

Pablo A Parrilo

List of Publications by Citations

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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	Guaranteed Minimum-Rank Solutions of Linear Matrix Equations via Nuclear Norm Minimization. <i>SIAM Review</i> , 2010 , 52, 471-501	7.4	1848
130	Constrained Consensus and Optimization in Multi-Agent Networks. <i>IEEE Transactions on Automatic Control</i> , 2010 , 55, 922-938	5.9	1057
129	Semidefinite programming relaxations for semialgebraic problems. <i>Mathematical Programming</i> , 2003 , 96, 293-320	2.1	852
128	The Convex Geometry of Linear Inverse Problems. <i>Foundations of Computational Mathematics</i> , 2012 , 12, 805-849	2.7	590
127	Rank-Sparsity Incoherence for Matrix Decomposition. <i>SIAM Journal on Optimization</i> , 2011 , 21, 572-596	2	516
126	Complete family of separability criteria. <i>Physical Review A</i> , 2004 , 69,	2.6	225
125	Distinguishing separable and entangled states. <i>Physical Review Letters</i> , 2002 , 88, 187904	7.4	222
124	Symmetry groups, semidefinite programs, and sums of squares. <i>Journal of Pure and Applied Algebra</i> , 2004 , 192, 95-128	0.6	197
123	Latent variable graphical model selection via convex optimization. <i>Annals of Statistics</i> , 2012 , 40,	3.2	158
122	Optimality of Affine Policies in Multistage Robust Optimization. <i>Mathematics of Operations Research</i> , 2010 , 35, 363-394	1.5	125
121	Minimizing polynomial functions. <i>DIMACS Series in Discrete Mathematics and Theoretical Computer Science</i> , 2003 , 83-99		106
120	Stability and robustness analysis of nonlinear systems via contraction metrics and SOS programming. <i>Automatica</i> , 2008 , 44, 2163-2170	5.7	96
119	Lifts of Convex Sets and Cone Factorizations. <i>Mathematics of Operations Research</i> , 2013 , 38, 248-264	1.5	94
118	Approximation of the joint spectral radius using sum of squares. <i>Linear Algebra and Its Applications</i> , 2008 , 428, 2385-2402	0.9	85
117	Semidefinite Programming Relaxations and Algebraic Optimization in Control. <i>European Journal of Control</i> , 2003 , 9, 307-321	2.5	83
116	The Lax conjecture is true. <i>Proceedings of the American Mathematical Society</i> , 2005 , 133, 2495-2499	0.8	78
115	Theta Bodies for Polynomial Ideals. <i>SIAM Journal on Optimization</i> , 2010 , 20, 2097-2118	2	74

114	Detecting multipartite entanglement. <i>Physical Review A</i> , 2005 , 71,	2.6	74
113	Flows and Decompositions of Games: Harmonic and Potential Games. <i>Mathematics of Operations Research</i> , 2011 , 36, 474-503	1.5	69
112	Computing sum of squares decompositions with rational coefficients. <i>Theoretical Computer Science</i> , 2008 , 409, 269-281	1.1	66
111	Fastest Mixing Markov Chain on Graphs with Symmetries. <i>SIAM Journal on Optimization</i> , 2009 , 20, 792-819	1.9	64
110	A Hierarchy of Near-Optimal Policies for Multistage Adaptive Optimization. <i>IEEE Transactions on Automatic Control</i> , 2011 , 56, 2809-2824	5.9	64
109	Joint Spectral Radius and Path-Complete Graph Lyapunov Functions. <i>SIAM Journal on Control and Optimization</i> , 2014 , 52, 687-717	1.9	62
108	Non-monotonic Lyapunov functions for stability of discrete time nonlinear and switched systems 2008 ,		62
107	NP-hardness of deciding convexity of quartic polynomials and related problems. <i>Mathematical Programming</i> , 2013 , 137, 453-476	2.1	61
106	\mathcal{H}_2 -Optimal Decentralized Control Over Posets: A State-Space Solution for State-Feedback. <i>IEEE Transactions on Automatic Control</i> , 2013 , 58, 3084-3096	5.9	58
105	A PTAS for the minimization of polynomials of fixed degree over the simplex. <i>Theoretical Computer Science</i> , 2006 , 361, 210-225	1.1	56
104	Parametric optimization and optimal control using algebraic geometry methods. <i>International Journal of Control</i> , 2006 , 79, 1340-1358	1.5	55
103	Sparse and low-rank matrix decompositions 2009 ,		49
102	Positive semidefinite rank. <i>Mathematical Programming</i> , 2015 , 153, 133-177	2.1	46
101	. <i>IEEE Transactions on Automatic Control</i> , 2017 , 62, 1896-1910	5.9	42
100	On the Convergence Rate of Incremental Aggregated Gradient Algorithms. <i>SIAM Journal on Optimization</i> , 2017 , 27, 1035-1048	2	41
99	A Complete Characterization of the Gap between Convexity and SOS-Convexity. <i>SIAM Journal on Optimization</i> , 2013 , 23, 811-833	2	37
98	Near-Optimal Power Control in Wireless Networks: A Potential Game Approach 2010 ,		36
97	Bandgap optimization of two-dimensional photonic crystals using semidefinite programming and subspace methods. <i>Journal of Computational Physics</i> , 2010 , 229, 3706-3725	4.1	36

96	Efficient classification of complete parameter regions based on semidefinite programming. <i>BMC Bioinformatics</i> , 2007 , 8, 12	3.6	36
95	Symmetry Analysis of Reversible Markov Chains. <i>Internet Mathematics</i> , 2005 , 2, 31-71	0	36
94	Dynamics in near-potential games. <i>Games and Economic Behavior</i> , 2013 , 82, 66-90	1.1	35
93	A convex polynomial that is not sos-convex. <i>Mathematical Programming</i> , 2012 , 135, 275-292	2.1	31
92	A globally asymptotically stable polynomial vector field with no polynomial Lyapunov function 2011 ,		31
91	2010 ,		29
90	The Convex algebraic geometry of linear inverse problems 2010 ,		27
89	Semidefinite Approximations of the Matrix Logarithm. <i>Foundations of Computational Mathematics</i> , 2019 , 19, 259-296	2.7	25
88	Structured semidefinite programs for the control of symmetric systems. <i>Automatica</i> , 2008 , 44, 1411-1417	1.7	23
87	A Characterization of Lyapunov Inequalities for Stability of Switched Systems. <i>IEEE Transactions on Automatic Control</i> , 2017 , 62, 3062-3067	5.9	22
86	Semidefinite Descriptions of the Convex Hull of Rotation Matrices. <i>SIAM Journal on Optimization</i> , 2015 , 25, 1314-1343	2	22
85	H2-optimal decentralized control over posets: A state space solution for state-feedback 2010 ,		21
84	Diagonal and Low-Rank Matrix Decompositions, Correlation Matrices, and Ellipsoid Fitting. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2012 , 33, 1395-1416	1.5	19
83	Polynomial games and sum of squares optimization 2006 ,		19
82	Partial facial reduction: simplified, equivalent SDPs via approximations of the PSD cone. <i>Mathematical Programming</i> , 2018 , 171, 1-54	2.1	19
81	A Partial order approach to decentralized control 2008 ,		18
80	Converse results on existence of sum of squares Lyapunov functions 2011 ,		17
79	Near-Potential Games. <i>ACM Transactions on Economics and Computation</i> , 2013 , 1, 1-32	1.6	16

78	Quantum algorithms for the ordered search problem via semidefinite programming. <i>Physical Review A</i> , 2007 , 75,	2.6	16
77	Exploiting Algebraic Structure in Sum of Squares Programs. <i>Lecture Notes in Control and Information Sciences</i> , 2005 , 181-194	0.5	16
76	. <i>IEEE Transactions on Control Systems Technology</i> , 2001 , 9, 608-617	4.8	16
75	Analysis of the joint spectral radius via Lyapunov functions on path-complete graphs 2011 ,		15
74	Competitive scheduling in wireless collision channels with correlated channel state 2009 ,		15
73	On higher order derivatives of Lyapunov functions 2011 ,		14
72	Basis selection for SOS programs via facial reduction and polyhedral approximations 2014 ,		13
71	A globally convergent incremental Newton method. <i>Mathematical Programming</i> , 2015 , 151, 283-313	2.1	12
70	Optimal output feedback architecture for triangular LQG problems 2014 ,		12
69	A convex approach to robust performance analysis. <i>Automatica</i> , 2002 , 38, 957-966	5.7	12
68	Self-scaled bounds for atomic cone ranks: applications to nonnegative rank and cp-rank. <i>Mathematical Programming</i> , 2016 , 158, 417-465	2.1	11
67	Iterative Auction Design for Tree Valuations. <i>Operations Research</i> , 2015 , 63, 751-771	2.3	11
66	Exploiting Chordal Structure in Polynomial Ideals: A Gröbner Bases Approach. <i>SIAM Journal on Discrete Mathematics</i> , 2016 , 30, 1534-1570	0.7	11
65	A new semidefinite programming hierarchy for cycles in binary matroids and cuts in graphs. <i>Mathematical Programming</i> , 2012 , 133, 203-225	2.1	11
64	Correlated equilibria in continuous games: Characterization and computation. <i>Games and Economic Behavior</i> , 2011 , 71, 436-455	1.1	10
63	An optimal controller architecture for poset-causal systems 2011 ,		10
62	Semidefinite Representation of the k-Ellipse. <i>The IMA Volumes in Mathematics and Its Applications</i> , 2008 , 117-132	0.5	10
61	Sparse sums of squares on finite abelian groups and improved semidefinite lifts. <i>Mathematical Programming</i> , 2016 , 160, 149-191	2.1	9

60	Sparse sum-of-squares certificates on finite abelian groups 2015 ,		9
59	Polynomial-sized semidefinite representations of derivative relaxations of spectrahedral cones. <i>Mathematical Programming</i> , 2015 , 153, 309-331	2.1	9
58	Chordal Networks of Polynomial Ideals. <i>SIAM Journal on Applied Algebra and Geometry</i> , 2017 , 1, 73-110	1.5	8
57	Equivariant Semidefinite Lifts and Sum-of-Squares Hierarchies. <i>SIAM Journal on Optimization</i> , 2015 , 25, 2212-2243	2	8
56	Towards scalable algorithms with formal guarantees for Lyapunov analysis of control systems via algebraic optimization 2014 ,		8
55	Sampling Algebraic Varieties for Sum of Squares Programs. <i>SIAM Journal on Optimization</i> , 2017 , 27, 2381-2404		8
54	Convex algebraic geometry and semidefinite optimization 2013 ,		8
53	Convex Graph Invariants. <i>SIAM Review</i> , 2012 , 54, 513-541	7.4	8
52	Separable and low-rank continuous games. <i>International Journal of Game Theory</i> , 2008 , 37, 475-504	0.5	8
51	An efficient tree decomposition method for permanents and mixed discriminants. <i>Linear Algebra and Its Applications</i> , 2016 , 493, 45-81	0.9	8
50	Lower bounds on nonnegative rank via nonnegative nuclear norms. <i>Mathematical Programming</i> , 2015 , 153, 41-66	2.1	7
49	Learning in near-potential games 2011 ,		7
48	Explicit SOS decompositions of univariate polynomial matrices and the Kalman-Yakubovich-Popov lemma 2007 ,		7
47	Generating Unstable Trajectories for Switched Systems via Dual Sum-Of-Squares Techniques 2016 ,		7
46	Why random reshuffling beats stochastic gradient descent. <i>Mathematical Programming</i> , 2021 , 186, 49-84.	4.1	7
45	A projection framework for near-potential games 2010 ,		6
44	On the local stability of semidefinite relaxations. <i>Mathematical Programming</i> ,	2.1	6
43	Sum of Squares Certificates for Stability of Planar, Homogeneous, and Switched Systems. <i>IEEE Transactions on Automatic Control</i> , 2017 , 62, 5269-5274	5.9	5

42	Weighted ℓ_1 -Minimization for Generalized Non-Uniform Sparse Model. <i>IEEE Transactions on Information Theory</i> , 2015 , 61, 4424-4439	2.8	5
41	Chapter 3: Polynomial Optimization, Sums of Squares, and Applications 2012 , 47-157		5
40	A positive definite polynomial Hessian that does not factor 2009 ,		5
39	Joint spectral radius of rank one matrices and the maximum cycle mean problem 2012 ,		5
38	Characterization and computation of correlated equilibria in infinite games 2007 ,		5
37	Computation with Polynomial Equations and Inequalities Arising in Combinatorial Optimization. <i>The IMA Volumes in Mathematics and Its Applications</i> , 2012 , 447-481	0.5	5
36	Convex Solution to a Joint Attitude and Spin-Rate Estimation Problem. <i>Journal of Guidance, Control, and Dynamics</i> , 2016 , 39, 118-127	2.1	4
35	Semidefinite relaxations for optimization problems over rotation matrices 2014 ,		4
34	Approximate cone factorizations and lifts of polytopes. <i>Mathematical Programming</i> , 2015 , 151, 613-637	2.1	4
33	Optimality of affine policies in multi-stage robust optimization 2009 ,		4
32	Selecting a monomial basis for sums of squares programming over a quotient ring 2012 ,		4
31	When is a set of LMIs a sufficient condition for stability?. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2012 , 45, 313-318		4
30	On the asymptotic minimum number of monochromatic 3-term arithmetic progressions. <i>Journal of Combinatorial Theory - Series A</i> , 2008 , 115, 185-192	1	4
29	An Inequality for Circle Packings Proved by Semidefinite Programming. <i>Discrete and Computational Geometry</i> , 2004 , 31, 357-367	0.6	4
28	Robust Identification: An approach to select the class of candidate models. <i>International Journal of Control</i> , 2001 , 74, 1210-1218	1.5	4
27	How to Flatten a Soccer Ball. <i>Springer INdAM Series</i> , 2017 , 141-162	0.4	3
26	Approximation of the Joint Spectral Radius of a Set of Matrices Using Sum of Squares. <i>Lecture Notes in Computer Science</i> , 2007 , 444-458	0.9	3
25	Sums of squares in Macaulay2. <i>The Journal of Software For Algebra and Geometry: Macaulay2</i> , 2020 , 10, 17-24	0.8	3

24	An Entropy-Based Bound for the Computational Complexity of a Switched System. <i>IEEE Transactions on Automatic Control</i> , 2019 , 64, 4623-4628	5.9	2
23	Finding sparse, equivalent SDPs using minimal coordinate projections 2015 ,		2
22	2010 ,		2
21	A poset framework to model decentralized control problems 2009 ,		2
20	Rejoinder: Latent variable graphical model selection via convex optimization. <i>Annals of Statistics</i> , 2012 , 40,	3.2	2
19	A partial order approach to decentralized control of spatially invariant systems 2008 ,		2
18	Polynomial stochastic games via sum of squares optimization 2007 ,		2
17	A theorem of the alternative for SOS Lyapunov functions 2007 ,		2
16	Dimension reduction for semidefinite programs via Jordan algebras. <i>Mathematical Programming</i> , 2020 , 181, 51-84	2.1	2
15	Lyapunov Exponent of Rank-One Matrices: Ergodic Formula and Inapproximability of the Optimal Distribution. <i>SIAM Journal on Control and Optimization</i> , 2020 , 58, 510-528	1.9	1
14	Equivariant Semidefinite Lifts of Regular Polygons. <i>Mathematics of Operations Research</i> , 2017 , 42, 472-494	4.5	1
13	Structure of extreme correlated equilibria: a zero-sum example and its implications. <i>International Journal of Game Theory</i> , 2011 , 40, 749-767	0.5	1
12	Tree-structured statistical modeling via convex optimization 2011 ,		1
11	Chapter 2: Semidefinite Optimization 2012 , 3-46		1
10	Minimum-strain symmetrization of Bravais lattices. <i>Physical Review Research</i> , 2020 , 2,	3.9	1
9	Pricing Equilibria and Graphical Valuations. <i>ACM Transactions on Economics and Computation</i> , 2018 , 6, 1-26	1.6	1
8	Some Recent Directions in Algebraic Methods for Optimization and Lyapunov Analysis. <i>Springer Tracts in Advanced Robotics</i> , 2017 , 89-112	0.5	1
7	Convergence rate of block-coordinate maximization BurerMonteiro method for solving large SDPs. <i>Mathematical Programming</i> , 1	2.1	1

- 6 The 2013 Newton Institute Programme on polynomial optimization. *Mathematical Programming*, **2015**, 151, 375-377 2.1
- 5 Reconstructing the unknown, balancing structure and uncertainty. *Communications of the ACM*, **2012**, 55, 110-110 2.5
- 4 l_1 identification applied to a fluid dynamics problem. *IEEE Transactions on Control Systems Technology*, **1996**, 4, 298-303 4.8
- 3 Certifying Unstability of Switched Systems Using Sum of Squares Programming. *SIAM Journal on Control and Optimization*, **2020**, 58, 2616-2638 1.9
- 2 Maximizing products of linear forms, and the permanent of positive semidefinite matrices. *Mathematical Programming*, 1 2.1
- 1 On approximations of the PSD cone by a polynomial number of smaller-sized PSD cones. *Mathematical Programming*, 1 2.1