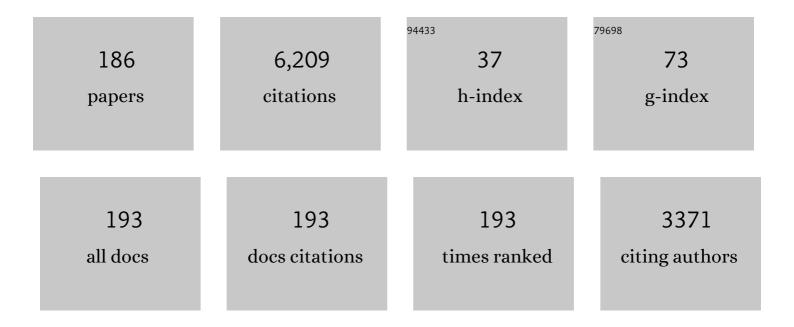
## Murat Arcak

List of Publications by Year in descending order

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#	Article	lF	CITATIONS
1	Passivity as a Design Tool for Group Coordination. IEEE Transactions on Automatic Control, 2007, 52, 1380-1390.	5.7	636
2	Constructive nonlinear control: a historical perspective. Automatica, 2001, 37, 637-662.	5.0	608
3	Nonlinear observers: a circle criterion design and robustness analysis. Automatica, 2001, 37, 1923-1930.	5.0	390
4	Diagonal stability of a class of cyclic systems and its connection with the secant criterion. Automatica, 2006, 42, 1531-1537.	5.0	227
5	Passivity-based designs for synchronized path-following. Automatica, 2007, 43, 1508-1518.	5.0	215
6	Observer design for systems with multivariable monotone nonlinearities. Systems and Control Letters, 2003, 50, 319-330.	2.3	198
7	Synchronization of Interconnected Systems With Applications to Biochemical Networks: An Input-Output Approach. IEEE Transactions on Automatic Control, 2010, 55, 1367-1379.	5.7	182
8	A framework for nonlinear sampled-data observer design via approximate discrete-time models and emulation. Automatica, 2004, 40, 1931-1938.	5.0	177
9	Rigid body attitude coordination without inertial frame information. Automatica, 2008, 44, 3170-3175.	5.0	142
10	A passivity-based stability criterion for a class of biochemical reaction networks. Mathematical Biosciences and Engineering, 2008, 5, 1-19.	1.9	136
11	Adaptive design for reference velocity recovery in motion coordination. Systems and Control Letters, 2008, 57, 602-610.	2.3	94
12	Adaptive motion coordination: Using relative velocity feedback to track a reference velocity. Automatica, 2009, 45, 1020-1025.	5.0	94
13	Robust nonlinear control of feedforward systems with unmodeled dynamics. Automatica, 2001, 37, 265-272.	5.0	84
14	Synchronized Phasor Data Based Energy Function Analysis of Dominant Power Transfer Paths in Large Power Systems. IEEE Transactions on Power Systems, 2007, 22, 727-734.	6.5	79
15	Scaling the size of a formation using relative position feedback. Automatica, 2012, 48, 2677-2685.	5.0	79
16	Input-to-state stability for a class of Lurie systems. Automatica, 2002, 38, 1945-1949.	5.0	78
17	Time-scale separation redesigns for stabilization and performance recovery of uncertain nonlinear systems. Automatica, 2009, 45, 34-44.	5.0	78
18	Circle and Popov criteria as tools for nonlinear feedback design. Automatica, 2003, 39, 643-650.	5.0	77

#	Article	IF	CITATIONS
19	Investigation of analysis methods for hyperpolarized 13Câ€pyruvate metabolic MRI in prostate cancer patients. NMR in Biomedicine, 2018, 31, e3997.	2.8	77
20	Equilibrium-independent passivity: A new definition and numerical certification. Automatica, 2011, 47, 1949-1956.	5.0	75
21	Efficient finite abstraction of mixed monotone systems. , 2015, , .		73
22	An algorithm for estimation of membrane water content in PEM fuel cells. Journal of Power Sources, 2006, 157, 389-394.	7.8	70
23	Quaternion-Based Hybrid Feedback for Robust Global Attitude Synchronization. IEEE Transactions on Automatic Control, 2012, 57, 2122-2127.	5.7	64
24	Cooperative Control for Multirotors Transporting an Unknown Suspended Load Under Environmental Disturbances. IEEE Transactions on Control Systems Technology, 2020, 28, 653-660.	5.2	64
25	A Compartmental Model for Traffic Networks and Its Dynamical Behavior. IEEE Transactions on Automatic Control, 2015, 60, 2698-2703.	5.7	63
26	Estimation of Radial Power System Transfer Path Dynamic Parameters Using Synchronized Phasor Data. IEEE Transactions on Power Systems, 2008, 23, 564-571.	6.5	59
27	Certifying spatially uniform behavior in reaction–diffusion PDE and compartmental ODE systems. Automatica, 2011, 47, 1219-1229.	5.0	58
28	In situ detection of anode flooding of a PEM fuel cell. International Journal of Hydrogen Energy, 2009, 34, 6765-6770.	7.1	52
29	Gradient climbing in formation via extremum seeking and passivity-based coordination rules. , 2007, , .		49
30	Robust nonlinear control of systems with input unmodeled dynamics. Systems and Control Letters, 2000, 41, 115-122.	2.3	48
31	Area aggregation and time-scale modeling for sparse nonlinear networks. Systems and Control Letters, 2008, 57, 142-149.	2.3	48
32	Reachability Analysis of Nonlinear Systems Using Matrix Measures. IEEE Transactions on Automatic Control, 2015, 60, 265-270.	5.7	46
33	Traffic Network Control From Temporal Logic Specifications. IEEE Transactions on Control of Network Systems, 2016, 3, 162-172.	3.7	46
34	Stability Analysis Using Quadratic Constraints for Systems With Neural Network Controllers. IEEE Transactions on Automatic Control, 2022, 67, 1980-1987.	5.7	46
35	Networks of Dissipative Systems. Springer Briefs in Electrical and Computer Engineering, 2016, , .	0.5	44
36	Finite horizon robustness analysis of LTV systems using integral quadratic constraints. Automatica, 2019, 100, 135-143.	5.0	44

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37	Feasibility conditions for circle criterion designs. Systems and Control Letters, 2001, 42, 405-412.	2.3	43
38	Robustness of network flow control against disturbances and time-delay. Systems and Control Letters, 2004, 53, 13-29.	2.3	39
39	Stability of traffic flow networks with a polytree topology. Automatica, 2016, 66, 246-253.	5.0	39
40	Compositional Abstraction for Networks of Control Systems: A Dissipativity Approach. IEEE Transactions on Control of Network Systems, 2018, 5, 1003-1015.	3.7	39
41	A Passivity-Based Approach to Stability of Spatially Distributed Systems With a Cyclic Interconnection Structure. IEEE Transactions on Automatic Control, 2008, 53, 75-86.	5.7	38
42	Diagonal Stability on Cactus Graphs and Application to Network Stability Analysis. IEEE Transactions on Automatic Control, 2011, 56, 2766-2777.	5.7	38
43	Observer designs for fuel processing reactors in fuel cell power systems. International Journal of Hydrogen Energy, 2005, 30, 447-457.	7.1	37
44	Gradient climbing in formation via extremum seeking and passivityâ€based coordination rules. Asian Journal of Control, 2008, 10, 201-211.	3.0	36
45	Compositional controller synthesis for vehicular traffic networks. , 2015, , .		36
46	A Dissipativity Approach to Safety Verification for Interconnected Systems. IEEE Transactions on Automatic Control, 2015, 60, 1722-1727.	5.7	34
47	A hybrid redesign of Newton observers in the absence of an exact discrete-time model. Systems and Control Letters, 2006, 55, 429-436.	2.3	32
48	Robust Stabilization and Performance Recovery of Nonlinear Systems With Unmodeled Dynamics. IEEE Transactions on Automatic Control, 2009, 54, 1351-1356.	5.7	32
49	A Feedback Quenched Oscillator Produces Turing Patterning with One Diffuser. PLoS Computational Biology, 2012, 8, e1002331.	3.2	32
50	Cell-in-the-loop pattern formation with optogenetically emulated cell-to-cell signaling. Nature Communications, 2020, 11, 1355.	12.8	32
51	Pattern Formation by Lateral Inhibition in Large-Scale Networks of Cells. IEEE Transactions on Automatic Control, 2013, 58, 1250-1262.	5.7	30
52	Passivity-based Formation Control for UAVs with a Suspended Load. IFAC-PapersOnLine, 2017, 50, 13150-13155.	0.9	29
53	TIRA. , 2019, , .		29

54 Imitation Learning With Stability and Safety Guarantees. , 2022, 6, 409-414.

29

#	Article	lF	CITATIONS
55	A relaxed condition for stability of nonlinear observer-based controllers. Systems and Control Letters, 2004, 53, 311-320.	2.3	28
56	Optimizing Flip Angles for Metabolic Rate Estimation in Hyperpolarized Carbon-13 MRI. IEEE Transactions on Medical Imaging, 2016, 35, 2403-2412.	8.9	28
57	Formal Methods for Control of Traffic Flow: Automated Control Synthesis from Finite-State Transition Models. IEEE Control Systems, 2017, 37, 109-128.	0.8	26
58	Improving Urban Traffic Throughput With Vehicle Platooning: Theory and Experiments. IEEE Access, 2020, 8, 141208-141223.	4.2	26
59	Graph Weight Allocation to Meet Laplacian Spectral Constraints. IEEE Transactions on Automatic Control, 2012, 57, 1872-1877.	5.7	24
60	Feedback tuning of bifurcations. Systems and Control Letters, 2003, 50, 229-239.	2.3	23
61	Compositional performance certification of interconnected systems using ADMM. Automatica, 2015, 61, 55-63.	5.0	23
62	Transformation of Optimal Centralized Controllers Into Near-Globally Optimal Static Distributed Controllers. IEEE Transactions on Automatic Control, 2019, 64, 66-80.	5.7	22
63	Dissipativity Tools for Convergence to Nash Equilibria in Population Games. IEEE Transactions on Control of Network Systems, 2021, 8, 39-50.	3.7	22
64	Delay Robustness of Interconnected Passive Systems: An Integral Quadratic Constraint Approach. IEEE Transactions on Automatic Control, 2013, 58, 712-724.	5.7	20
65	Dynamical properties of a compartmental model for traffic networks. , 2014, , .		20
66	Data-Driven Reachable Set Computation using Adaptive Gaussian Process Classification and Monte Carlo Methods. , 2020, , .		20
67	A Small Gain Theorem for Parametric Assume-Guarantee Contracts. , 2017, , .		19
68	Passivity-Based Designs for Synchronized Path Following. , 2006, , .		17
69	Instability Mechanisms in Cooperative Control. IEEE Transactions on Automatic Control, 2010, 55, 258-263.	5.7	17
70	Freeway traffic control from linear temporal logic specifications. , 2014, , .		17
71	Symbolic control design for monotone systems with directed specifications. Automatica, 2017, 83, 10-19.	5.0	17
72	Stability certification of large scale stochastic systems using dissipativity. Automatica, 2012, 48, 2956-2964.	5.0	16

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73	Boundedness without Absolute Stability in Systems with Stiffening Nonlinearities. European Journal of Control, 2002, 8, 243-250.	2.6	15
74	A Graph Partitioning Approach to Predicting Patterns in Lateral Inhibition Systems. SIAM Journal on Applied Dynamical Systems, 2013, 12, 2012-2031.	1.6	15
75	Synchronization of diffusively-coupled limit cycle oscillators. Automatica, 2013, 49, 3613-3622.	5.0	15
76	Stability of an analog optimization circuit for quadratic programming. Systems and Control Letters, 2016, 88, 68-74.	2.3	15
77	Sampled-Data Reachability Analysis Using Sensitivity and Mixed-Monotonicity. , 2018, 2, 761-766.		15
78	Constructing Control System Abstractions from Modular Components. , 2018, , .		15
79	A Two-Time-Scale Redesign for Robust Stabilization and Performance Recovery of Uncertain Nonlinear Systems. Proceedings of the American Control Conference, 2007, , .	0.0	14
80	Offset optimization in signalized traffic networks via semidefinite relaxation. Transportation Research Part B: Methodological, 2017, 100, 82-92.	5.9	14
81	Finite abstraction of mixed monotone systems with discrete and continuous inputs. Nonlinear Analysis: Hybrid Systems, 2017, 23, 254-271.	3.5	14
82	Dynamic contracts for distributed temporal logic control of traffic networks. , 2017, , .		14
83	Data-Driven Reachability Analysis with Christoffel Functions. , 2021, , .		14
84	Adaptive Synchronization of Diffusively Coupled Systems. IEEE Transactions on Control of Network Systems, 2015, 2, 131-141.	3.7	13
85	Mixed monotonicity of partial first-in-first-out traffic flow models. , 2016, , .		13
86	Using electrochemical impedance to determine airflow rates. International Journal of Hydrogen Energy, 2008, 33, 4694-4701.	7.1	12
87	Real-time optimization of net power in a fuel cell system. Journal of Power Sources, 2009, 187, 422-430.	7.8	12
88	Robust Control of the Sit-to-Stand Movement for a Powered Lower Limb Orthosis. IEEE Transactions on Control Systems Technology, 2020, 28, 2390-2403.	5.2	12
89	Synchronization and pattern formation in diffusively coupled systems. , 2012, , .		11
90	Controlling a network of signalized intersections from temporal logical specifications. , 2015, , .		11

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91	Backward Reachability for Polynomial Systems on a Finite Horizon. IEEE Transactions on Automatic Control, 2021, 66, 6025-6032.	5.7	11
92	A passivity-based stability criterion for a class of interconnected systems and applications to biochemical reaction networks. , 2007, , .		10
93	A sufficient condition for additive -stability and application to reaction–diffusion models. Systems and Control Letters, 2009, 58, 736-741.	2.3	10
94	Scaling the size of a multiagent formation via distributed feedback. , 2011, , .		10
95	A Tug-of-War Mechanism for Pattern Formation in a Genetic Network. ACS Synthetic Biology, 2017, 6, 2056-2066.	3.8	10
96	Symmetry Reduction for Performance Certification of Interconnected Systems. IEEE Transactions on Control of Network Systems, 2018, 5, 525-535.	3.7	10
97	Sparsity-aware finite abstraction. , 2017, , .		9
98	Continuous Abstraction of Nonlinear Systems using Sum-of-Squares Programming. , 2019, , .		9
99	A Two-Time-Scale Design for Edge-Based Detection and Rectification of Uncooperative Flows. IEEE/ACM Transactions on Networking, 2006, 14, 1313-1322.	3.8	8
100	Graph weight design for Laplacian eigenvalue constraints with multi-agent systems applications. , 2011, , .		8
101	Optimal experiment design for physiological parameter estimation using hyperpolarized carbon-13 magnetic resonance imaging. , 2015, , .		8
102	Spatio-Temporally Constrained Reconstruction for Hyperpolarized Carbon-13 MRI Using Kinetic Models. IEEE Transactions on Medical Imaging, 2018, 37, 2603-2612.	8.9	8
103	Symmetry reduction for dynamic programming. Automatica, 2018, 97, 367-375.	5.0	8
104	Modular Synthetic Inverters from Zinc Finger Proteins and Small RNAs. PLoS ONE, 2016, 11, e0149483.	2.5	8
105	Redesign of backstepping for robustness against unmodelled dynamics. International Journal of Robust and Nonlinear Control, 2001, 11, 633-643.	3.7	7
106	Remarks on the stability of spatially distributed systems with a cyclic interconnection structure. Proceedings of the American Control Conference, 2007, , .	0.0	7
107	A decentralized design for group alignment and synchronous rotation without inertial frame information. , 2007, , .		7
108	Group Coordination when the Reference Velocity is Available Only to the Leader: An Adaptive Design. Proceedings of the American Control Conference, 2007, , .	0.0	7

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109	Semidefinite relaxations in optimal experiment design with application to substrate injection for hyperpolarized MRI. , 2016, , .		7
110	Parallel dynamic programming for optimal experiment design in nonlinear systems. , 2016, , .		7
111	Finite Horizon Backward Reachability Analysis and Control Synthesis for Uncertain Nonlinear Systems. , 2019, , .		7
112	Guard synthesis for safety of hybrid systems using sum of squares programming. , 2012, , .		6
113	Small Satellite Constellation Separation using Linear Programming based Differential Drag Commands. , 2018, , .		6
114	Designing Spatially Distributed Gene Regulatory Networks To Elicit Contrasting Patterns. ACS Synthetic Biology, 2019, 8, 119-126.	3.8	6
115	Reachability analysis using dissipation inequalities for uncertain nonlinear systems. Systems and Control Letters, 2020, 142, 104736.	2.3	6
116	Interval Reachability Analysis. Springer Briefs in Electrical and Computer Engineering, 2021, , .	0.5	6
117	PIRK: Scalable Interval Reachability Analysis for High-Dimensional Nonlinear Systems. Lecture Notes in Computer Science, 2020, , 556-568.	1.3	6
118	Simulation-Based Reachability Analysis for Nonlinear Systems Using Componentwise Contraction Properties. Lecture Notes in Computer Science, 2018, , 61-76.	1.3	6
119	Area Aggregation and Time Scale Modeling for Sparse Nonlinear Networks. , 2006, , .		5
120	Using orientation agreement to achieve planar rigid formation. , 2008, , .		5
121	Formation control with size scaling using relative displacement feedback. , 2012, , .		5
122	Exploiting symmetry for discrete-time reachability computations. , 2018, 2, 213-217.		5
123	Approximate abstractions of control systems with an application to aggregation. Automatica, 2020, 119, 109065.	5.0	5
124	A Three-time-scale redesign for robust stabilization and performance recovery of nonlinear systems with input uncertainties. , 2007, , .		4
125	Nonlinear analysis of cross-coupled oscillator circuits. , 2008, , .		4
126	Robust global asymptotic attitude synchronization by hybrid control. , 2010, , .		4

8

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127	A quenched oscillator network for pattern formation in gene expression. , 2011, , .		4
128	Synchronization of limit cycle oscillations in diffusively-coupled systems. , 2013, , .		4
129	Spatial uniformity in diffusively-coupled systems using weighted L <sup>2</sup> norm contractions. , 2013, , .		4
130	Performance certification of interconnected nonlinear systems using ADMM. , 2014, , .		4
131	Offset optimization of signalized intersections via the Burer-Monteiro method. , 2017, , .		4
132	Backward Reachability Using Integral Quadratic Constraints for Uncertain Nonlinear Systems. , 2021, 5, 707-712.		4
133	Computing Worst-Case Disturbances for Finite-Horizon Linear Time-Varying Approximations of Uncertain Systems. , 2021, 5, 1753-1758.		4
134	Safe-by-design planner–tracker synthesis with a hierarchy of system models. Annual Reviews in Control, 2022, 53, 138-146.	7.9	4
135	Nonlinear analysis of ring oscillator circuits. , 2010, , .		3
136	New architecture for patterning gene expression using zinc finger proteins and small RNAs. , 2012, , .		3
137	Trajectory-based reachability analysis of switched nonlinear systems using matrix measures. , 2014, , .		3
138	A scalable method for designing distributed controllers for systems with unknown initial states. , 2017, , .		3
139	Reachability Analysis for Robustness Evaluation of the Sit-to-Stand Movement for Powered Lower Limb Orthoses. , 2018, , .		3
140	Finite Time Robust Control of the Sit-to-Stand Movement for Powered Lower Limb Orthoses. , 2018, , .		3
141	Hierarchical Control via an Approximate Aggregate Manifold. , 2018, , .		3
142	Editorial to the Special Issue of L-CSS on Control and Network Theory for Biological Systems. , 2019, 3, 228-229.		3
143	Continuous and discrete abstractions for planning, applied to ship docking. IFAC-PapersOnLine, 2020, 53, 1831-1836.	0.9	3
144	Robust stabilization and performance recovery of nonlinear systems with input unmodeled dynamics.		2

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145	On spatially uniform behavior in reaction-diffusion systems. , 2010, , .		2
146	Diagonal stability on cactus graphs. , 2010, , .		2
147	Verifying safety of interconnected passive systems using SOS programming. , 2013, , .		2
148	Pattern formation with a compartmental lateral inhibition system. , 2014, , .		2
149	Finite state abstraction and formal methods for traffic flow networks. , 2016, , .		2
150	Motion Planning of the Sit to Stand Movement for Powered Lower Limb Orthoses. , 2017, , .		2
151	Symmetry reduction for dynamic programming and application to MRI. , 2017, , .		2
152	Major Computational Breakthroughs in the Synthesis of Symbolic Controllers via Decomposed Algorithms. , 2018, , .		2
153	Pattern Formation over Multigraphs. IEEE Transactions on Network Science and Engineering, 2018, 5, 55-64.	6.4	2
154	Optimal assignment of collaborating agents in multi-body asset-guarding games. , 2020, , .		2
155	An Efficient Algorithm to Compute Norms for Finite Horizon, Linear Time-Varying Systems. , 2021, 5, 1597-1602.		2
156	Compositional Analysis of Interconnected Systems Using Delta Dissipativity. , 2022, 6, 662-667.		2
157	Monotonicity-Based Symbolic Control for Safety in Driving Scenarios. , 2022, 6, 830-835.		2
158	Dissipativity with Dynamic Supply Rates. Springer Briefs in Electrical and Computer Engineering, 2016, , 63-72.	0.5	2
159	A New Sufficient Condition for Additive D-Stability and Application to Cyclic Reaction-Diffusion Models. , 2009, , .		1
160	Equilibrium-independent passivity: a new definition and implications. , 2010, , .		1
161	Evaluating the delay robustness of interconnected passive systems with a frequency-dependent integral quadratic constraint. , 2011, , .		1
162	A computational approach to synthesizing guards for hybrid systems. Systems and Control Letters, 2014, 73, 25-32.	2.3	1

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163	Decoupling translational and rotational effects on the phase synchronization of rotating helices. Physical Review E, 2015, 91, 023018.	2.1	1
164	Symmetric Monotone Embedding of Traffic Flow Networks with First-In-First-Out Dynamics. IFAC-PapersOnLine, 2016, 49, 642-647.	0.9	1
165	Pattern Formation in Large-Scale Networks with Asymmetric Connections * *This wark was supported by the grants NIH NIGMS 1R01GM109460-01 and AFOSR FA9550-14-1-0089 IFAC-PapersOnLine, 2017, 50, 10944-10949.	0.9	1
166	Energy Function Analysis of Power Transfer Paths Using Synchronized Phasor Data. , 2006, , .		0
167	Robust Control for Linear Stages in Electronic Manufacturing. Proceedings of the American Control Conference, 2007, , .	0.0	0
168	Structure and Passivity in Large-Scale Network Analysis and Design. Proceedings of the American Control Conference, 2007, , .	0.0	0
169	Adaptive motion coordination: Using velocity feedback to achieve parameter convergence. , 2008, , .		0
170	Linear matrix inequality tests for synchrony of diffusively coupled nonlinear systems. , 2010, , .		0
171	On biological pattern formation by contact inhibition. , 2012, , .		0
172	Further results on delay robustness of interconnected passive systems. , 2012, , .		0
173	Predicting patterns in lateral inhibition systems via graph partitioning. , 2013, , .		0
174	A Compartmental Lateral Inhibition System to Generate Contrasting Patterns. IEEE Life Sciences Letters, 2015, 1, 7-10.	1.2	0
175	An Input–Output Framework for Submanifold Stabilization. IEEE Transactions on Automatic Control, 2017, 62, 5170-5184.	5.7	Ο
176	Discrete Spatial Filtering by Networks of Cells Facilitates Biological Pattern Formation. , 2018, , .		0
177	A Spatial Filtering Approach to Biological Patterning. SIAM Journal on Applied Dynamical Systems, 2019, 18, 1694-1721.	1.6	Ο
178	Classifier-Based Supervisory Control with Application to Threat Engagement. , 2020, , .		0
179	Measure of Robustness Against Parameter Uncertainty. Springer Briefs in Electrical and Computer Engineering, 2021, , 87-92.	0.5	0
180	Comparison to Other Input/Output Approaches. Springer Briefs in Electrical and Computer Engineering, 2016, , 73-81.	0.5	0

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181	Stability of Interconnected Systems. Springer Briefs in Electrical and Computer Engineering, 2016, , 13-21.	0.5	Ο
182	Control and Optimization Problems in Hyperpolarized Carbon-13 MRI. Lecture Notes in Control and Information Sciences - Proceedings, 2018, , 29-40.	0.1	0
183	Automatic Generation of Communication Requirements for Enforcing Multi-Agent Safety. Electronic Proceedings in Theoretical Computer Science, EPTCS, 0, 269, 3-16.	0.8	Ο
184	Interval Reachability Analysis using Second-Order Sensitivity. IFAC-PapersOnLine, 2020, 53, 1825-1830.	0.9	0
185	A Passivity-Based Approach to Stability of Spatially Distributed Systrems With a Cyclic Interconnection Structure. IEEE Transactions on Circuits and Systems Part 1: Regular Papers, 2009, , .	0.1	Ο
186	Constructing Symbolic Abstractions From Data Without Model Assumptions. , 2022, , .		0