Antonis Papachristodoulou

List of Publications by Citations

188 papers	3,063 citations	29 h-index	46 g-index
205 ext. papers	3,760 ext. citations	4.2 avg, IF	5.77 L-index

#	Paper	IF	Citations
188	Delay robustness in consensus problems. *Automatica*, **2010**, 46, 1252-1265	5.7	185
187	Consensus in Multi-Agent Systems With Coupling Delays and Switching Topology. *IEEE Transactions on Automatic Control*, **2011**, 56, 2976-2982	5.9	142
186	Effects of Delay in Multi-Agent Consensus and Oscillator Synchronization. *IEEE Transactions on Automatic Control*, **2010**, 55, 1471-1477	5.9	129
185	Structural Identifiability of Dynamic Systems Biology Models. *PLoS Computational Biology*, **2016**, 12, e1005153	4.7	110
184	Analysis of Non-polynomial Systems Using the Sum of Squares Decomposition. *Lecture Notes in Control and Information Sciences*, **2005**, 23-43	0.5	90
183	Tuning the dials of Synthetic Biology. *Microbiology (United Kingdom)*, **2013**, 159, 1236-1253	2.9	78
182	Delay Robustness in Non-Identical Multi-Agent Systems. *IEEE Transactions on Automatic Control*, **2012**, 57, 1597-1603	5.9	76
181	Robust Consensus Controller Design for Nonlinear Relative Degree Two Multi-Agent Systems With Communication Constraints. *IEEE Transactions on Automatic Control*, **2011**, 56, 145-151	5.9	76
180	Algorithmic Construction of Lyapunov Functions for Power System Stability Analysis. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2013**, 60, 2533-2546	3.9	75
179	Model decomposition and reduction tools for large-scale networks in systems biology. *Automatica*, **2011**, 47, 1165-1174	5.7	66
178	Positive Forms and Stability of Linear Time-Delay Systems. *SIAM Journal on Control and Optimization*, **2009**, 47, 3237-3258	1.9	62
177	A real-time control framework for smart power networks: Design methodology and stability. *Automatica*, **2015**, 58, 43-50	5.7	60
176	SOSTOOLS and Its Control Applications. *Lecture Notes in Control and Information Sciences*, **2005**, 273-292	0.5	53
175	Synchronization in Oscillator Networks: Switching Topologies and Non-homogeneous Delays		51
174	On validation and invalidation of biological models. *BMC Bioinformatics*, **2009**, 10, 132	3.6	48
173	Consensus reaching in multi-agent packet-switched networks with non-linear coupling. *International Journal of Control*, **2009**, 82, 953-969	1.5	47
172	Advanced Methods and Algorithms for Biological Networks Analysis. *Proceedings of the IEEE*, **2006**, 94, 832-853	14.3	43

171	A Decomposition Technique for Nonlinear Dynamical System Analysis. *IEEE Transactions on Automatic Control*, **2012**, 57, 1516-1521	5.9	42
170	Engineering and ethical perspectives in synthetic biology. Rigorous, robust and predictable designs, public engagement and a modern ethical framework are vital to the continued success of synthetic biology. *EMBO Reports*, **2012**, 13, 584-90	6.5	41
169	Synthetic negative feedback circuits using engineered small RNAs. *Nucleic Acids Research*, **2018**, 46, 9875-9889	2.9	40
168	Discriminating between rival biochemical network models: three approaches to optimal experiment design. *BMC Systems Biology*, **2010**, 4, 38	3.5	35
167	Robust Stability Analysis of Nonlinear Hybrid Systems. *IEEE Transactions on Automatic Control*, **2009**, 54, 1035-1041	5.9	33
166	Delay-dependent rendezvous and flocking of large scale multi-agent systems with communication delays **2008**,		33
165	Behavioural Economics, Hyperbolic Discounting and Environmental Policy. *Environmental and Resource Economics*, **2010**, 46, 189-206	4.4	32
164	Dissipation inequalities for the analysis of a class of PDEs. *Automatica*, **2016**, 66, 163-171	5.7	31
163	Synchonization in Oscillator Networks with Heterogeneous Delays, Switching Topologies and Nonlinear Dynamics **2006**,		31
162	Frequency synchronization and phase agreement in Kuramoto oscillator networks with delays. *Automatica*, **2012**, 48, 3008-3017	5.7	30
161	A Converse Sum of Squares Lyapunov Result With a Degree Bound. *IEEE Transactions on Automatic Control*, **2012**, 57, 2281-2293	5.9	30
160	Stability Analysis for a Class of Partial Differential Equations via Semidefinite Programming. *IEEE Transactions on Automatic Control*, **2016**, 61, 1649-1654	5.9	29
159	Analysis of Polynomial Systems With Time Delays via the Sum of Squares Decomposition. *IEEE Transactions on Automatic Control*, **2009**, 54, 1058-1064	5.9	28
158	Advances in computational Lyapunov analysis using sum-of-squares programming. *Discrete and Continuous Dynamical Systems - Series B*, **2015**, 20, 2361-2381	1.3	28
157	Layered decomposition for the model order reduction of timescale separated biochemical reaction networks. *Journal of Theoretical Biology*, **2014**, 356, 113-22	2.3	27
156	Designing Genetic Feedback Controllers. *IEEE Transactions on Biomedical Circuits and Systems*, **2015**, 9, 475-84	5.1	26
155	A streamwise constant model of turbulence in plane Couette flow. *Journal of Fluid Mechanics*, **2010**, 665, 99-119	3.7	25
154	Efficient, sparse biological network determination. *BMC Systems Biology*, **2009**, 3, 25	3.5	25

(-2015)

135	Distributed optimal steady-state control using reverse- and forward-engineering **2015**,		15
134	Distributed dynamic feedback control for smart power networks with tree topology **2014**,		15
133	Generalized Nyquist consensus condition for high-order linear multi-agent systems with communication delays **2009**,		15
132	Methodological frameworks for large-scale network analysis and design. *Computer Communication Review*, **2004**, 34, 7-20	1.4	15
131	Analysis and control design of sustainable policies for greenhouse gas emissions. *Applied Thermal Engineering*, **2013**, 53, 420-431	5.8	14
130	Chordal sparsity, decomposing SDPs and the Lyapunov equation **2014**,		14
129	A single phosphatase can convert a robust step response into a graded, tunable or adaptive response. *Microbiology (United Kingdom)*, **2013**, 159, 1276-1285	2.9	14
128	Feedback control architecture and the bacterial chemotaxis network. *PLoS Computational Biology*, **2011**, 7, e1001130	5	14
127	A new computational tool for establishing model parameter identifiability. *Journal of Computational Biology*, **2009**, 16, 875-85	1.7	14
126	Nonlinear Multi-Agent System Consensus with Time-Varying Delays. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2008**, 41, 1522-1527		14
125	The Interplay between Feedback and Buffering in Cellular Homeostasis. *Cell Systems*, **2017**, 5, 498-508.e23	13.6	13
124	Development of Aspirin-Inducible Biosensors in and SimCells. *Applied and Environmental Microbiology*, **2019**, 85,	4.8	13
123	Improving the Performance of Network Congestion Control Algorithms. *IEEE Transactions on Automatic Control*, **2015**, 60, 522-527	5.9	13
122	Exploiting Sparsity in the Coefficient Matching Conditions in Sum-of-Squares Programming Using ADMM **2017**, 1, 80-85		13
121	Delay Robustness of Nonlinear Internet Congestion Control Schemes. *IEEE Transactions on Automatic Control*, **2010**, 55, 1421-1427	5.9	13
120	Optimal harvesting of fish stocks under a time-varying discount rate. *Journal of Theoretical Biology*, **2011**, 269, 166-73	2.3	13
119	Amplification and nonlinear mechanisms in plane Couette flow. *Physics of Fluids*, **2011**, 23, 065108	4.4	13
118	Robust Stabilization of Nonlinear Time Delay Systems Using Convex Optimization		13

117	Safety verification for distributed parameter systems using barrier functionals. *Systems and Control Letters*, **2017**, 108, 33-39	2.4	12
116	Input-output analysis of distributed parameter systems using convex optimization **2014**,		12
115	A Dynamic Model of Resource Allocation in Response to the Presence of a Synthetic Construct. *ACS Synthetic Biology*, **2018**, 7, 1201-1210	5.7	11
114	Adaptive pulse width modulation design for power converters based on affine switched systems. *Nonlinear Analysis: Hybrid Systems*, **2018**, 30, 306-322	4.5	11
113	Ribo-attenuators: novel elements for reliable and modular riboswitch engineering. *Scientific Reports*, **2017**, 7, 4599	4.9	11
112	Improving efficiency and scalability of sum of squares optimization: Recent advances and limitations **2017**,		11
111	Semi-definite programming and functional inequalities for distributed parameter systems **2014**,		11
110	A real-time control framework for smart power networks with star topology **2013**,		11
109	A converse sum-of-squares Lyapunov result: An existence proof based on the Picard iteration **2010**,		11
108	A network decomposition approach for efficient sum of squares programming based analysis **2010**,		11
107	Using economic Model Predictive Control to design sustainable policies for mitigating climate change **2012**,		11
106	A Nonlinear Hybrid Life Support System: Dynamic Modeling, Control Design, and Safety Verification. *IEEE Transactions on Control Systems Technology*, **2007**, 15, 1003-1017	4.8	11
105	Determining Interconnections in Chemical Reaction Networks. *Proceedings of the American Control Conference*, **2007**,	1.2	11
104	Density Flow in Dynamical Networks via Mean-Field Games. *IEEE Transactions on Automatic Control*, **2017**, 62, 1342-1355	5.9	10
103	Real-time active and reactive power regulation in power systems with tap-changing transformers and controllable loads. *Sustainable Energy, Grids and Networks*, **2016**, 5, 27-38	3.6	10
102	**2019**, 3, 1014-1019		10
101	Metabolic control of nitrogen fixation in rhizobium-legume symbioses. *Science Advances*, **2021**, 7,	14.3	10
100	In situ characterisation and manipulation of biological systems with Chi.Bio. *PLoS Biology*, **2020**, 18, e3000794	9.7	9

99	Fast ADMM for Sum-of-Squares Programs Using Partial Orthogonality. *IEEE Transactions on Automatic Control*, **2019**, 64, 3869-3876	5.9	9
98	A framework for input–output analysis of wall-bounded shear flows. *Journal of Fluid Mechanics*, **2019**, 873, 742-785	3.7	8
97	A distributed PID controller for network congestion control problems **2014**,		8
96	Block-diagonal solutions to Lyapunov inequalities and generalisations of diagonal dominance **2017**,		8
95	Redesigning generation control in power systems: Methodology, stability and delay robustness **2014**,		8
94	Dynamical system decomposition for efficient, sparse analysis **2010**,		8
93	Sparse sum-of-squares (SOS) optimization: A bridge between DSOS/SDSOS and SOS optimization for sparse polynomials **2019**,		8
92	. *IEEE Transactions on Automatic Control*, **2021**, 66, 413-420	5.9	8
91	Multiple sensors provide spatiotemporal oxygen regulation of gene expression in a Rhizobium-legume symbiosis. *PLoS Genetics*, **2021**, 17, e1009099	6	8
90	. *IEEE Transactions on Control of Network Systems*, **2018**, 5, 807-817	4	7
89	Fast ADMM for homogeneous self-dual embedding of sparse SDPs * *Y. Zheng and G. Fantuzzi contributed equally to this work. Y. Zheng is supported by the Clarendon Scholarship and the Jason Hu Scholarship.. *IFAC-PapersOnLine*, **2017**, 50, 8411-8416	0.7	7
88	**2014**,		7
87	Quantification of Interactions between Dynamic Cellular Network Functionalities by Cascaded Layering. *PLoS Computational Biology*, **2015**, 11, e1004235	5	6
86	Optimization With Affine Homogeneous Quadratic Integral Inequality Constraints. *IEEE Transactions on Automatic Control*, **2017**, 62, 6221-6236	5.9	6
85	Layering in networks: The case of biochemical systems **2013**,		6
84	Clinical correlation of nitric oxide levels with acute rejection in renal transplantation. *International Urology and Nephrology*, **2011**, 43, 883-90	2.3	6
83	Sparsity Invariance for Convex Design of Distributed Controllers. *IEEE Transactions on Control of Network Systems*, **2020**, 7, 1836-1847	4	6
82	Distributed Design for Decentralized Control Using Chordal Decomposition and ADMM. *IEEE Transactions on Control of Network Systems*, **2020**, 7, 614-626	4	6

81	Scalable analysis of linear networked systems via chordal decomposition **2018**,		6
80	On Separable Quadratic Lyapunov Functions for Convex Design of Distributed Controllers **2019**,		5
79	Designing Conservation Relations in Layered Synthetic Biomolecular Networks. *IEEE Transactions on Biomedical Circuits and Systems*, **2015**, 9, 572-80	5.1	5
78	**2014**,		5
77	Frequency domain analysis of small non-coding RNAs shows summing junction-like behaviour **2017**,		5
76	Barrier functionals for output functional estimation of PDEs **2015**,		5
75	Convex solutions to integral inequalities in two-dimensional domains **2015**,		5
74	Dynamical system decomposition using dissipation inequalities **2011**,		5
73	A loop shaping approach for designing biological circuits **2012**,		5
72	Inverses of Positive Linear Operators and State Feedback Design for Time-Delay Systems*. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2009**, 42, 278-283		5
71	An optimization-based method for bounding state functionals of nonlinear stochastic systems **2016** ,		5
70	Developing a graduate training program in Synthetic Biology: SynBioCDT. *Synthetic Biology*, **2019**, 4, ysz006	3.3	4
69	On the performance of nonlinear dynamical systems under parameter perturbation. *Automatica*, **2016**, 63, 265-273	5.7	4
68	Challenges at the interface of control engineering and synthetic biology **2017**,		4
67	The autorepressor: A case study of the importance of model selection **2017**,		4
66	A convex approach to hydrodynamic analysis **2015**,		4
65	Introducing INTSOSTOOLS: A SOSTOOLS plug-in for integral inequalities **2015**,		4
64	Structured model reduction for dynamical networked systems **2010**,		4

63	A model for using control theory to design sustainable policies for greenhouse gas emissions **2011**,		4
62	Generalised absolute stability and Sum of Squares **2011**,		4
61	A structured model reduction method for large scale networks **2011**,		4
60	Chordal and factor-width decompositions for scalable semidefinite and polynomial optimization. *Annual Reviews in Control*, **2021**,	10.3	4
59	On the Existence of Block-Diagonal Solutions to Lyapunov and ${\mathcal {H}_\infty }$ Riccati Inequalities. *IEEE Transactions on Automatic Control*, **2020**, 65, 3170-3175	5.9	4
58	A chordal decomposition approach to scalable design of structured feedback gains over directed graphs **2016**,		4
57	Structural Identifiability Analysis via Extended Observability and Decomposition. *IFAC-PapersOnLine*, **2016**, 49, 171-177	0.7	4
56	**2011**,		3
55	Robust Rendezvous of Heterogeneous Euler-Lagrange Systems on Packet-Switched Networks Robustes Rendezvous von heterogenen Euler-Lagrange Systemen mithilfe paketvermittelnder Netzwerke. *Automatisierungstechnik*, **2010**, 58,	0.8	3
54	Algorithms for Discriminating Between Biochemical Reaction Network Models: Towards Systematic Experimental Design. *Proceedings of the American Control Conference*, **2007**,	1.2	3
53	Safety Verification of Controlled Advanced Life Support System Using Barrier Certificates. *Lecture Notes in Computer Science*, **2005**, 306-321	0.9	3
52	Robust Stability and Performance Analysis of a Longitudinal Aircraft Model Using Sum of Squares Techniques		3
51	Improving Orthogonality in Two-Component Biological Signalling Systems Using Feedback Control **2019**, 3, 326-331		3
50	Decomposition and Completion of Sum-of-Squares Matrices **2018**,		3
49	sbml-diff: A Tool for Visually Comparing SBML Models in Synthetic Biology. *ACS Synthetic Biology*, **2017**, 6, 1225-1229	5.7	2
48	Mitigating Biological Signalling Cross-talk with Feedback Control **2019**,		2
47	Low-Burden Biological Feedback Controllers for Near-Perfect Adaptation. *ACS Synthetic Biology*, **2019**, 8, 2212-2219	5.7	2
46	**2018**, 2, 779-784		2

45	Density flow over networks: A mean-field game theoretic approach **2014**,	2
44	An invariance principle for time-varying systems **2012**,	2
43	Feedback control architecture of the R. sphaeroides chemotaxis network **2011**,	2
42	Structured sum of squares for networked systems analysis **2011**,	2
41	Generalized Nyquist Consensus Condition for Linear Multi Agent Systems with Heterogeneous Delays. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2009**, 42, 24-29	2
40	Using polynomial semi-separable kernels to construct infinite-dimensional Lyapunov functions **2008**,	2
39	Positivity of kernel functions for systems with communication delay **2007**,	2
38	Multi-agent system consensus in packet-switched networks **2007**,	2
37	Design of a Synthetic sRNA-based Feedback Filter Module	2
36	Block Factor-Width-Two Matrices in Semidefinite Programming **2019**,	2
35	The effect of spatiotemporal antibiotic inhomogeneities on the evolution of resistance. *Journal of Theoretical Biology*, **2020**, 486, 110077	2.3	2
34	Convergence rate analysis of a subgradient averaging algorithm for distributed optimisation with different constraint sets **2019**,	2
33	Engineering a Genetic Oscillator Using Delayed Feedback. *Advances in Delays and Dynamics*, **2014**, 389-402	0.3	1
32	Piecewise polynomial policy iterations for synthesis of optimal control laws in input-saturated systems **2015**,	1
31	VVAF - Worst case & safety analysis tools for autonomous rendezvous system **2010**,	1
30	Energy amplification in channel flow over riblets **2011**,	1
29	A linear multi-agent systems approach to diffusively coupled piecewise affine systems: Delay robustness **2011**,	1
28	**2011**,	1

27	Modelling channel flow over riblets: Calculating the energy amplification **2012**,		1
26	Output Consensus Controller Design for Nonlinear Relative Degree One Multi-Agent Systems with Delays*. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2009**, 42, 370-375		1
25	Determining interconnections in biochemical networks using linear programming **2008**,		1
24	Stability of congestion control schemes with delay sensitive traffic **2008**,		1
23	Control Reconfiguration for Improved Performance via Reverse-engineering and Forward-engineering. *IFAC-PapersOnLine*, **2020**, 53, 4688-4694	0.7	1
22	Decomposed Structured Subsets for Semidefinite Optimization. *IFAC-PapersOnLine*, **2020**, 53, 7374-7379	0.7	1
21	Control Reconfiguration of Cyber-physical Systems for Improved Performance via Reverse-engineering and Accelerated First-order Algorithms **2020**,		1
20	Biomolecular mechanisms for signal differentiation.. *IScience*, **2021**, 24, 103462	6.1	1
19	The Interplay Between Feedback and Buffering in Homeostasis. *SSRN Electronic Journal*,	1	1
18	A multi-sensor system provides spatiotemporal oxygen regulation of gene expression in a Rhizobium-legume symbiosis		1
17	Chi.Bio: An open-source automated experimental platform for biological science research		1
16	Synthetic negative feedback circuits using engineered small RNAs		1
15	Chordal Decomposition in Rank Minimized Semidefinite Programs with Applications to Subspace Clustering **2019**,		1
14	Decomposition Methods for Large-Scale Semidefinite Programs with Chordal Aggregate Sparsity and Partial Orthogonality. *Lecture Notes in Mathematics*, **2018**, 33-55	0.4	1
13	Subgradient averaging for multi-agent optimisation with different constraint sets. *Automatica*, **2021**, 131, 109738	5.7	1
12	Dichotomous Feedback: A Signal Sequestration-based Feedback Mechanism for Biocontroller Design		1
11	Genome-Scale Metabolic Modelling of Lifestyle Changes in Rhizobium leguminosarum.. *MSystems*, **2022**, e0097521	7.6	0
10	Decomposed structured subsets for semidefinite and sum-of-squares optimization. *Automatica*, **2022**, 137, 110125	5.7	0

9	State-feedback design for nonlinear saturating systems. *IEEE Transactions on Automatic Control*, **2021**, 1-1	5.9	0
8	On the exact feasibility of convex scenario programs with discarded constraints. *IEEE Transactions on Automatic Control*, **2022**, 1-1	5.9	0
7	Block Factor-width-two Matrices and Their Applications to Semidefinite and Sum-of-squares Optimization. *IEEE Transactions on Automatic Control*, **2022**, 1-1	5.9	0
6	Dichotomous feedback: a signal sequestration-based feedback mechanism for biocontroller design.. *Journal of the Royal Society Interface*, **2022**, 19, 20210737	4.1	0
5	Feedback Control and Synthetic Biology: Constraints on Design. *IFAC-PapersOnLine*, **2017**, 50, 10932-10937	3.7	
4	SOS for Nonlinear Delayed Models in Biology and Networking. *Lecture Notes in Control and Information Sciences*, **2009**, 133-143	0.5	
3	Model Invalidation **2013**, 1395-1398		
2	Control Reconfiguration of Dynamical Systems for Improved Performance via Reverse- and Forward-engineering. *IEEE Transactions on Automatic Control*, **2021**, 1-1	5.9	
1	Probing Intercell Variability Using Bulk Measurements. *ACS Synthetic Biology*, **2018**, 7, 1528-1537	5.7	