

Jacqueliën M A Scherpen

List of Publications by Year in descending order

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150
papers

2,904
citations

218381

26
h-index

223531

46
g-index

151
all docs

151
docs citations

151
times ranked

1644
citing authors

#	ARTICLE	IF	CITATIONS
1	Balancing for nonlinear systems. <i>Systems and Control Letters</i> , 1993, 21, 143-153.	1.3	318
2	Power shaping: A new paradigm for stabilization of nonlinear RLC circuits. <i>IEEE Transactions on Automatic Control</i> , 2003, 48, 1762-1767.	3.6	124
3	Multidomain modeling of nonlinear networks and systems. <i>IEEE Control Systems</i> , 2009, 29, 28-59.	1.0	104
4	Distributed Averaging Control for Voltage Regulation and Current Sharing in DC Microgrids. , 2019, 3, 174-179.		90
5	Normalized coprime factorizations and balancing for unstable nonlinear systems. <i>International Journal of Control</i> , 1994, 60, 1193-1222.	1.2	81
6	Nonlinear input-normal realizations based on the differential eigenstructure of Hankel operators. <i>IEEE Transactions on Automatic Control</i> , 2005, 50, 2-18.	3.6	80
7	A port-Hamiltonian approach to power network modeling and analysis. <i>European Journal of Control</i> , 2013, 19, 477-485.	1.6	80
8	Tuning of Passivity-Preserving Controllers for Switched-Mode Power Converters. <i>IEEE Transactions on Automatic Control</i> , 2004, 49, 1333-1344.	3.6	78
9	Fully distributed robust synchronization of networked Lurê™e systems with incremental nonlinearities. <i>Automatica</i> , 2014, 50, 2515-2526.	3.0	75
10	Distributed MPC Applied to a Network of Households With Micro-CHP and Heat Storage. <i>IEEE Transactions on Smart Grid</i> , 2014, 5, 2106-2114.	6.2	72
11	Power-based control of physical systems. <i>Automatica</i> , 2010, 46, 127-132.	3.0	65
12	An energy-balancing perspective of interconnection and damping assignment control of nonlinear systems. <i>Automatica</i> , 2004, 40, 1643-1646.	3.0	64
13	Balanced Realization and Model Order Reduction for Nonlinear Systems Based on Singular Value Analysis. <i>SIAM Journal on Control and Optimization</i> , 2010, 48, 4591-4623.	1.1	61
14	Hâž balancing for nonlinear systems. <i>International Journal of Robust and Nonlinear Control</i> , 1996, 6, 645-668.	2.1	52
15	Passivity-Based Control by Series/Parallel Damping of Single-Phase PWM Voltage Source Converter. <i>IEEE Transactions on Control Systems Technology</i> , 2014, 22, 1310-1322.	3.2	49
16	Model Reduction for Nonlinear Systems by Incremental Balanced Truncation. <i>IEEE Transactions on Automatic Control</i> , 2014, 59, 2739-2753.	3.6	48
17	Distributed Control of the Power Supply-Demand Balance. <i>IEEE Transactions on Smart Grid</i> , 2013, 4, 828-836.	6.2	46
18	Minimality and local state decompositions of a nonlinear state space realization using energy functions. <i>IEEE Transactions on Automatic Control</i> , 2000, 45, 2079-2086.	3.6	44

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19	Lagrangian modeling of switching electrical networks. <i>Systems and Control Letters</i> , 2003, 48, 365-374.	1.3	44
20	Adaptive switching gain for a discrete-time sliding mode controller. <i>International Journal of Control</i> , 2002, 75, 242-251.	1.2	40
21	Reduction of Second-Order Network Systems With Structure Preservation. <i>IEEE Transactions on Automatic Control</i> , 2017, 62, 5026-5038.	3.6	38
22	Distributed Supply Coordination for Power-to-Gas Facilities Embedded in Energy Grids. <i>IEEE Transactions on Smart Grid</i> , 2018, 9, 1012-1022.	6.2	32
23	A dual relation between port-Hamiltonian systems and the Brayton-Moser equations for nonlinear switched RLC circuits. <i>Automatica</i> , 2003, 39, 969-979.	3.0	30
24	Discrete exterior geometry approach to structure-preserving discretization of distributed-parameter port-Hamiltonian systems. <i>Journal of Geometry and Physics</i> , 2012, 62, 1509-1531.	0.7	30
25	Robust load frequency control of nonlinear power networks. <i>International Journal of Control</i> , 2020, 93, 346-359.	1.2	29
26	New Results on Stabilization of Port-Hamiltonian Systems via PID Passivity-Based Control. <i>IEEE Transactions on Automatic Control</i> , 2021, 66, 625-636.	3.6	29
27	Structure Preserving Adaptive Control of Port-Hamiltonian Systems. <i>IEEE Transactions on Automatic Control</i> , 2012, 57, 2880-2885.	3.6	26
28	A power-based description of standard mechanical systems. <i>Systems and Control Letters</i> , 2007, 56, 349-356.	1.3	25
29	Robust Passivity-Based Control of Boost Converters in DC Microgrids, 2019, , .		25
30	Differentiation and Passivity for Control of Brayton-Moser Systems. <i>IEEE Transactions on Automatic Control</i> , 2021, 66, 1087-1101.	3.6	25
31	Power-based control: Canonical coordinate transformations, integral and adaptive control. <i>Automatica</i> , 2012, 48, 1045-1056.	3.0	24
32	Distributed Optimal Control of Smart Electricity Grids With Congestion Management. <i>IEEE Transactions on Automation Science and Engineering</i> , 2017, 14, 494-504.	3.4	24
33	Clustering approach to model order reduction of power networks with distributed controllers. <i>Advances in Computational Mathematics</i> , 2018, 44, 1917-1939.	0.8	24
34	On the nonuniqueness of singular value functions and balanced nonlinear realizations. <i>Systems and Control Letters</i> , 2001, 44, 219-232.	1.3	23
35	Hamiltonian realizations of nonlinear adjoint operators. <i>Automatica</i> , 2002, 38, 1769-1775.	3.0	23
36	Power supply-demand balance in a Smart Grid: An information sharing model for a market mechanism. <i>Applied Mathematical Modelling</i> , 2014, 38, 3350-3360.	2.2	22

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37	Formation Control and Velocity Tracking for a Group of Nonholonomic Wheeled Robots. IEEE Transactions on Automatic Control, 2016, 61, 2702-2707.	3.6	22
38	Nonlinear Hilbert adjoints: properties and applications to Hankel singular value analysis. Nonlinear Analysis: Theory, Methods & Applications, 2002, 51, 883-901.	0.6	21
39	Explicit simplicial discretization of distributed-parameter port-Hamiltonian systems. Automatica, 2014, 50, 369-377.	3.0	20
40	Krasovskii and Shifted Passivity-Based Control. IEEE Transactions on Automatic Control, 2021, 66, 4926-4932.	3.6	20
41	Balanced truncation of networked linear passive systems. Automatica, 2019, 104, 17-25.	3.0	19
42	Graph structure-preserving model reduction of linear network systems. , 2016, , .		18
43	Dynamic Feedback Synchronization of Lur'e Networks via Incremental Sector Boundedness. IEEE Transactions on Automatic Control, 2016, 61, 2579-2584.	3.6	18
44	Linear Parameter Varying Control of Doubly Fed Induction Machines. IEEE Transactions on Industrial Electronics, 2016, 63, 216-224.	5.2	18
45	Model Reduction by Differential Balancing Based on Nonlinear Hankel Operators. IEEE Transactions on Automatic Control, 2017, 62, 3293-3308.	3.6	18
46	A Novel Reduced Model for Electrical Networks With Constant Power Loads. IEEE Transactions on Automatic Control, 2018, 63, 1288-1299.	3.6	18
47	A power-based perspective in modeling and control of switched power converters [Past and Present]. IEEE Industrial Electronics Magazine, 2007, 1, 7-54.	2.3	17
48	Singular Value Analysis Of Nonlinear Symmetric Systems. IEEE Transactions on Automatic Control, 2011, 56, 2073-2086.	3.6	16
49	Port-Hamiltonian Modeling of a Nonlinear Timoshenko Beam with Piezo Actuation. SIAM Journal on Control and Optimization, 2014, 52, 493-519.	1.1	16
50	Disturbance rejection in formation keeping control of nonholonomic wheeled robots. International Journal of Robust and Nonlinear Control, 2016, 26, 3344-3362.	2.1	16
51	Dissipativity preserving balancing for nonlinear systems " A Hankel operator approach. Systems and Control Letters, 2010, 59, 180-194.	1.3	15
52	Formation control of a multi-agent system subject to Coulomb friction. Automatica, 2015, 61, 253-262.	3.0	15
53	Model Reduction of Multiagent Systems Using Dissimilarity-Based Clustering. IEEE Transactions on Automatic Control, 2019, 64, 1663-1670.	3.6	15
54	Charging plug-in electric vehicles as a mixed-integer aggregative game. , 2019, , .		15

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55	On Tracking Control of Rigid-Joint Robots With Only Position Measurements. IEEE Transactions on Control Systems Technology, 2013, 21, 1510-1513.	3.2	14
56	Modeling for control of a kinematic wobble-yoke Stirling engine. Renewable Energy, 2015, 75, 808-817.	4.3	14
57	Exponential Stability and Local ISS for DC Networks. , 2021, 5, 893-898.		14
58	Passive Compensation of Nonlinear Robot Dynamics. IEEE Transactions on Automation Science and Engineering, 2004, 20, 480-487.	2.4	12
59	Structure Preserving Spatial Discretization of a 1-D Piezoelectric Timoshenko Beam. Multiscale Modeling and Simulation, 2011, 9, 129-154.	0.6	12
60	Families of moment matching-based reduced order models for linear descriptor systems. , 2016, , .		12
61	Model Order Reduction and Composite Control for a Class of Slow-Fast Systems Around a Non-Hyperbolic Point. , 2017, 1, 68-73.		12
62	Distributed Passivity-Based Control of DC Microgrids. , 2019, , .		12
63	On mechanical mixed potential, content and co-content. , 2003, , .		11
64	Cryogenic mechatronic design of the HIFI Focal Plane Chopper. Mechatronics, 2011, 21, 1259-1271.	2.0	11
65	Stabilization and shape control of a 1D piezoelectric Timoshenko beam. Automatica, 2011, 47, 2780-2785.	3.0	11
66	Cooperative Voltage Control in AC Microgrids. , 2018, , .		11
67	Equal distribution of satellite constellations on circular target orbits. Automatica, 2014, 50, 2641-2647.	3.0	10
68	Robust cooperative output regulation of heterogeneous Lur'e networks. International Journal of Robust and Nonlinear Control, 2017, 27, 3061-3078.	2.1	10
69	Passivity-based control of active and reactive power in single-phase PV inverters. , 2017, , .		10
70	Port-Hamiltonian based Optimal Power Flow algorithm for multi-terminal DC networks. Control Engineering Practice, 2019, 83, 141-150.	3.2	10
71	Data-Driven Model Reduction of Monotone Systems by Nonlinear DC Gains. IEEE Transactions on Automatic Control, 2020, 65, 2094-2106.	3.6	10
72	Energy functions for dissipativity-based balancing of discrete-time nonlinear systems. Mathematics of Control, Signals, and Systems, 2006, 18, 345-368.	1.4	9

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73	Distributed Averaging Control for Voltage Regulation and Current Sharing in DC Microgrids: Modelling and Experimental Validation. IFAC-PapersOnLine, 2018, 51, 242-247.	0.5	9
74	Stabilization of a class of slow-fast control systems at non-hyperbolic points. Automatica, 2019, 99, 13-21.	3.0	9
75	Krasovskii's Passivity. IFAC-PapersOnLine, 2019, 52, 466-471.	0.5	9
76	Output Regulation for Voltage Control in DC Networks With Time-Varying Loads. , 2021, 5, 797-802.		9
77	Adaptive Control for Flow and Volume Regulation in Multi-Producer District Heating Systems. , 2022, 6, 794-799.		9
78	Singular Value Analysis and Balanced Realizations for Nonlinear Systems. Mathematics in Industry, 2008, , 251-272.	0.1	9
79	Output feedback control for linear discrete time-varying systems via the bounded real lemma. International Journal of Control, 1996, 65, 963-993.	1.2	8
80	Hankel singular value functions from Schmidt pairs for nonlinear input-output systems. Systems and Control Letters, 2005, 54, 135-144.	1.3	8
81	A networked reduced model for electrical networks with constant power loads. , 2016, , .		8
82	A price-based approach for voltage regulation and power loss minimization in power distribution networks. , 2016, , .		8
83	Model reduction of a flexible-joint robot: a port-Hamiltonian approach. IFAC-PapersOnLine, 2016, 49, 832-837.	0.5	8
84	Asynchronous Distributed Control of Biogas Supply and Multienergy Demand. IEEE Transactions on Automation Science and Engineering, 2017, 14, 558-572.	3.4	8
85	Absolute stabilization of Lur'e systems via dynamic output feedback. European Journal of Control, 2018, 44, 15-26.	1.6	8
86	Distributed Control of DC Grids: Integrating Prosumers' Motives. IEEE Transactions on Power Systems, 2022, 37, 3299-3310.	4.6	8
87	Output Regulation for Load Frequency Control. IEEE Transactions on Control Systems Technology, 2022, 30, 1130-1144.	3.2	8
88	Nonlinear Cross Gramians. IFIP Advances in Information and Communication Technology, 2009, , 293-306.	0.5	8
89	Robust output regulation for voltage control in DC networks with time-varying loads. Automatica, 2022, 135, 109997.	3.0	8
90	Fault detection method for nonlinear systems based on probabilistic neural network filtering. International Journal of Systems Science, 2002, 33, 1039-1050.	3.7	7

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91	Distributed MPC for Power-to-Gas facilities embedded in the energy grids. , 2015, , .		7
92	Distributed supply—demand balancing and the physics of smart energy systems. European Journal of Control, 2015, 24, 63-71.	1.6	7
93	Introducing network Gramians to undirected network systems for structure-preserving model reduction. , 2016, , .		7
94	Clustering-Based Model Reduction of Laplacian Dynamics With Weakly Connected Topology. IEEE Transactions on Automatic Control, 2020, 65, 4393-4399.	3.6	7
95	Robust synchronization of directed Lur'e networks with incremental nonlinearities. , 2014, , .		6
96	A Port—Hamiltonian Approach to Visual Servo Control of a Pick and Place System. Asian Journal of Control, 2014, 16, 703-713.	1.9	6
97	Empirical Differential Balancing for Nonlinear Systems. IFAC-PapersOnLine, 2017, 50, 6326-6331.	0.5	6
98	Structure Preserving Truncation of Nonlinear Port Hamiltonian Systems. IEEE Transactions on Automatic Control, 2018, 63, 4286-4293.	3.6	6
99	Distributed MPC for controlling μ-CHPs in a network. , 2012, , .		5
100	Hamiltonian perspective on compartmental reaction—diffusion networks. Automatica, 2014, 50, 737-746.	3.0	5
101	Balanced Truncation Approach to Linear Network System Model Order Reduction. IFAC-PapersOnLine, 2017, 50, 2451-2456.	0.5	5
102	A Consensus-Based Controller for DC Power Networks. IFAC-PapersOnLine, 2018, 51, 205-210.	0.5	5
103	Passivity-Based Lag-Compensators With Input Saturation for Mechanical Port-Hamiltonian Systems Without Velocity Measurements. , 2021, 5, 1285-1290.		5
104	Tuning Rules for a Class of Passivity-Based Controllers for Mechanical Systems. , 2021, 5, 1892-1897.		5
105	Nonlinear cross Gramians and gradient systems. , 2007, , .		4
106	Positive and bounded real balancing for nonlinear systems - a controllability and observability function approach. , 2009, , .		4
107	Memristive port-Hamiltonian control: Path-dependent damping injection in control of mechanical systems. European Journal of Control, 2013, 19, 454-460.	1.6	4
108	Position control via force feedback for a class of standard mechanical systems in the port-Hamiltonian framework. , 2013, , .		4

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109	Robust synchronization of Lur'e networks with incremental nonlinearities. , 2013, , .		4
110	On differential balancing: Energy functions and balanced realization. , 2015, , .		4
111	Model reduction of synchronized homogeneous Lur'e networks with incrementally sector-bounded nonlinearities. European Journal of Control, 2019, 50, 11-19.	1.6	4
112	Balanced Model Reduction for Linear Time-Varying Symmetric Systems. IEEE Transactions on Automatic Control, 2019, 64, 3060-3067.	3.6	4
113	Empirical differential Gramians for nonlinear model reduction. Automatica, 2021, 127, 109534.	3.0	4
114	Model Reduction by Generalized Differential Balancing. Lecture Notes in Control and Information Sciences, 2015, , 349-362.	0.6	4
115	Decentralized Temperature and Storage Volume Control in Multiproducer District Heating. , 2023, 7, 413-418.		4
116	Passivity preserving model order reduction for the SMIB. , 2008, , .		3
117	Power factor compensation with lossless linear filters is equivalent to (weighted) power equalization and a new cyclo-dissipativity characterization. , 2009, , .		3
118	A Class of Standard Mechanical System with Force Feedback in the port-Hamiltonian Framework. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 90-95.	0.4	3
119	A cyclodissipativity characterization of power factor compensation of nonlinear loads under nonsinusoidal conditions. International Journal of Circuit Theory and Applications, 2012, 40, 1053-1069.	1.3	3
120	Formation control of nonholonomic wheeled robots in the presence of matched input disturbances. IFAC-PapersOnLine, 2015, 48, 63-68.	0.5	3
121	Passivity-based control of multi-terminal HVDC systems under control saturation constraints. IFAC-PapersOnLine, 2015, 48, 135-140.	0.5	3
122	Optimal Power Flow for resistive DC Networks: a Port-Hamiltonian approach * *D. del Puerto-Flores is supported in part by the internal project PROSNI-2017. A. D�ria-Cerezo is partially supported by the Spanish Ministerio de Educaci3n project DPI2013-41224-P and the Catalan AGAUR project 2014 SGR 267.. IFAC-PapersOnLine, 2017, 50, 25-30.	0.5	3
123	A new controllability Gramian for semistable systems and its application to approximation of directed networks. , 2017, , .		3
124	Structure-based Clustering Algorithm for Model Reduction of Large-scale Network Systems. , 2019, , .		3
125	Demand Flexibility Management for Buildings-to-Grid Integration with Uncertain Generation. Energies, 2020, 13, 6532.	1.6	3
126	The Optimal Control Problem in Smart Energy Grids. Power Systems, 2016, , 95-111.	0.3	3

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127	Finite-Time Output Parameter Estimation for a Class of Nonlinear Systems. , 2022, 6, 3253-3258.		3
128	PD control of a second-order system with hysteretic actuator. , 2013, , .		2
129	An impedance grasping strategy. , 2014, , .		2
130	Sufficient condition for minimal realization of incrementally stable nonlinear systems based on differential energy functions. , 2015, , .		2
131	Cooperative robust output regulation of heterogeneous Lur'e networks. , 2015, , .		2
132	Distributed asynchronous supply coordination for energy producers embedded in the energy grids. , 2015, , .		2
133	Notch Filters for Port-Hamiltonian Systems. IEEE Transactions on Automatic Control, 2015, 60, 2440-2445.	3.6	2
134	Distributed optimal control and congestion management in the universal smart energy framework. , 2016, , .		2
135	Buildings-to-Grid Integration with High Wind Power Penetration. , 2019, , .		2
136	Passivity properties for regulation of DC networks with stochastic load demand. IFAC-PapersOnLine, 2020, 53, 13113-13118.	0.5	2
137	$H < 2$ model reduction for diffusively coupled second-order networks by convex-optimization. Automatica, 2022, 137, 110118.		2
138	Extended Differential Balancing for Nonlinear Dynamical Systems. , 2022, 6, 3170-3175.		2
139	A cyclodissipativity condition for power factor improvement under nonsinusoidal source with significant impedance. , 2010, , .		1
140	Generalized Differential Balancing for Variationally Symmetric Systems. IFAC-PapersOnLine, 2016, 49, 844-849.	0.5	1
141	Position Control via Force Feedback in the Port-Hamiltonian Framework. Lecture Notes in Control and Information Sciences, 2017, , 181-207.	0.6	1
142	Improving the Region of Attraction of a Non-Hyperbolic Point in Slow-Fast Systems With One Fast Direction. , 2018, 2, 296-301.		1
143	Distributed Optimal Load Frequency Control with Stochastic Wind Power Generation. , 2021, , .		1
144	On linear power factor compensation, power equalization and cyclo-dissipativity of nonlinear loads. , 2010, , .		0

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145	Discussion on: "Stabilization of the Experimental Cart-Pendulum System with Proven Domain of Attraction" European Journal of Control, 2010, 16, 341-342.	1.6	0
146	Distributed control of DC microgrids using primal-dual dynamics. , 2019, , .		0
147	The cross operator and the singular value analysis for nonlinear symmetric systems. , 2009, , .		0
148	Balanced Realizations, Model Order Reduction, and the Hankel Operator. The Electrical Engineering Handbook, 2010, , 4-1-4-24.	0.2	0
149	Introduction"Smart Grids: Design, Analysis and Implementation of a New Socio-technical System. Power Systems, 2016, , 1-8.	0.3	0
150	On the Solution of a Bilevel Electricity Market Optimization Problem. , 2020, , .		0