

Florian DÄ¶rfler

List of Publications by Year in descending order

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160
papers

13,734
citations

66234

42
h-index

62479

80
g-index

160
all docs

160
docs citations

160
times ranked

7093
citing authors

#	ARTICLE	IF	CITATIONS
1	Parametric local stability condition of a multi-converter system. IEEE Transactions on Automatic Control, 2024, , 1-1.	3.6	4
2	Bridging Direct and Indirect Data-Driven Control Formulations via Regularizations and Relaxations. IEEE Transactions on Automatic Control, 2023, 68, 883-897.	3.6	65
3	Time-Domain Generalization of Kron Reduction. , 2023, 7, 259-264.		1
4	Dynamic Virtual Power Plant Design for Fast Frequency Reserves: Coordinating Hydro and Wind. IEEE Transactions on Control of Network Systems, 2023, 10, 1266-1278.	2.4	14
5	Distributionally Robust Chance Constrained Data-Enabled Predictive Control. IEEE Transactions on Automatic Control, 2022, 67, 3289-3304.	3.6	68
6	Decentralized Data-Enabled Predictive Control for Power System Oscillation Damping. IEEE Transactions on Control Systems Technology, 2022, 30, 1065-1077.	3.2	34
7	Quantitative Sensitivity Bounds for Nonlinear Programming and Time-Varying Optimization. IEEE Transactions on Automatic Control, 2022, 67, 2829-2842.	3.6	1
8	Control Design of Dynamic Virtual Power Plants: An Adaptive Divide-and-Conquer Approach. IEEE Transactions on Power Systems, 2022, 37, 4040-4053.	4.6	14
9	Posetal Games: Efficiency, Existence, and Refinement of Equilibria in Games With Prioritized Metrics. IEEE Robotics and Automation Letters, 2022, 7, 1292-1299.	3.3	6
10	Data-Driven Continuous-Set Predictive Current Control for Synchronous Motor Drives. IEEE Transactions on Power Electronics, 2022, 37, 6637-6646.	5.4	53
11	Generalized Multivariable Grid-Forming Control Design for Power Converters. IEEE Transactions on Smart Grid, 2022, 13, 2873-2885.	6.2	37
12	Augmentation of Generalized Multivariable Grid-Forming Control for Power Converters with Cascaded Controllers. , 2022, , .		2
13	Timescale Separation in Autonomous Optimization. IEEE Transactions on Automatic Control, 2021, 66, 611-624.	3.6	42
14	Interplay Between Homophily-Based Appraisal Dynamics and Influence-Based Opinion Dynamics: Modeling and Analysis. , 2021, 5, 181-186.		5
15	Corrigendum to:â€œTimescale Separation in Autonomous Optimizationâ€•[Feb 21 611-624]. IEEE Transactions on Automatic Control, 2021, 66, 6197-6198.	3.6	2
16	Projected Dynamical Systems on Irregular, Non-Euclidean Domains for Nonlinear Optimization. SIAM Journal on Control and Optimization, 2021, 59, 635-668.	1.1	11
17	Quadratic Regularization of Data-Enabled Predictive Control: Theory and Application to Power Converter Experiments. IFAC-PapersOnLine, 2021, 54, 192-197.	0.5	13
18	Dataâ€•enabled predictive control for quadcopters. International Journal of Robust and Nonlinear Control, 2021, 31, 8916-8936.	2.1	34

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19	A Lyapunov Framework for Nested Dynamical Systems on Multiple Time Scales With Application to Converter-Based Power Systems. IEEE Transactions on Automatic Control, 2021, 66, 5909-5924.	3.6	21
20	A meritocratic network formation model for the rise of social media influencers. Nature Communications, 2021, 12, 6865.	5.8	6
21	Behavioral systems theory in data-driven analysis, signal processing, and control. Annual Reviews in Control, 2021, 52, 42-64.	4.4	99
22	Sampled-Data Online Feedback Equilibrium Seeking: Stability and Tracking. , 2021, , .		10
23	Bayesian Methods for the Identification of Distribution Networks. , 2021, , .		7
24	The Electronic Realization of Synchronous Machines: Model Matching, Angle Tracking, and Energy Shaping Techniques. IEEE Transactions on Power Electronics, 2020, 35, 4398-4410.	5.4	46
25	Optimal Multivariable MMC Energy-Based Control for DC Voltage Regulation in HVDC Applications. IEEE Transactions on Power Delivery, 2020, 35, 999-1009.	2.9	24
26	Input-Output Performance of Linear Quadratic Saddle-Point Algorithms With Application to Distributed Resource Allocation Problems. IEEE Transactions on Automatic Control, 2020, 65, 2032-2045.	3.6	9
27	On the Secondary Control Architectures of AC Microgrids: An Overview. IEEE Transactions on Power Electronics, 2020, 35, 6482-6500.	5.4	218
28	Experimental validation of feedback optimization in power distribution grids. Electric Power Systems Research, 2020, 189, 106782.	2.1	26
29	Closing the loop: Dynamic state estimation and feedback optimization of power grids. Electric Power Systems Research, 2020, 189, 106753.	2.1	14
30	On the Robust Implementation of Projected Dynamical Systems with Anti-Windup Controllers. , 2020, , .		6
31	A Market Mechanism for Virtual Inertia. IEEE Transactions on Smart Grid, 2020, 11, 3570-3579.	6.2	22
32	On the Differentiability of Projected Trajectories and the Robust Convergence of Non-Convex Anti-Windup Gradient Flows. , 2020, 4, 620-625.		9
33	An Extended Kalman Filter for Data-Enabled Predictive Control. , 2020, 4, 994-999.		17
34	Non-Convex Feedback Optimization with Input and Output Constraints. , 2020, , 1-1.		9
35	Frequency Stability of Synchronous Machines and Grid-Forming Power Converters. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2020, 8, 1004-1018.	3.7	187
36	Control of Grid-Connected Converters: Design, Objectives and Decentralized Stability Certificates. IEEE Transactions on Smart Grid, 2020, 11, 3805-3816.	6.2	68

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37	Data-driven predictive current control for synchronous motor drives. , 2020, , .		18
38	Almost Globally Stable Grid-Forming Hybrid Angle Control. , 2020, , .		9
39	Distributed Control and Optimization for Autonomous Power Grids. , 2019, , .		30
40	Local Synchronization of Two DC/AC Converters Via Matching Control. , 2019, , .		3
41	Dispatchable Virtual Oscillator Control for Decentralized Inverter-dominated Power Systems: Analysis and Experiments. , 2019, , .		80
42	A stability theorem for networks containing synchronous generators. Systems and Control Letters, 2019, 134, 104561.	1.3	17
43	Data-Enabled Predictive Control: In the Shallows of the DeePC. , 2019, , .		261
44	The Effect of Transmission-Line Dynamics on Grid-Forming Dispatchable Virtual Oscillator Control. IEEE Transactions on Control of Network Systems, 2019, 6, 1148-1160.	2.4	75
45	Optimal Design of Distributed Controllers for Large-Scale Cyber-Physical Systems. , 2019, , 181-210.		1
46	The Kuramoto Model on Oriented and Signed Graphs. SIAM Journal on Applied Dynamical Systems, 2019, 18, 458-480.	0.7	14
47	Global Phase and Magnitude Synchronization of Coupled Oscillators With Application to the Control of Grid-Forming Power Inverters. IEEE Transactions on Automatic Control, 2019, 64, 4496-4511.	3.6	104
48	Incentive Design in Peer Review: Rating and Repeated Endogenous Matching. IEEE Transactions on Network Science and Engineering, 2019, 6, 898-908.	4.1	1
49	Two stability theorems concerning power networks. , 2019, , .		0
50	Regularized and Distributionally Robust Data-Enabled Predictive Control. , 2019, , .		58
51	Data-Enabled Predictive Control for Grid-Connected Power Converters. , 2019, , .		44
52	Quadratic Performance Analysis of Secondary Frequency Controllers. , 2019, , .		2
53	Sieving out Unnecessary Constraints in Scenario Optimization with an Application to Power Systems. , 2019, , .		6
54	Projected grid-forming control for current-limiting of power converters. , 2019, , .		11

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55	Game theoretical inference of human behavior in social networks. Nature Communications, 2019, 10, 5507.	5.8	12
56	Robust Decentralized Secondary Frequency Control in Power Systems: Merits and Tradeoffs. IEEE Transactions on Automatic Control, 2019, 64, 3967-3982.	3.6	55
57	Placement and Implementation of Grid-Forming and Grid-Following Virtual Inertia and Fast Frequency Response. IEEE Transactions on Power Systems, 2019, 34, 3035-3046.	4.6	196
58	On the steady-state behavior of a nonlinear power system model. Automatica, 2018, 90, 248-254.	3.0	17
59	A power consensus algorithm for DC microgrids. Automatica, 2018, 89, 364-375.	3.0	77
60	Electrical Networks and Algebraic Graph Theory: Models, Properties, and Applications. Proceedings of the IEEE, 2018, 106, 977-1005.	16.4	134
61	Synchronization of Li�nard-type oscillators in heterogenous electrical networks. , 2018, , .		4
62	Online Distributed Voltage Stress Minimization by Optimal Feedback Reactive Power Control. IEEE Transactions on Control of Network Systems, 2018, 5, 1467-1478.	2.4	24
63	Stability of Dynamic Feedback optimization with Applications to Power Systems. , 2018, , .		25
64	Stabilizing Phase-balanced or Phase-synchronized Trajectories of Van der Pol Oscillators in Uniform Electrical Networks. , 2018, , .		5
65	Time-varying Projected Dynamical Systems with Applications to Feedback Optimization of Power Systems. , 2018, , .		21
66	Risk of Phase Incoherence in Noisy Power Networks With Delayed Feedback Control. IFAC-PapersOnLine, 2018, 51, 142-147.	0.5	4
67	Wide-Area Control of Power Networks with Time-Delay. IFAC-PapersOnLine, 2018, 51, 277-282.	0.5	0
68	Robust decentralized frequency control: A leaky integrator approach. , 2018, , .		2
69	The effect of transmission-line dynamics on a globally synchronizing controller for power inverters. , 2018, , .		4
70	Foundations and Challenges of Low-Inertia Systems (Invited Paper). , 2018, , .		392
71	Generic Existence of Unique Lagrange Multipliers in AC Optimal Power Flow. , 2018, 2, 791-796.		15
72	Hierarchical and Distributed Monitoring of Voltage Stability in Distribution Networks. IEEE Transactions on Power Systems, 2018, 33, 6705-6714.	4.6	17

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73	Distributed Robust Population Games with Applications to Optimal Frequency Control in Power Systems. , 2018, , .		5
74	Grid-forming control for power converters based on matching of synchronous machines. Automatica, 2018, 95, 273-282.	3.0	125
75	Virtual Inertia Placement in Electric Power Grids. The IMA Volumes in Mathematics and Its Applications, 2018, , 281-305.	0.5	5
76	Uncovering Droop Control Laws Embedded Within the Nonlinear Dynamics of Van der Pol Oscillators. IEEE Transactions on Control of Network Systems, 2017, 4, 347-358.	2.4	114
77	Voltage Stabilization in Microgrids via Quadratic Droop Control. IEEE Transactions on Automatic Control, 2017, 62, 1239-1253.	3.6	142
78	Gather-and-broadcast frequency control in power systems. Automatica, 2017, 79, 296-305.	3.0	78
79	Optimal Placement of Virtual Inertia in Power Grids. IEEE Transactions on Automatic Control, 2017, 62, 6209-6220.	3.6	178
80	Robustness of distributed averaging control in power systems: Time delays & dynamic communication topology. Automatica, 2017, 80, 261-271.	3.0	74
81	A distributed voltage stability margin for power distribution networks. IFAC-PapersOnLine, 2017, 50, 13240-13245.	0.5	11
82	Optimal network design for synchronization of coupled oscillators. Automatica, 2017, 84, 181-189.	3.0	23
83	A Survey of Distributed Optimization and Control Algorithms for Electric Power Systems. IEEE Transactions on Smart Grid, 2017, 8, 2941-2962.	6.2	786
84	Guest Editorial Distributed Control and Efficient Optimization Methods for Smart Grid. IEEE Transactions on Smart Grid, 2017, 8, 2939-2940.	6.2	7
85	Control of low-inertia power grids: A model reduction approach. , 2017, , .		31
86	A power consensus algorithm for DC microgrids * *The work of Claudio De Persis is partially supported by NWO within the program "Uncertainty Reduction in Smart Energy Systems (URSES)" under the auspices of the project ENBARK, by the DST-NWO Indo-Dutch Cooperation on "Smart Grids" under the auspices of the project "Energy management strategies for interconnected smart microgrids" and by the STW Perspectief program "Robust Design of Cyber-physical Systems" under the auspices of the project "Energy Autonomous. IFAC-PapersOnLine, 2017, 50, 10009-10014.	0.5	1
87	On the steady-state behavior of low-inertia power systems 1 1This research is supported by the ETH Seed Project SP-ESC 2015-07(4) and SNF Assistant Professor Energy Grant #160573.. IFAC-PapersOnLine, 2017, 50, 10735-10741.	0.5	11
88	Decentralized Optimal Projected Control of PV Inverters in Residential Microgrids * *This research was supported by ABB Corporate Research, Switzerland and ETH ZÄ¼rich. IFAC-PapersOnLine, 2017, 50, 6624-6629.	0.5	6
89	A Decentralized Switched System Approach to Overvoltage Prevention in PV Residential Microgrids * *This research was supported by ABB Corporate Research, Switzerland and ETH Zurich. IFAC-PapersOnLine, 2017, 50, 6630-6635.	0.5	2
90	Global phase and voltage synchronization for power inverters: A decentralized consensus-inspired approach. , 2017, , .		24

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91	Phase balancing in globally connected networks of LiÄ©nard oscillators. , 2017, , .		5
92	Online optimization in closed loop on the power flow manifold. , 2017, , .		43
93	A Fast Method for Real-Time Chance-Constrained Decision With Application to Power Systems. , 2017, 1, 152-157.		11
94	Topology identification and design of distributed integral action in power networks. , 2016, , .		9
95	A separation principle for optimal IaaS cloud computing distribution. , 2016, , .		1
96	Projected gradient descent on Riemannian manifolds with applications to online power system optimization. , 2016, , .		63
97	On the steady-state behavior of a nonlinear power network model**This research is supported by ETH funds and the SNF Assistant Professor Energy Grant #160573.. IFAC-PapersOnLine, 2016, 49, 61-66.	0.5	3
98	Grid-Friendly Matching of Synchronous Machines by Tapping into the DC Storage**This research is supported by ETH funds and the SNF Assistant Professor Energy Grant #160573.. IFAC-PapersOnLine, 2016, 49, 192-197.	0.5	34
99	A Lyapunov approach to control of microgrids with a network-preserved differential-algebraic model. , 2016, , .		28
100	On stability of a distributed averaging PI frequency and active power controlled differential-algebraic power system model. , 2016, , .		35
101	Linear implicit AC PF cascading failure analysis with power system operations and automation. , 2016, , .		3
102	Placing Rotational Inertia in Power Grids. , 2016, , .		12
103	Voltage collapse in complex power grids. Nature Communications, 2016, 7, 10790.	5.8	130
104	Synchronization of LiÄ©nard-type oscillators in uniform electrical networks. , 2016, , .		14
105	Fast scenario-based decision making in unbalanced distribution networks. , 2016, , .		8
106	Amidst centralized and distributed frequency control in power systems. , 2016, , .		11
107	Synthesizing Virtual Oscillators to Control Islanded Inverters. IEEE Transactions on Power Electronics, 2016, 31, 6002-6015.	5.4	185
108	Breaking the Hierarchy: Distributed Control and Economic Optimality in Microgrids. IEEE Transactions on Control of Network Systems, 2016, 3, 241-253.	2.4	344

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109	Input-Output Analysis and Decentralized Optimal Control of Inter-Area Oscillations in Power Systems. IEEE Transactions on Power Systems, 2016, 31, 2434-2444.	4.6	90
110	Quadratic performance of primal-dual methods with application to secondary frequency control of power systems. , 2016, , .		12
111	A solvability condition for reactive power flow. , 2015, , .		5
112	Fast power system analysis via implicit linearization of the power flow manifold. , 2015, , .		111
113	Secondary Frequency and Voltage Control of Islanded Microgrids via Distributed Averaging. IEEE Transactions on Industrial Electronics, 2015, 62, 7025-7038.	5.2	760
114	Virtual Oscillator Control subsumes droop control. , 2015, , .		29
115	A divide-and-conquer approach to distributed attack identification. , 2015, , .		26
116	Distributed frequency control for stability and economic dispatch in power networks. , 2015, , .		87
117	Optimal voltage support and Stress Minimization in power networks. , 2015, , .		1
118	Decentralized optimal control of inter-area oscillations in bulk power systems. , 2015, , .		7
119	Topology design for optimal network coherence. , 2015, , .		50
120	Control-Theoretic Methods for Cyberphysical Security: Geometric Principles for Optimal Cross-Layer Resilient Control Systems. IEEE Control Systems, 2015, 35, 110-127.	1.0	286
121	Algebraic geometrization of the Kuramoto model: Equilibria and stability analysis. Chaos, 2015, 25, 053103.	1.0	45
122	Distributed control and optimization in DC microgrids. Automatica, 2015, 61, 18-26.	3.0	172
123	Distributed control, load sharing, and dispatch in DC microgrids. , 2015, , .		14
124	On Resistive Networks of Constant-Power Devices. IEEE Transactions on Circuits and Systems II: Express Briefs, 2015, 62, 811-815.	2.2	62
125	Nonlinear supersets to droop control. , 2015, , .		22
126	Plug-and-play control and optimization in microgrids. , 2014, , .		27

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127	Rating and matching in peer review systems. , 2014, , .		2
128	Synchronization of nonlinear circuits in dynamic electrical networks. , 2014, , .		0
129	On reactive power flow and voltage stability in microgrids. , 2014, , .		20
130	Synchronization in complex networks of phase oscillators: A survey. Automatica, 2014, 50, 1539-1564.	3.0	815
131	Synchronization of Nonlinear Circuits in Dynamic Electrical Networks With General Topologies. IEEE Transactions on Circuits and Systems I: Regular Papers, 2014, 61, 2677-2690.	3.5	53
132	Sparsity-Promoting Optimal Wide-Area Control of Power Networks. IEEE Transactions on Power Systems, 2014, 29, 2281-2291.	4.6	179
133	Synchronization and power sharing for droop-controlled inverters in islanded microgrids. Automatica, 2013, 49, 2603-2611.	3.0	706
134	Attack Detection and Identification in Cyber-Physical Systems. IEEE Transactions on Automatic Control, 2013, 58, 2715-2729.	3.6	1,579
135	Novel insights into lossless AC and DC power flow. , 2013, , .		34
136	Continuous-Time Distributed Observers With Discrete Communication. IEEE Journal on Selected Topics in Signal Processing, 2013, 7, 296-304.	7.3	41
137	Synchronization in complex oscillator networks and smart grids. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 2005-2010.	3.3	694
138	Kron Reduction of Graphs With Applications to Electrical Networks. IEEE Transactions on Circuits and Systems I: Regular Papers, 2013, 60, 150-163.	3.5	533
139	Stability, power sharing, & distributed secondary control in droop-controlled microgrids. , 2013, , .		47
140	Voltage stabilization in microgrids via quadratic droop control. , 2013, , .		40
141	Sparse and optimal wide-area damping control in power networks. , 2013, , .		27
142	Further results on distributed secondary control in microgrids. , 2013, , .		28
143	Novel results on slow coherency in consensus and power networks. , 2013, , .		36
144	Cyber-physical security via geometric control: Distributed monitoring and malicious attacks. , 2012, , .		50

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145	Synchronization assessment in power networks and coupled oscillators. , 2012, , .		9
146	Droop-Controlled Inverters are Kuramoto Oscillators*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 264-269.	0.4	49
147	Synchronization and Transient Stability in Power Networks and Nonuniform Kuramoto Oscillators. SIAM Journal on Control and Optimization, 2012, 50, 1616-1642.	1.1	482
148	Exploring synchronization in complex oscillator networks. , 2012, , .		48
149	On the Critical Coupling for Kuramoto Oscillators. SIAM Journal on Applied Dynamical Systems, 2011, 10, 1070-1099.	0.7	255
150	Topological equivalence of a structure-preserving power network model and a non-uniform Kuramoto model of coupled oscillators. , 2011, , .		25
151	Cyber-physical attacks in power networks: Models, fundamental limitations and monitor design. , 2011, , .		193
152	Distributed detection of cyber-physical attacks in power networks: A waveform relaxation approach. , 2011, , .		17
153	On the critical coupling strength for Kuramoto oscillators. , 2011, , .		7
154	Synchronization of Power Networks: Network Reduction and Effective Resistance. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 197-202.	0.4	24
155	Spectral Analysis of Synchronization in a Lossless Structure-Preserving Power Network Model. , 2010, , .		23
156	Synchronization and transient stability in power networks and non-uniform Kuramoto oscillators. , 2010, , .		92
157	Geometric Analysis of the Formation Problem for Autonomous Robots. IEEE Transactions on Automatic Control, 2010, 55, 2379-2384.	3.6	180
158	Formation control of autonomous robots based on cooperative behavior. , 2009, , .		46
159	An introduction to interconnection and damping assignment passivity-based control in process engineering. Journal of Process Control, 2009, 19, 1413-1426.	1.7	86
160	L<inf>2</inf>-gain of Port-Hamiltonian systems and application to a biochemical fermenter model. , 2008, , .		4