

Andrey E Polyakov

List of Publications by Year in descending order

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176
papers

7,336
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181
all docs

181
docs citations

181
times ranked

2738
citing authors

#	ARTICLE	IF	CITATIONS
1	State observation in microbial consortia: A case study on a synthetic producer-cleaner consortium. International Journal of Robust and Nonlinear Control, 2023, 33, 5011-5022.	3.7	1
2	On robustness of finite-time stability of homogeneous affine nonlinear systems and cascade interconnections. International Journal of Control, 2022, 95, 768-778.	1.9	5
3	Practical Realization of Implicit Homogeneous Controllers for Linearized Systems. IEEE Transactions on Industrial Electronics, 2022, 69, 5142-5151.	7.9	3
4	Quadrotor stabilization under time and space constraints using implicit PID controller. Journal of the Franklin Institute, 2022, 359, 1505-1530.	3.4	15
5	Upgrading a linear controller to a sliding mode one: Theory and experiments. Control Engineering Practice, 2022, 123, 105107.	5.5	6
6	Adaptive finite-time and fixed-time control design using output stability conditions. International Journal of Robust and Nonlinear Control, 2022, 32, 6361-6378.	3.7	4
7	Practical fixed-time ISS of neutral time-delay systems with application to stabilization by using delays. Automatica, 2022, 143, 110455.	5.0	6
8	Generalized homogenization of linear controllers: Theory and experiment. International Journal of Robust and Nonlinear Control, 2021, 31, 3455-3479.	3.7	8
9	Digital implementation of sliding-mode control via the implicit method: A tutorial. International Journal of Robust and Nonlinear Control, 2021, 31, 3528-3586.	3.7	39
10	Minimax sliding mode control design for linear evolution equations with noisy measurements and uncertain inputs. Systems and Control Letters, 2021, 147, 104830.	2.3	2
11	A polytopic strategy for improved non-asymptotic robust control via implicit Lyapunov functions. Nonlinear Analysis: Hybrid Systems, 2021, 39, 100988.	3.5	1
12	Lyapunov-based consistent discretization of stable homogeneous systems. International Journal of Robust and Nonlinear Control, 2021, 31, 3587-3605.	3.7	5
13	Homogeneous Lyapunov functions for homogeneous infinite dimensional systems with unbounded nonlinear operators. Systems and Control Letters, 2021, 148, 104854.	2.3	0
14	On necessary and sufficient conditions for output finite-time stability. Automatica, 2021, 125, 109427.	5.0	7
15	Multiple-input multiple-output homogeneous integral control design using the implicit Lyapunov function approach. International Journal of Robust and Nonlinear Control, 2021, 31, 3417-3438.	3.7	5
16	On finite/fixed-time stability analysis based on sup- and sub-homogeneous extensions. Systems and Control Letters, 2021, 150, 104893.	2.3	3
17	Non-parametric identification of homogeneous dynamical systems. Automatica, 2021, 129, 109600.	5.0	2
18	Input-to-State Stability of homogeneous infinite dimensional systems with locally Lipschitz nonlinearities. Automatica, 2021, 129, 109615.	5.0	3

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19	Generalized homogenization of linear observers: Theory and experiment. International Journal of Robust and Nonlinear Control, 2021, 31, 7971-7984.	3.7	5
20	On Convex Embedding and Control Design for Nonlinear Homogeneous Systems [*] , 2021, , .		0
21	Finite-time stabilization under state constraints. , 2021, , .		3
22	On Strict Homogeneous Lyapunov Function for Generalized Homogeneous PI Controller. , 2021, , .		3
23	On finite-time stability analysis of homogeneous Persidskii systems using LMIs. , 2021, , .		0
24	On energetically optimal finite-time stabilization. , 2021, , .		2
25	On simple scheme of finite/fixed-time control design. International Journal of Control, 2020, 93, 1353-1361.	1.9	23
26	A Switching Controller for a Class of MIMO Bilinear Systems With Time Delay. IEEE Transactions on Automatic Control, 2020, 65, 2250-2256.	5.7	9
27	The Implicit Discretization of the Supertwisting Sliding-Mode Control Algorithm. IEEE Transactions on Automatic Control, 2020, 65, 3707-3713.	5.7	66
28	A sliding mode controller for a model of flow separation in boundary layers. International Journal of Robust and Nonlinear Control, 2020, 30, 1181-1202.	3.7	2
29	On Generalized Homogenization of Linear Quadrotor Controller. , 2020, , .		8
30	Finite-time and fixed-time input-to-state stability: Explicit and implicit approaches. Systems and Control Letters, 2020, 144, 104775.	2.3	24
31	Discrete-time homogeneity: Robustness and approximation. Automatica, 2020, 122, 109275.	5.0	2
32	Robust Feedback Stabilization of Linear MIMO Systems Using Generalized Homogenization. IEEE Transactions on Automatic Control, 2020, 65, 5429-5436.	5.7	43
33	Conventional and high order sliding mode control. Journal of the Franklin Institute, 2020, 357, 10244-10261.	3.4	129
34	Robust stabilization of competing species in the chemostat. Journal of Process Control, 2020, 87, 138-146.	3.3	1
35	Road Map for Sliding Mode Control Design. SpringerBriefs in Mathematics, 2020, , .	0.3	65
36	Generalized Homogeneity in Systems and Control. Communications and Control Engineering, 2020, , .	1.6	59

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37	On finite-time stability of sub-homogeneous differential inclusions. IFAC-PapersOnLine, 2020, 53, 5883-5888.	0.9	2
38	On fixed-time stability of a class of nonlinear time-varying systems. IFAC-PapersOnLine, 2020, 53, 6358-6363.	0.9	4
39	Observer-Based Robust Control of a Continuous Bioreactor with Heterogeneous Community. IFAC-PapersOnLine, 2020, 53, 11800-11805.	0.9	2
40	Open Problems in SMC. SpringerBriefs in Mathematics, 2020, , 115-124.	0.3	0
41	Analysis of Homogeneous Dynamical Systems. Communications and Control Engineering, 2020, , 225-270.	1.6	0
42	Homogeneous Stabilization. Communications and Control Engineering, 2020, , 271-350.	1.6	0
43	Consistent Discretization of Homogeneous Models. Communications and Control Engineering, 2020, , 351-383.	1.6	0
44	Homogeneous Mappings. Communications and Control Engineering, 2020, , 183-223.	1.6	0
45	On finite-time stabilization of a class of nonlinear time-delay systems: Implicit Lyapunov-Razumikhin approach. , 2020, , .		4
46	Homogeneous Observers for Projected Quadratic Partial Differential Equations. , 2020, , .		0
47	On Homogeneous Lyapunov Function Theorem for Evolution Equations. IFAC-PapersOnLine, 2020, 53, 5087-5092.	0.9	0
48	Stability and Convergence Rate. Communications and Control Engineering, 2020, , 111-120.	1.6	0
49	Method of Lyapunov Functions. Communications and Control Engineering, 2020, , 121-149.	1.6	0
50	Robust Stabilization of Control Affine Systems with Homogeneous Functions. IFAC-PapersOnLine, 2020, 53, 6311-6316.	0.9	4
51	Dilation Groups in Banach, Hilbert, and Euclidean Spaces. Communications and Control Engineering, 2020, , 153-181.	1.6	0
52	On output-based accelerated stabilization of a chain of integrators: Implicit Lyapunov-Krasovskii functional approach. IFAC-PapersOnLine, 2020, 53, 5982-5987.	0.9	5
53	Adaptive Discontinuous Control for Homogeneous Systems Approximated by Neural Networks. IFAC-PapersOnLine, 2020, 53, 7885-7890.	0.9	1
54	A Consistent Discretisation method for Stable Homogeneous Systems based on Lyapunov Function. IFAC-PapersOnLine, 2020, 53, 5099-5104.	0.9	2

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55	Homogeneous Observer Design for Linear MIMO Systems. IFAC-PapersOnLine, 2020, 53, 4576-4581.	0.9	4
56	Sliding-Mode Stabilization of SISO Bilinear Systems with Delays. Studies in Systems, Decision and Control, 2020, , 215-236.	1.0	1
57	Discretization of homogeneous systems using Euler method with a state-dependent step. Automatica, 2019, 109, 108546.	5.0	13
58	Some characterizations of boundary time-varying feedbacks for fixed-time stabilization of reaction-diffusion systems. IFAC-PapersOnLine, 2019, 52, 162-167.	0.9	10
59	Conditions for fixed-time stability and stabilization of continuous autonomous systems. Systems and Control Letters, 2019, 129, 26-35.	2.3	61
60	Boundary time-varying feedbacks for fixed-time stabilization of constant-parameter reaction-diffusion systems. Automatica, 2019, 103, 398-407.	5.0	76
61	A homogeneity property of discrete-time systems: Stability and convergence rates. International Journal of Robust and Nonlinear Control, 2019, 29, 2406-2421.	3.7	12
62	On Condition for Output Finite-Time Stability and Adaptive Finite-Time Control Scheme *. , 2019, , .		1
63	Robust Control of a Competitive Environment in the Chemostat using Discontinuous Control Laws. , 2019, , .		2
64	Characterization of Finite/Fixed-time Stability of Evolution Inclusions. , 2019, , .		4
65	Integral Control Design using the Implicit Lyapunov Function Approach. , 2019, , .		7
66	On local finite-time stabilization of the w via boundary switched linear feedback. , 2019, , .		0
67	Quadrotor Control Design under Time and State Constraints: Implicit Lyapunov Function Approach. , 2019, , .		1
68	Generalized Lyapunov Exponents of Homogeneous Systems. , 2019, , .		0
69	Consistent Discretization of Locally Homogeneous Finite-time Stable Control Systems. , 2019, , .		0
70	Homogeneous Discrete-Time Approximation. IFAC-PapersOnLine, 2019, 52, 19-24.	0.9	4
71	Differential Neural Network Identification for Homogeneous Dynamical Systems. IFAC-PapersOnLine, 2019, 52, 233-238.	0.9	5
72	On Adaptive Estimation of Bacterial Growth in the Competitive Chemostat. IFAC-PapersOnLine, 2019, 52, 262-267.	0.9	1

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73	Independent of delay stabilization using implicit Lyapunov function method. Automatica, 2019, 101, 103-110.	5.0	4
74	Consistent Discretization of Finite-Time and Fixed-Time Stable Systems. SIAM Journal on Control and Optimization, 2019, 57, 78-103.	2.1	70
75	Sliding mode control design using canonical homogeneous norm. International Journal of Robust and Nonlinear Control, 2019, 29, 682-701.	3.7	62
76	Quadrotor trajectory tracking by using fixed-time differentiator. International Journal of Control, 2019, 92, 2854-2868.	1.9	6
77	On Homogeneous Finite-Time Control for Linear Evolution Equation in Hilbert Space. IEEE Transactions on Automatic Control, 2018, 63, 3143-3150.	5.7	60
78	Delay estimation via sliding mode for nonlinear time-delay systems. Automatica, 2018, 89, 266-273.	5.0	33
79	Supervisory acceleration of convergence for homogeneous systems. International Journal of Control, 2018, 91, 2524-2534.	1.9	5
80	Finite-time and fixed-time observer design: Implicit Lyapunov function approach. Automatica, 2018, 87, 52-60.	5.0	158
81	Fast Control Systems: Nonlinear Approach. , 2018, , 287-316.		3
82	Convergence acceleration for observers by gain commutation. International Journal of Control, 2018, 91, 2009-2018.	1.9	9
83	Acceleration of finite-time stable homogeneous systems. International Journal of Robust and Nonlinear Control, 2018, 28, 1757-1777.	3.7	10
84	On Dynamical Feedback Control Design for Generalized Homogeneous Differential Inclusions. , 2018, , .		3
85	On continuous boundary time-varying feedbacks for fixed-time stabilization of coupled reaction-diffusion systems. , 2018, , .		6
86	Asymptotic Output-Feedback Stabilization of Linear Evolution Equations with Uncertain Inputs via Equivalent Control Method. , 2018, , .		1
87	Consistent Discretization of Finite-time Stable Homogeneous Systems. , 2018, , .		14
88	A robust Sliding Mode Controller for a class of SISO bilinear delayed systems. , 2018, , .		3
89	On finite-time robust stabilization via nonlinear state feedback. International Journal of Robust and Nonlinear Control, 2018, 28, 4951-4965.	3.7	15
90	Fixed-time output stabilization and fixed-time estimation of a chain of integrators. International Journal of Robust and Nonlinear Control, 2018, 28, 4647-4665.	3.7	35

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91	A note on delay robustness for homogeneous systems with negative degree. Automatica, 2017, 79, 178-184.	5.0	43
92	Realization and Discretization of Asymptotically Stable Homogeneous Systems. IEEE Transactions on Automatic Control, 2017, 62, 5962-5969.	5.7	52
93	SISO model-based control of separated flows: Sliding mode and optimal control approaches. International Journal of Robust and Nonlinear Control, 2017, 27, 5008-5027.	3.7	9
94	Feedback sensitivity functions analysis of finite-time stabilizing control system. International Journal of Robust and Nonlinear Control, 2017, 27, 2475-2491.	3.7	10
95	Relay Control Design for Robust Stabilization in a Finite-Time. IEEE Transactions on Automatic Control, 2017, 62, 1985-1991.	5.7	10
96	Robust output-control for uncertain linear systems: Homogeneous differentiator-based observer approach. International Journal of Robust and Nonlinear Control, 2017, 27, 1895-1914.	3.7	14
97	Note on Minimax Sliding Mode Control Design for Linear Systems. IEEE Transactions on Automatic Control, 2017, 62, 3395-3400.	5.7	16
98	A homogeneity property of a class of discrete-time systems. , 2017, , .		5
99	Quadratic-like stability of nonlinear homogeneous systems. , 2017, , .		6
100	On Boundary Finite-Time Feedback Control for Heat Equation. IFAC-PapersOnLine, 2017, 50, 671-676.	0.9	16
101	Switched gain differentiator with fixed-time convergence. IFAC-PapersOnLine, 2017, 50, 7145-7150.	0.9	3
102	Sliding Mode Control Design for Linear Evolution Equations with Uncertain Measurements and Exogenous Perturbations. IFAC-PapersOnLine, 2017, 50, 8513-8517.	0.9	1
103	On hyper exponential stabilization of linear state-delay systems. , 2017, , .		0
104	Finite-time and fixed-time observers design via implicit Lyapunov function. , 2016, , .		14
105	Time-delay Robustness Analysis for Systems with Negative Degree of Homogeneity**This work was supported in part by the Government of Russian Federation (Grant 074-U01) and the Ministry of Education and Science of Russian Federation (Project 14.Z50.31.0031).. IFAC-PapersOnLine, 2016, 49, 546-551.	0.9	1
106	Stability and robustness of homogeneous differential inclusions. , 2016, , .		21
107	On finite-time stabilization of evolution equations: A homogeneous approach. , 2016, , .		20
108	Delay estimation for nonlinear time-delay systems. , 2016, , .		2

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109	Fixed-time stabilisation and consensus of non-holonomic systems. IET Control Theory and Applications, 2016, 10, 2497-2505.	2.1	71
110	On design of interval observers with sampled measurement. Systems and Control Letters, 2016, 96, 158-164.	2.3	18
111	Linear interval observers under delayed measurements and delay-dependent positivity. Automatica, 2016, 72, 123-130.	5.0	23
112	Frequency domain analysis of control system based on implicit Lyapunov function. , 2016, , .		1
113	A bilinear input-output model with state-dependent delay for separated flow control. , 2016, , .		10
114	Robust stabilization of MIMO systems in finite/fixed time. International Journal of Robust and Nonlinear Control, 2016, 26, 69-90.	3.7	168
115	On Homogeneous Distributed Parameter Systems. IEEE Transactions on Automatic Control, 2016, 61, 3657-3662.	5.7	46
116	Homogeneous Time-Varying Systems: Robustness Analysis. IEEE Transactions on Automatic Control, 2016, 61, 4075-4080.	5.7	14
117	Finite-time attractive ellipsoid method: implicit Lyapunov function approach. International Journal of Control, 2016, 89, 1079-1090.	1.9	11
118	Delayed sliding mode control. Automatica, 2016, 64, 37-43.	5.0	32
119	Weighted Homogeneity for Time-Delay Systems: Finite-Time and Independent of Delay Stability. IEEE Transactions on Automatic Control, 2016, 61, 210-215.	5.7	58
120	On homogeneous evolution equation in a Banach space. , 2015, , .		1
121	A note on continuous delayed sliding mode control. , 2015, , .		0
122	Output-based sliding mode control design for linear plants with multiplicative disturbances: The minimax approach. , 2015, , .		1
123	Interval observer design for estimation and control of time-delay descriptor systems. European Journal of Control, 2015, 23, 26-35.	2.6	63
124	Stabilization of chain of integrators with arbitrary order in finite-time. , 2015, , .		8
125	On finite-time stabilization via relay feedback control. , 2015, , .		1
126	Robust finite-time stabilization and observation of a planar system revisited. , 2015, , .		9

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127	Globally stable implicit Euler time-discretization of a nonlinear single-input sliding-mode control system. , 2015, , .		17
128	Finite-time Attractive Ellipsoid Method using Implicit Lyapunov Functions. , 2015, , .		5
129	Delay-dependent positivity: Application to interval observers. , 2015, , .		9
130	Implicit Lyapunov-Krasovski Functionals for Stability Analysis and Control Design of Time-Delay Systems. IEEE Transactions on Automatic Control, 2015, 60, 3344-3349.	5.7	38
131	Leader-follower fixed-time consensus for multi-agent systems with unknown nonlinear inherent dynamics. IET Control Theory and Applications, 2015, 9, 2165-2170.	2.1	214
132	Finite-time and fixed-time stabilization: Implicit Lyapunov function approach. Automatica, 2015, 51, 332-340.	5.0	665
133	Interval estimation for systems with time delays and algebraic constraints. , 2014, , .		6
134	Sliding mode control design for MIMO systems: Implicit Lyapunov Function approach. , 2014, , .		7
135	Stability analysis for nonlinear time-delay systems applying homogeneity. , 2014, , .		0
136	Implicit Lyapunov-Krasovski Functionals for time delay systems. , 2014, , .		10
137	On relay control for discrete time systems using linear matrix inequalities. , 2014, , .		3
138	Attractive Ellipsoids in Robust Control. Systems and Control: Foundations and Applications, 2014, , .	0.3	80
139	Homogeneous differentiator design using implicit Lyapunov Function method. , 2014, , .		35
140	Consistent approximations and variational description of some classes of sliding mode control processes. Journal of the Franklin Institute, 2014, 351, 1964-1981.	3.4	4
141	On homogeneity and its application in sliding mode control. Journal of the Franklin Institute, 2014, 351, 1866-1901.	3.4	188
142	Stability notions and Lyapunov functions for sliding mode control systems. Journal of the Franklin Institute, 2014, 351, 1831-1865.	3.4	316
143	On output-based sliding mode control design using minimax observer. , 2014, , .		5
144	Graph-based field automata for modeling of sliding mode systems. , 2014, , .		0

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145	Comments on finite-time stability of time-delay systems. Automatica, 2014, 50, 1944-1947.	5.0	84
146	Attractive Ellipsoid Method with Adaptation. , 2014, , 295-338.		2
147	Robust Stabilization of Time-Delay Systems. , 2014, , 187-223.		1
148	Verification of ISS, iISS and IOSS properties applying weighted homogeneity. Systems and Control Letters, 2013, 62, 1159-1167.	2.3	130
149	Output stabilization of time-varying input delay systems using interval observation technique. Automatica, 2013, 49, 3402-3410.	5.0	47
150	Robust output stabilization of time-varying input delay systems using attractive ellipsoid method. , 2013, , .		8
151	Robustness of finite-time stability property for sliding modes. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 391-396.	0.4	10
152	Finite-time Stabilization Using Implicit Lyapunov Function Technique. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 140-145.	0.4	28
153	On an extension of homogeneity notion for differential inclusions. , 2013, , .		34
154	On ISS and iISS properties of homogeneous systems. , 2013, , .		15
155	Nonlinear fixed-time control protocol for uniform allocation of agents on a segment. , 2012, , .		95
156	Fixed-Time Stabilization via Second Order Sliding Mode Control. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 254-258.	0.4	15
157	Unified Lyapunov function for a finite-time stability analysis of relay second-order sliding mode control systems. IMA Journal of Mathematical Control and Information, 2012, 29, 529-550.	1.7	39
158	A robust dynamic controller for a class of nonlinear systems with sample-data outputs. , 2012, , .		3
159	Fixed-time stabilization of linear systems via sliding mode control. , 2012, , .		19
160	On settling time function and stability of vector relay systems. , 2012, , .		3
161	Nonlinear Feedback Design for Fixed-Time Stabilization of Linear Control Systems. IEEE Transactions on Automatic Control, 2012, 57, 2106-2110.	5.7	2,692
162	Minimization of disturbances effects in time delay predictor-based sliding mode control systems. Journal of the Franklin Institute, 2012, 349, 1380-1396.	3.4	31

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163	The Lyapunov Function Design for the Stability Analysis of the "Italian Version" of the Second Order Sliding Mode Controllers. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 5866-5871.	0.4	0
164	Invariant ellipsoid method for minimization of unmatched disturbances effects in sliding mode control. Automatica, 2011, 47, 1450-1454.	5.0	70
165	Invariant ellipsoid method for time-delayed predictor-based sliding mode control system. , 2010, , .		2
166	Finite-time stabilization of an integrator chain using only signs of the state variables. , 2010, , .		11
167	Linear feedback spacecraft stabilization using the method of invariant ellipsoids. , 2009, , .		5
168	Output linear controller for a class of nonlinear systems using the invariant ellipsoid technique. , 2009, , .		20
169	Minimization of the unmatched disturbances in the sliding mode control systems via invariant ellipsoid method. , 2009, , .		11
170	Reaching Time Estimation for "Super-Twisting" Second Order Sliding Mode Controller via Lyapunov Function Designing. IEEE Transactions on Automatic Control, 2009, 54, 1951-1955.	5.7	239
171	Robust stabilization of a spacecraft with flexible elements using invariant ellipsoid technique. , 2008, , .		1
172	Output linear feedback for a class of nonlinear systems based on the invariant ellipsoid method. , 2008, , .		10
173	Practical stabilization via relay delayed control. , 2008, , .		7
174	Nonlocal stabilization via delayed relay control rejecting uncertainty in a time delay. International Journal of Robust and Nonlinear Control, 2004, 14, 15-37.	3.7	24
175	Stabilization of amplitude of oscillations via relay delay control. International Journal of Control, 2003, 76, 770-780.	1.9	16
176	Nonlocal stabilization via relay delay control gain adaptation. , 2002, , .		0