</b> , 47-157		5

78	A new semidefinite programming hierarchy for cycles in binary matroids and cuts in graphs. <i>Mathematical Programming</i> , <b>2012</b> , 133, 203-225	2.1	11
77	Reconstructing the unknown, balancing structure and uncertainty. <i>Communications of the ACM</i> , <b>2012</b> , 55, 110-110	2.5	
76	Chapter 2: Semidefinite Optimization <b>2012</b> , 3-46		1
75	Selecting a monomial basis for sums of squares programming over a quotient ring <b>2012</b> ,		4
74	Convex Graph Invariants. <i>SIAM Review</i> , <b>2012</b> , 54, 513-541	7.4	8
73	Joint spectral radius of rank one matrices and the maximum cycle mean problem <b>2012</b> ,		5
72	When is a set of LMIs a sufficient condition for stability?. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , <b>2012</b> , 45, 313-318		4
71	Latent variable graphical model selection via convex optimization. <i>Annals of Statistics</i> , <b>2012</b> , 40,	3.2	158
70	Rejoinder: Latent variable graphical model selection via convex optimization. <i>Annals of Statistics</i> , <b>2012</b> , 40,	3.2	2
69	Computation with Polynomial Equations and Inequalities Arising in Combinatorial Optimization. <i>The IMA Volumes in Mathematics and Its Applications</i> , <b>2012</b> , 447-481	0.5	5
68	Correlated equilibria in continuous games: Characterization and computation. <i>Games and Economic Behavior</i> , <b>2011</b> , 71, 436-455	1.1	10
67	Rank-Sparsity Incoherence for Matrix Decomposition. <i>SIAM Journal on Optimization</i> , <b>2011</b> , 21, 572-596	2	516
66	Flows and Decompositions of Games: Harmonic and Potential Games. <i>Mathematics of Operations Research</i> , <b>2011</b> , 36, 474-503	1.5	69
65	Structure of extreme correlated equilibria: a zero-sum example and its implications. <i>International Journal of Game Theory</i> , <b>2011</b> , 40, 749-767	0.5	1
64	An optimal controller architecture for poset-causal systems <b>2011</b> ,		10
63	Analysis of the joint spectral radius via Lyapunov functions on path-complete graphs <b>2011</b> ,		15
62	On higher order derivatives of Lyapunov functions <b>2011</b> ,		14
61	Converse results on existence of sum of squares Lyapunov functions <b>2011</b> ,		17

60	A globally asymptotically stable polynomial vector field with no polynomial Lyapunov function <b>2011,</b>		31
59	Learning in near-potential games <b>2011,</b>		7
58	A Hierarchy of Near-Optimal Policies for Multistage Adaptive Optimization. <i>IEEE Transactions on Automatic Control</i> , <b>2011</b> , 56, 2809-2824	5.9	64
57	Tree-structured statistical modeling via convex optimization <b>2011,</b>		1
56	<b>2010,</b>		2
55	H2-optimal decentralized control over posets: A state space solution for state-feedback <b>2010,</b>		21
54	<b>2010,</b>		29
53	A projection framework for near-potential games <b>2010,</b>		6
52	Guaranteed Minimum-Rank Solutions of Linear Matrix Equations via Nuclear Norm Minimization. <i>SIAM Review</i> , <b>2010</b> , 52, 471-501	7.4	1848
51	Constrained Consensus and Optimization in Multi-Agent Networks. <i>IEEE Transactions on Automatic Control</i> , <b>2010</b> , 55, 922-938	5.9	1057
50	Theta Bodies for Polynomial Ideals. <i>SIAM Journal on Optimization</i> , <b>2010</b> , 20, 2097-2118	2	74
49	Near-Optimal Power Control in Wireless Networks: A Potential Game Approach <b>2010,</b>		36
48	The Convex algebraic geometry of linear inverse problems <b>2010,</b>		27
47	Optimality of Affine Policies in Multistage Robust Optimization. <i>Mathematics of Operations Research</i> , <b>2010</b> , 35, 363-394	1.5	125
46	Bandgap optimization of two-dimensional photonic crystals using semidefinite programming and subspace methods. <i>Journal of Computational Physics</i> , <b>2010</b> , 229, 3706-3725	4.1	36
45	Fastest Mixing Markov Chain on Graphs with Symmetries. <i>SIAM Journal on Optimization</i> , <b>2009</b> , 20, 792-819		64
44	Sparse and low-rank matrix decompositions <b>2009,</b>		49
43	Optimality of affine policies in multi-stage robust optimization <b>2009,</b>		4

42	A positive definite polynomial Hessian that does not factor <b>2009</b> ,		5
41	A poset framework to model decentralized control problems <b>2009</b> ,		2
40	Competitive scheduling in wireless collision channels with correlated channel state <b>2009</b> ,		15
39	Separable and low-rank continuous games. <i>International Journal of Game Theory</i> , <b>2008</b> , 37, 475-504	0.5	8
38	A partial order approach to decentralized control of spatially invariant systems <b>2008</b> ,		2
37	A Partial order approach to decentralized control <b>2008</b> ,		18
36	Non-monotonic Lyapunov functions for stability of discrete time nonlinear and switched systems <b>2008</b> ,		62
35	Computing sum of squares decompositions with rational coefficients. <i>Theoretical Computer Science</i> , <b>2008</b> , 409, 269-281	1.1	66
34	On the asymptotic minimum number of monochromatic 3-term arithmetic progressions. <i>Journal of Combinatorial Theory - Series A</i> , <b>2008</b> , 115, 185-192	1	4
33	Approximation of the joint spectral radius using sum of squares. <i>Linear Algebra and Its Applications</i> , <b>2008</b> , 428, 2385-2402	0.9	85
32	Structured semidefinite programs for the control of symmetric systems. <i>Automatica</i> , <b>2008</b> , 44, 1411-1417	1.7	23
31	Stability and robustness analysis of nonlinear systems via contraction metrics and SOS programming. <i>Automatica</i> , <b>2008</b> , 44, 2163-2170	5.7	96
30	Semidefinite Representation of the k-Ellipse. <i>The IMA Volumes in Mathematics and Its Applications</i> , <b>2008</b> , 117-132	0.5	10
29	Efficient classification of complete parameter regions based on semidefinite programming. <i>BMC Bioinformatics</i> , <b>2007</b> , 8, 12	3.6	36
28	Polynomial stochastic games via sum of squares optimization <b>2007</b> ,		2
27	Characterization and computation of correlated equilibria in infinite games <b>2007</b> ,		5
26	Quantum algorithms for the ordered search problem via semidefinite programming. <i>Physical Review A</i> , <b>2007</b> , 75,	2.6	16
25	Explicit SOS decompositions of univariate polynomial matrices and the Kalman-Yakubovich-Popov lemma <b>2007</b> ,		7

24	A theorem of the alternative for SOS Lyapunov functions <b>2007</b> ,		2
23	Approximation of the Joint Spectral Radius of a Set of Matrices Using Sum of Squares. <i>Lecture Notes in Computer Science</i> , <b>2007</b> , 444-458	0.9	3
22	Polynomial games and sum of squares optimization <b>2006</b> ,		19
21	Parametric optimization and optimal control using algebraic geometry methods. <i>International Journal of Control</i> , <b>2006</b> , 79, 1340-1358	1.5	55
20	A PTAS for the minimization of polynomials of fixed degree over the simplex. <i>Theoretical Computer Science</i> , <b>2006</b> , 361, 210-225	1.1	56
19	Exploiting Algebraic Structure in Sum of Squares Programs. <i>Lecture Notes in Control and Information Sciences</i> , <b>2005</b> , 181-194	0.5	16
18	The Lax conjecture is true. <i>Proceedings of the American Mathematical Society</i> , <b>2005</b> , 133, 2495-2499	0.8	78
17	Symmetry Analysis of Reversible Markov Chains. <i>Internet Mathematics</i> , <b>2005</b> , 2, 31-71	0	36
16	Detecting multipartite entanglement. <i>Physical Review A</i> , <b>2005</b> , 71,	2.6	74
15	Complete family of separability criteria. <i>Physical Review A</i> , <b>2004</b> , 69,	2.6	225
14	An Inequality for Circle Packings Proved by Semidefinite Programming. <i>Discrete and Computational Geometry</i> , <b>2004</b> , 31, 357-367	0.6	4
13	Symmetry groups, semidefinite programs, and sums of squares. <i>Journal of Pure and Applied Algebra</i> , <b>2004</b> , 192, 95-128	0.6	197
12	Semidefinite programming relaxations for semialgebraic problems. <i>Mathematical Programming</i> , <b>2003</b> , 96, 293-320	2.1	852
11	Semidefinite Programming Relaxations and Algebraic Optimization in Control. <i>European Journal of Control</i> , <b>2003</b> , 9, 307-321	2.5	83
10	Minimizing polynomial functions. <i>DIMACS Series in Discrete Mathematics and Theoretical Computer Science</i> , <b>2003</b> , 83-99		106
9	A convex approach to robust performance analysis. <i>Automatica</i> , <b>2002</b> , 38, 957-966	5.7	12
8	Distinguishing separable and entangled states. <i>Physical Review Letters</i> , <b>2002</b> , 88, 187904	7.4	222
7	Robust Identification: An approach to select the class of candidate models. <i>International Journal of Control</i> , <b>2001</b> , 74, 1210-1218	1.5	4



6	. <i>IEEE Transactions on Control Systems Technology</i> , <b>2001</b> , 9, 608-617	4.8	16
5	$l_1$ identification applied to a fluid dynamics problem. <i>IEEE Transactions on Control Systems Technology</i> , <b>1996</b> , 4, 298-303	4.8	
4	Convergence rate of block-coordinate maximization BurerMonteiro method for solving large SDPs. <i>Mathematical Programming</i> ,1	2.1	1
3	Maximizing products of linear forms, and the permanent of positive semidefinite matrices. <i>Mathematical Programming</i> ,1	2.1	
2	On the local stability of semidefinite relaxations. <i>Mathematical Programming</i> ,1	2.1	6
1	On approximations of the PSD cone by a polynomial number of smaller-sized PSD cones. <i>Mathematical Programming</i> ,1	2.1	