

Andrey E Polyakov

List of Publications by Year in descending order

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176
papers

7,336
citations

126907

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181
all docs

181
docs citations

181
times ranked

2738
citing authors

#	ARTICLE	IF	CITATIONS
1	Nonlinear Feedback Design for Fixed-Time Stabilization of Linear Control Systems. IEEE Transactions on Automatic Control, 2012, 57, 2106-2110.	5.7	2,692
2	Finite-time and fixed-time stabilization: Implicit Lyapunov function approach. Automatica, 2015, 51, 332-340.	5.0	665
3	Stability notions and Lyapunov functions for sliding mode control systems. Journal of the Franklin Institute, 2014, 351, 1831-1865.	3.4	316
4	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
5	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
6	On homogeneity and its application in sliding mode control. Journal of the Franklin Institute, 2014, 351, 1866-1901.	3.4	188
7	Robust stabilization of MIMO systems in finite/fixed time. International Journal of Robust and Nonlinear Control, 2016, 26, 69-90.	3.7	168
8	Finite-time and fixed-time observer design: Implicit Lyapunov function approach. Automatica, 2018, 87, 52-60.	5.0	158
9	Verification of ISS, iISS and IOSS properties applying weighted homogeneity. Systems and Control Letters, 2013, 62, 1159-1167.	2.3	130
10	Conventional and high order sliding mode control. Journal of the Franklin Institute, 2020, 357, 10244-10261.	3.4	129
11	Nonlinear fixed-time control protocol for uniform allocation of agents on a segment. , 2012, , .		95
12	Comments on finite-time stability of time-delay systems. Automatica, 2014, 50, 1944-1947.	5.0	84
13	Attractive Ellipsoids in Robust Control. Systems and Control: Foundations and Applications, 2014, , .	0.3	80
14	Boundary time-varying feedbacks for fixed-time stabilization of constant-parameter reaction-diffusion systems. Automatica, 2019, 103, 398-407.	5.0	76
15	Fixed-time stabilisation and consensus of nonholonomic systems. IET Control Theory and Applications, 2016, 10, 2497-2505.	2.1	71
16	Invariant ellipsoid method for minimization of unmatched disturbances effects in sliding mode control. Automatica, 2011, 47, 1450-1454.	5.0	70
17	Consistent Discretization of Finite-Time and Fixed-Time Stable Systems. SIAM Journal on Control and Optimization, 2019, 57, 78-103.	2.1	70
18	The Implicit Discretization of the Supertwisting Sliding-Mode Control Algorithm. IEEE Transactions on Automatic Control, 2020, 65, 3707-3713.	5.7	66

#	ARTICLE	IF	CITATIONS
19	Road Map for Sliding Mode Control Design. SpringerBriefs in Mathematics, 2020, , .	0.3	65
20	Interval observer design for estimation and control of time-delay descriptor systems. European Journal of Control, 2015, 23, 26-35.	2.6	63
21	Sliding mode control design using canonical homogeneous norm. International Journal of Robust and Nonlinear Control, 2019, 29, 682-701.	3.7	62
22	Conditions for fixed-time stability and stabilization of continuous autonomous systems. Systems and Control Letters, 2019, 129, 26-35.	2.3	61
23	On Homogeneous Finite-Time Control for Linear Evolution Equation in Hilbert Space. IEEE Transactions on Automatic Control, 2018, 63, 3143-3150.	5.7	60
24	Generalized Homogeneity in Systems and Control. Communications and Control Engineering, 2020, , .	1.6	59
25	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
26	Realization and Discretization of Asymptotically Stable Homogeneous Systems. IEEE Transactions on Automatic Control, 2017, 62, 5962-5969.	5.7	52
27	Output stabilization of time-varying input delay systems using interval observation technique. Automatica, 2013, 49, 3402-3410.	5.0	47
28	On Homogeneous Distributed Parameter Systems. IEEE Transactions on Automatic Control, 2016, 61, 3657-3662.	5.7	46
29	A note on delay robustness for homogeneous systems with negative degree. Automatica, 2017, 79, 178-184.	5.0	43
30	Robust Feedback Stabilization of Linear MIMO Systems Using Generalized Homogenization. IEEE Transactions on Automatic Control, 2020, 65, 5429-5436.	5.7	43
31	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
32	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
33	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
34	Homogeneous differentiator design using implicit Lyapunov Function method. , 2014, , .		35
35	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
36	On an extension of homogeneity notion for differential inclusions. , 2013, , .		34

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37	Delay estimation via sliding mode for nonlinear time-delay systems. Automatica, 2018, 89, 266-273.	5.0	33
38	Delayed sliding mode control. Automatica, 2016, 64, 37-43.	5.0	32
39	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
40	Finite-time Stabilization Using Implicit Lyapunov Function Technique. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 140-145.	0.4	28
41	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
42	Finite-time and fixed-time input-to-state stability: Explicit and implicit approaches. Systems and Control Letters, 2020, 144, 104775.	2.3	24
43	Linear interval observers under delayed measurements and delay-dependent positivity. Automatica, 2016, 72, 123-130.	5.0	23
44	On simple scheme of finite/fixed-time control design. International Journal of Control, 2020, 93, 1353-1361.	1.9	23
45	Stability and robustness of homogeneous differential inclusions. , 2016, , .		21
46	Output linear controller for a class of nonlinear systems using the invariant ellipsoid technique. , 2009, , .		20
47	On finite-time stabilization of evolution equations: A homogeneous approach. , 2016, , .		20
48	Fixed-time stabilization of linear systems via sliding mode control. , 2012, , .		19
49	On design of interval observers with sampled measurement. Systems and Control Letters, 2016, 96, 158-164.	2.3	18
50	Globally stable implicit Euler time-discretization of a nonlinear single-input sliding-mode control system. , 2015, , .		17
51	Stabilization of amplitude of oscillations via relay delay control. International Journal of Control, 2003, 76, 770-780.	1.9	16
52	Note on Minimax Sliding Mode Control Design for Linear Systems. IEEE Transactions on Automatic Control, 2017, 62, 3395-3400.	5.7	16
53	On Boundary Finite-Time Feedback Control for Heat Equation. IFAC-PapersOnLine, 2017, 50, 671-676.	0.9	16
54	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

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55	On ISS and iISS properties of homogeneous systems. , 2013, , .		15
56	On finite-time robust stabilization via nonlinear state feedback. International Journal of Robust and Nonlinear Control, 2018, 28, 4951-4965.	3.7	15
57	Quadrotor stabilization under time and space constraints using implicit PID controller. Journal of the Franklin Institute, 2022, 359, 1505-1530.	3.4	15
58	Finite-time and fixed-time observers design via implicit Lyapunov function. , 2016, , .		14
59	Homogeneous Time-Varying Systems: Robustness Analysis. IEEE Transactions on Automatic Control, 2016, 61, 4075-4080.	5.7	14
60	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
61	Consistent Discretization of Finite-time Stable Homogeneous Systems. , 2018, , .		14
62	Discretization of homogeneous systems using Euler method with a state-dependent step. Automatica, 2019, 109, 108546.	5.0	13
63	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
64	Minimization of the unmatched disturbances in the sliding mode control systems via invariant ellipsoid method. , 2009, , .		11
65	Finite-time stabilization of an integrator chain using only signs of the state variables. , 2010, , .		11
66	Finite-time attractive ellipsoid method: implicit Lyapunov function approach. International Journal of Control, 2016, 89, 1079-1090.	1.9	11
67	Output linear feedback for a class of nonlinear systems based on the invariant ellipsoid method. , 2008, , .		10
68	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
69	Implicit Lyapunov-Krasovski Functionals for time delay systems. , 2014, , .		10
70	A bilinear input-output model with state-dependent delay for separated flow control. , 2016, , .		10
71	Feedback sensitivity functions analysis of finite-time stabilizing control system. International Journal of Robust and Nonlinear Control, 2017, 27, 2475-2491.	3.7	10
72	Relay Control Design for Robust Stabilization in a Finite-Time. IEEE Transactions on Automatic Control, 2017, 62, 1985-1991.	5.7	10

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73	Acceleration of finite-time stable homogeneous systems. International Journal of Robust and Nonlinear Control, 2018, 28, 1757-1777.	3.7	10
74	Some characterizations of boundary time-varying feedbacks for fixed-time stabilization of reaction-diffusion systems. IFAC-PapersOnLine, 2019, 52, 162-167.	0.9	10
75	Robust finite-time stabilization and observation of a planar system revisited. , 2015, , .		9
76	Delay-dependent positivity: Application to interval observers. , 2015, , .		9
77	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
78	Convergence acceleration for observers by gain commutation. International Journal of Control, 2018, 91, 2009-2018.	1.9	9
79	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
80	Robust output stabilization of time-varying input delay systems using attractive ellipsoid method. , 2013, , .		8
81	Stabilization of chain of integrators with arbitrary order in finite-time. , 2015, , .		8
82	On Generalized Homogenization of Linear Quadrotor Controller. , 2020, , .		8
83	Generalized homogenization of linear controllers: Theory and experiment. International Journal of Robust and Nonlinear Control, 2021, 31, 3455-3479.	3.7	8
84	Practical stabilization via relay delayed control. , 2008, , .		7
85	Sliding mode control design for MIMO systems: Implicit Lyapunov Function approach. , 2014, , .		7
86	Integral Control Design using the Implicit Lyapunov Function Approach. , 2019, , .		7
87	On necessary and sufficient conditions for output finite-time stability. Automatica, 2021, 125, 109427.	5.0	7
88	Interval estimation for systems with time delays and algebraic constraints. , 2014, , .		6
89	Quadratic-like stability of nonlinear homogeneous systems. , 2017, , .		6
90	On continuous boundary time-varying feedbacks for fixed-time stabilization of coupled reaction-diffusion systems. , 2018, , .		6

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91	Quadrotor trajectory tracking by using fixed-time differentiator. International Journal of Control, 2019, 92, 2854-2868.	1.9	6
92	Upgrading a linear controller to a sliding mode one: Theory and experiments. Control Engineering Practice, 2022, 123, 105107.	5.5	6
93	Practical fixed-time ISS of neutral time-delay systems with application to stabilization by using delays. Automatica, 2022, 143, 110455.	5.0	6
94	Linear feedback spacecraft stabilization using the method of invariant ellipsoids. , 2009, , .		5
95	On output-based sliding mode control design using minimax observer. , 2014, , .		5
96	Finite-time Attractive Ellipsoid Method using Implicit Lyapunov Functions. , 2015, , .		5
97	A homogeneity property of a class of discrete-time systems. , 2017, , .		5
98	Supervisory acceleration of convergence for homogeneous systems. International Journal of Control, 2018, 91, 2524-2534.	1.9	5
99	Differential Neural Network Identification for Homogeneous Dynamical Systems. IFAC-PapersOnLine, 2019, 52, 233-238.	0.9	5
100	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
101	Lyapunov-based consistent discretization of stable homogeneous systems. International Journal of Robust and Nonlinear Control, 2021, 31, 3587-3605.	3.7	5
102	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
103	Generalized homogenization of linear observers: Theory and experiment. International Journal of Robust and Nonlinear Control, 2021, 31, 7971-7984.	3.7	5
104	On output-based accelerated stabilization of a chain of integrators: Implicit Lyapunov-Krasovskii functional approach. IFAC-PapersOnLine, 2020, 53, 5982-5987.	0.9	5
105	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
106	Characterization of Finite/Fixed-time Stability of Evolution Inclusions. , 2019, , .		4
107	Homogeneous Discrete-Time Approximation. IFAC-PapersOnLine, 2019, 52, 19-24.	0.9	4
108	Independent of delay stabilization using implicit Lyapunov function method. Automatica, 2019, 101, 103-110.	5.0	4

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109	On fixed-time stability of a class of nonlinear time-varying systems. IFAC-PapersOnLine, 2020, 53, 6358-6363.	0.9	4
110	On finite-time stabilization of a class of nonlinear time-delay systems: Implicit Lyapunov-Razumikhin approach. , 2020, , .		4
111	Robust Stabilization of Control Affine Systems with Homogeneous Functions. IFAC-PapersOnLine, 2020, 53, 6311-6316.	0.9	4
112	Homogeneous Observer Design for Linear MIMO Systems. IFAC-PapersOnLine, 2020, 53, 4576-4581.	0.9	4
113	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
114	A robust dynamic controller for a class of nonlinear systems with sample-data outputs. , 2012, , .		3
115	On settling time function and stability of vector relay systems. , 2012, , .		3
116	On relay control for discrete time systems using linear matrix inequalities. , 2014, , .		3
117	Switched gain differentiator with fixed-time convergence. IFAC-PapersOnLine, 2017, 50, 7145-7150.	0.9	3
118	Fast Control Systems: Nonlinear Approach. , 2018, , 287-316.		3
119	On Dynamical Feedback Control Design for Generalized Homogeneous Differential Inclusions. , 2018, , .		3
120	A robust Sliding Mode Controller for a class of SISO bilinear delayed systems. , 2018, , .		3
121	Practical Realization of Implicit Homogeneous Controllers for Linearized Systems. IEEE Transactions on Industrial Electronics, 2022, 69, 5142-5151.	7.9	3
122	On finite/fixed-time stability analysis based on sup- and sub-homogeneous extensions. Systems and Control Letters, 2021, 150, 104893.	2.3	3
123	Input-to-State Stability of homogeneous infinite dimensional systems with locally Lipschitz nonlinearities. Automatica, 2021, 129, 109615.	5.0	3
124	Finite-time stabilization under state constraints. , 2021, , .		3
125	On Strict Homogeneous Lyapunov Function for Generalized Homogeneous PI Controller. , 2021, , .		3
126	Invariant ellipsoid method for time-delayed predictor-based sliding mode control system. , 2010, , .		2

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127	Delay estimation for nonlinear time-delay systems. , 2016, , .		2
128	Robust Control of a Competitive Environment in the Chemostat using Discontinuous Control Laws. , 2019, , .		2
129	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
130	Discrete-time homogeneity: Robustness and approximation. Automatica, 2020, 122, 109275.	5.0	2
131	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
132	Non-parametric identification of homogeneous dynamical systems. Automatica, 2021, 129, 109600.	5.0	2
133	Attractive Ellipsoid Method with Adaptation. , 2014, , 295-338.		2
134	On finite-time stability of sub-homogeneous differential inclusions. IFAC-PapersOnLine, 2020, 53, 5883-5888.	0.9	2
135	Observer-Based Robust Control of a Continuous Bioreactor with Heterogeneous Community. IFAC-PapersOnLine, 2020, 53, 11800-11805.	0.9	2
136	A Consistent Discretisation method for Stable Homogeneous Systems based on Lyapunov Function. IFAC-PapersOnLine, 2020, 53, 5099-5104.	0.9	2
137	On energetically optimal finite-time stabilization. , 2021, , .		2
138	Robust stabilization of a spacecraft with flexible elements using invariant ellipsoid technique. , 2008, , .		1
139	On homogeneous evolution equation in a Banach space. , 2015, , .		1
140	Output-based sliding mode control design for linear plants with multiplicative disturbances: The minimax approach. , 2015, , .		1
141	On finite-time stabilization via relay feedback control. , 2015, , .		1
142	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
143	Frequency domain analysis of control system based on implicit Lyapunov function. , 2016, , .		1
144	Sliding Mode Control Design for Linear Evolution Equations with Uncertain Measurements and Exogenous Perturbations. IFAC-PapersOnLine, 2017, 50, 8513-8517.	0.9	1

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145	Asymptotic Output-Feedback Stabilization of Linear Evolution Equations with Uncertain Inputs via Equivalent Control Method. , 2018, , .		1
146	On Condition for Output Finite-Time Stability and Adaptive Finite-Time Control Scheme *. , 2019, , .		1
147	Quadrotor Control Design under Time and State Constraints: Implicit Lyapunov Function Approach. , 2019, , .		1
148	On Adaptive Estimation of Bacterial Growth in the Competitive Chemostat. IFAC-PapersOnLine, 2019, 52, 262-267.	0.9	1
149	Robust stabilization of competing species in the chemostat. Journal of Process Control, 2020, 87, 138-146.	3.3	1
150	A polytopic strategy for improved non-asymptotic robust control via implicit Lyapunov functions. Nonlinear Analysis: Hybrid Systems, 2021, 39, 100988.	3.5	1
151	Robust Stabilization of Time-Delay Systems. , 2014, , 187-223.		1
152	Adaptive Discontinuous Control for Homogeneous Systems Approximated by Neural Networks. IFAC-PapersOnLine, 2020, 53, 7885-7890.	0.9	1
153	Sliding-Mode Stabilization of SISO Bilinear Systems with Delays. Studies in Systems, Decision and Control, 2020, , 215-236.	1.0	1
154	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
155	Nonlocal stabilization via relay delay control gain adaptation. , 2002, , .		0
156	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
157	Stability analysis for nonlinear time-delay systems applying homogeneity. , 2014, , .		0
158	Graph-based field automata for modeling of sliding mode systems. , 2014, , .		0
159	A note on continuous delayed sliding mode control. , 2015, , .		0
160	On hyper exponential stabilization of linear state-delay systems. , 2017, , .		0
161	On local finite-time stabilization of the w via boundary switched linear feedback. , 2019, , .		0
162	Generalized Lyapunov Exponents of Homogeneous Systems. , 2019, , .		0

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163	Consistent Discretization of Locally Homogeneous Finite-time Stable Control Systems. , 2019, ,		0
164	Homogeneous Lyapunov functions for homogeneous infinite dimensional systems with unbounded nonlinear operators. Systems and Control Letters, 2021, 148, 104854.	2.3	0
165	Open Problems in SMC. SpringerBriefs in Mathematics, 2020, , 115-124.	0.3	0
166	Analysis of Homogeneous Dynamical Systems. Communications and Control Engineering, 2020, , 225-270.	1.6	0
167	Homogeneous Stabilization. Communications and Control Engineering, 2020, , 271-350.	1.6	0
168	Consistent Discretization of Homogeneous Models. Communications and Control Engineering, 2020, , 351-383.	1.6	0
169	Homogeneous Mappings. Communications and Control Engineering, 2020, , 183-223.	1.6	0
170	Homogeneous Observers for Projected Quadratic Partial Differential Equations. , 2020, ,		0
171	On Homogeneous Lyapunov Function Theorem for Evolution Equations. IFAC-PapersOnLine, 2020, 53, 5087-5092.	0.9	0
172	Stability and Convergence Rate. Communications and Control Engineering, 2020, , 111-120.	1.6	0
173	Method of Lyapunov Functions. Communications and Control Engineering, 2020, , 121-149.	1.6	0
174	Dilation Groups in Banach, Hilbert, and Euclidean Spaces. Communications and Control Engineering, 2020, , 153-181.	1.6	0
175	On Convex Embedding and Control Design for Nonlinear Homogeneous Systems $\langle \sup \rangle^*$, 2021, ,		0
176	On finite-time stability analysis of homogeneous Persidskii systems using LMIs. , 2021, ,		0