Florian DÃ¶rfler

List of Publications by Year
in descending order

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160	13,734	66234	62479
papers	citations	42 h-index	80 g-index

160	160	160	7093
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Attack Detection and Identification in Cyber-Physical Systems. IEEE Transactions on Automatic Control, 2013, 58, 2715-2729.	3.6	1,579
2	Synchronization in complex networks of phase oscillators: A survey. Automatica, 2014, 50, 1539-1564.	3.0	815
3	A Survey of Distributed Optimization and Control Algorithms for Electric Power Systems. IEEE Transactions on Smart Grid, 2017, 8, 2941-2962.	6.2	786
4	Secondary Frequency and Voltage Control of Islanded Microgrids via Distributed Averaging. IEEE Transactions on Industrial Electronics, 2015, 62, 7025-7038.	5.2	760
5	Synchronization and power sharing for droop-controlled inverters in islanded microgrids. Automatica, 2013, 49, 2603-2611.	3.0	706
6	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
7	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
8	Synchronization and Transient Stability in Power Networks and Nonuniform Kuramoto Oscillators. SIAM Journal on Control and Optimization, 2012, 50, 1616-1642.	1.1	482
9	Foundations and Challenges of Low-Inertia Systems (Invited Paper). , 2018, , .		392
10	Breaking the Hierarchy: Distributed Control and Economic Optimality in Microgrids. IEEE Transactions on Control of Network Systems, 2016, 3, 241-253.	2.4	344
11	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
12	Data-Enabled Predictive Control: In the Shallows of the DeePC. , 2019, , .		261
13	On the Critical Coupling for Kuramoto Oscillators. SIAM Journal on Applied Dynamical Systems, 2011, 10, 1070-1099.	0.7	255
14	On the Secondary Control Architectures of AC Microgrids: An Overview. IEEE Transactions on Power Electronics, 2020, 35, 6482-6500.	5.4	218
15	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
16	Cyber-physical attacks in power networks: Models, fundamental limitations and monitor design. , 2011, , .		193
17	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
18	Synthesizing Virtual Oscillators to Control Islanded Inverters. IEEE Transactions on Power Electronics, 2016, 31, 6002-6015.	5.4	185

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19	Geometric Analysis of the Formation Problem for Autonomous Robots. IEEE Transactions on Automatic Control, 2010, 55, 2379-2384.	3.6	180
20	Sparsity-Promoting Optimal Wide-Area Control of Power Networks. IEEE Transactions on Power Systems, 2014, 29, 2281-2291.	4.6	179
21	Optimal Placement of Virtual Inertia in Power Grids. IEEE Transactions on Automatic Control, 2017, 62, 6209-6220.	3.6	178
22	Distributed control and optimization in DC microgrids. Automatica, 2015, 61, 18-26.	3.0	172
23	Voltage Stabilization in Microgrids via Quadratic Droop Control. IEEE Transactions on Automatic Control, 2017, 62, 1239-1253.	3.6	142
24	Electrical Networks and Algebraic Graph Theory: Models, Properties, and Applications. Proceedings of the IEEE, 2018, 106, 977-1005.	16.4	134
25	Voltage collapse in complex power grids. Nature Communications, 2016, 7, 10790.	5.8	130
26	Grid-forming control for power converters based on matching of synchronous machines. Automatica, 2018, 95, 273-282.	3.0	125
27	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
28	Fast power system analysis via implicit linearization of the power flow manifold. , 2015, , .		111
29	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
30	Behavioral systems theory in data-driven analysis, signal processing, and control. Annual Reviews in Control, 2021, 52, 42-64.	4.4	99
31	Synchronization and transient stability in power networks and non-uniform Kuramoto oscillators. , 2010, , .		92
32	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
33	Distributed frequency control for stability and economic dispatch in power networks. , 2015, , .		87
34	An introduction to interconnection and damping assignment passivity-based control in process engineering. Journal of Process Control, 2009, 19, 1413-1426.	1.7	86
35	Dispatchable Virtual Oscillator Control for Decentralized Inverter-dominated Power Systems: Analysis and Experiments. , 2019, , .		80
36	Gather-and-broadcast frequency control in power systems. Automatica, 2017, 79, 296-305.	3.0	78

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37	A power consensus algorithm for DC microgrids. Automatica, 2018, 89, 364-375.	3.0	77
38	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
39	Robustness of distributed averaging control in power systems: Time delays & dynamic communication topology. Automatica, 2017, 80, 261-271.	3.0	74
40	H _{â^ž}-Control of Grid-Connected Converters: Design, Objectives and Decentralized Stability Certificates. IEEE Transactions on Smart Grid, 2020, 11, 3805-3816.	6.2	68
41	Distributionally Robust Chance Constrained Data-Enabled Predictive Control. IEEE Transactions on Automatic Control, 2022, 67, 3289-3304.	3.6	68
42	Bridging Direct and Indirect Data-Driven Control Formulations via Regularizations and Relaxations. IEEE Transactions on Automatic Control, 2023, 68, 883-897.	3.6	65
43	Projected gradient descent on Riemannian manifolds with applications to online power system optimization. , 2016, , .		63
44	On Resistive Networks of Constant-Power Devices. IEEE Transactions on Circuits and Systems II: Express Briefs, 2015, 62, 811-815.	2.2	62
45	Regularized and Distributionally Robust Data-Enabled Predictive Control. , 2019, , .		58
46	Robust Decentralized Secondary Frequency Control in Power Systems: Merits and Tradeoffs. IEEE Transactions on Automatic Control, 2019, 64, 3967-3982.	3.6	55
47	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
48	Data-Driven Continuous-Set Predictive Current Control for Synchronous Motor Drives. IEEE Transactions on Power Electronics, 2022, 37, 6637-6646.	5.4	53
49	Cyber-physical security via geometric control: Distributed monitoring and malicious attacks. , 2012, , .		50
50	Topology design for optimal network coherence. , 2015, , .		50
51	Droop-Controlled Inverters are Kuramoto Oscillators*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 264-269.	0.4	49
52	Exploring synchronization in complex oscillator networks. , 2012, , .		48
53	Stability, power sharing, & distributed secondary control in droop-controlled microgrids. , 2013, , .		47
54	Formation control of autonomous robots based on cooperative behavior. , 2009, , .		46

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55	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
56	Algebraic geometrization of the Kuramoto model: Equilibria and stability analysis. Chaos, 2015, 25, 053103.	1.0	45
57	Data-Enabled Predictive Control for Grid-Connected Power Converters. , 2019, , .		44
58	Online optimization in closed loop on the power flow manifold. , 2017, , .		43
59	Timescale Separation in Autonomous Optimization. IEEE Transactions on Automatic Control, 2021, 66, 611-624.	3.6	42
60	Continuous-Time Distributed Observers With Discrete Communication. IEEE Journal on Selected Topics in Signal Processing, 2013, 7, 296-304.	7.3	41
61	Voltage stabilization in microgrids via quadratic droop control. , 2013, , .		40
62	Generalized Multivariable Grid-Forming Control Design for Power Converters. IEEE Transactions on Smart Grid, 2022, 13, 2873-2885.	6.2	37
63	Novel results on slow coherency in consensus and power networks. , 2013, , .		36
64	On stability of a distributed averaging PI frequency and active power controlled differential-algebraic power system model. , 2016, , .		35
65	Novel insights into lossless AC and DC power flow. , 2013, , .		34
66	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
67	Decentralized Data-Enabled Predictive Control for Power System Oscillation Damping. IEEE Transactions on Control Systems Technology, 2022, 30, 1065-1077.	3.2	34
68	Dataâ€enabled predictive control for quadcopters. International Journal of Robust and Nonlinear Control, 2021, 31, 8916-8936.	2.1	34
69	Control of low-inertia power grids: A model reduction approach. , 2017, , .		31
70	Distributed Control and Optimization for Autonomous Power Grids. , 2019, , .		30
71	Virtual Oscillator Control subsumes droop control. , 2015, , .		29
72	Further results on distributed secondary control in microgrids. , 2013, , .		28

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73	A Lyapunov approach to control of microgrids with a network-preserved differential-algebraic model. , 2016, , .		28
74	Sparse and optimal wide-area damping control in power networks. , 2013, , .		27
75	Plug-and-play control and optimization in microgrids. , 2014, , .		27
76	A divide-and-conquer approach to distributed attack identification. , 2015, , .		26
77	Experimental validation of feedback optimization in power distribution grids. Electric Power Systems Research, 2020, 189, 106782.	2.1	26
78	Topological equivalence of a structure-preserving power network model and a non-uniform Kuramoto model of coupled oscillators. , 2011, , .		25
79	Stability of Dynamic Feedback optimization with Applications to Power Systems. , 2018, , .		25
80	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
81	Global phase and voltage synchronization for power inverters: A decentralized consensus-inspired approach. , 2017, , .		24
82	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
83	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
84	Spectral Analysis of Synchronization in a Lossless Structure-Preserving Power Network Model. , 2010, , .		23
85	Optimal network design for synchronization of coupled oscillators. Automatica, 2017, 84, 181-189.	3.0	23
86	Nonlinear supersets to droop control. , 2015, , .		22
87	A Market Mechanism for Virtual Inertia. IEEE Transactions on Smart Grid, 2020, 11, 3570-3579.	6.2	22
88	Time-varying Projected Dynamical Systems with Applications to Feedback Optimization of Power Systems. , 2018, , .		21
89	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
90	On reactive power flow and voltage stability in microgrids. , 2014, , .		20

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91	Data-driven predictive current control for synchronous motor drives. , 2020, , .		18
92	Distributed detection of cyber-physical attacks in power networks: A waveform relaxation approach. , 2011, , .		17
93	On the steady-state behavior of a nonlinear power system model. Automatica, 2018, 90, 248-254.	3.0	17
94	Hierarchical and Distributed Monitoring of Voltage Stability in Distribution Networks. IEEE Transactions on Power Systems, 2018, 33, 6705-6714.	4.6	17
95	A stability theorem for networks containing synchronous generators. Systems and Control Letters, 2019, 134, 104561.	1.3	17
96	An Extended Kalman Filter for Data-Enabled Predictive Control. , 2020, 4, 994-999.		17
97	Generic Existence of Unique Lagrange Multipliers in AC Optimal Power Flow. , 2018, 2, 791-796.		15
98	Distributed control, load sharing, and dispatch in DC microgrids. , 2015, , .		14
99	Synchronization of LiÃ©nard-type oscillators in uniform electrical networks. , 2016, , .		14
100	The Kuramoto Model on Oriented and Signed Graphs. SIAM Journal on Applied Dynamical Systems, 2019, 18, 458-480.	0.7	14
101	Closing the loop: Dynamic state estimation and feedback optimization of power grids. Electric Power Systems Research, 2020, 189, 106753.	2.1	14
102	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
103	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
104	Quadratic Regularization of Data-Enabled Predictive Control: Theory and Application to Power Converter Experiments. IFAC-PapersOnLine, 2021, 54, 192-197.	0.5	13
105	Placing Rotational Inertia in Power Grids. , 2016, , .		12
106	Game theoretical inference of human behavior in social networks. Nature Communications, 2019, 10, 5507.	5.8	12
107	Quadratic performance of primal-dual methods with application to secondary frequency control of power systems. , 2016, , .		12
108	Amidst centralized and distributed frequency control in power systems. , 2016, , .		11

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109	A distributed voltage stability margin for power distribution networks. IFAC-PapersOnLine, 2017, 50, 13240-13245.	0.5	11
110	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
111	Projected grid-forming control for current-limiting of power converters. , 2019, , .		11
112	Projected Dynamical Systems on Irregular, Non-Euclidean Domains for Nonlinear Optimization. SIAM Journal on Control and Optimization, 2021, 59, 635-668.	1.1	11
113	A Fast Method for Real-Time Chance-Constrained Decision With Application to Power Systems. , 2017, 1, 152-157.		11
114	Sampled-Data Online Feedback Equilibrium Seeking: Stability and Tracking. , 2021, , .		10
115	Synchronization assessment in power networks and coupled oscillators. , 2012, , .		9
116	Topology identification and design of distributed integral action in power networks. , 2016, , .		9
117	Inputâ€“Output Performance of Linearâ€“Quadratic Saddle-Point Algorithms With Application to Distributed Resource Allocation Problems. IEEE Transactions on Automatic Control, 2020, 65, 2032-2045.	3.6	9
118	On the Differentiability of Projected Trajectories and the Robust Convergence of Non-Convex Anti-Windup Gradient Flows. , 2020, 4, 620-625.		9
119	Non-Convex Feedback Optimization with Input and Output Constraints. , 2020, , 1-1.		9
120	Almost Globally Stable Grid-Forming Hybrid Angle Control. , 2020, , .		9
121	Fast scenario-based decision making in unbalanced distribution networks. , 2016, , .		8
122	On the critical coupling strength for Kuramoto oscillators. , 2011, , .		7
123	Decentralized optimal control of inter-area oscillations in bulk power systems. , 2015, , .		7
124	Guest Editorial Distributed Control and Efficient Optimization Methods for Smart Grid. IEEE Transactions on Smart Grid, 2017, 8, 2939-2940.	6.2	7
125	Bayesian Methods for the Identification of Distribution Networks. , 2021, , .		7
126	Decentralized Optimal Projected Control of PV Inverters in Residential Microgrids * *This research was supported by ABB Corporate Research, Switzerland and ETH ZÃ¼rich. IFAC-PapersOnLine, 2017, 50, 6624-6629.	0.5	6

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127	Sieving out Unnecessary Constraints in Scenario Optimization with an Application to Power Systems. , 2019, , .		6
128	On the Robust Implementation of Projected Dynamical Systems with Anti-Windup Controllers. , 2020, , .		6
129	A meritocratic network formation model for the rise of social media influencers. Nature Communications, 2021, 12, 6865.	5.8	6
130	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
131	A solvability condition for reactive power flow. , 2015, , .		5
132	Phase balancing in globally connected networks of LiÃ©nard oscillators. , 2017, , .		5
133	Stabilizing Phase-balanced or Phase-synchronized Trajectories of Van der Pol Oscillators in Uniform Electrical Networks. , 2018, , .		5
134	Distributed Robust Population Games with Applications to Optimal Frequency Control in Power Systems. , 2018, , .		5
135	Virtual Inertia Placement in Electric Power Grids. The IMA Volumes in Mathematics and Its Applications, 2018, , 281-305.	0.5	5
136	Interplay Between Homophily-Based Appraisal Dynamics and Influence-Based Opinion Dynamics: Modeling and Analysis. , 2021, 5, 181-186.		5
137	L<inf>2</inf>-gain of Port-Hamiltonian systems and application to a biochemical fermenter model. , 2008, , .		4
138	Synchronization of LiÃ©nard-type oscillators in heterogenous electrical networks. , 2018, , .		4
139	Risk of Phase Incoherence in Noisy Power Networks With Delayed Feedback Control. IFAC-PapersOnLine, 2018, 51, 142-147.	0.5	4
140	The effect of transmission-line dynamics on a globally synchronizing controller for power inverters. , 2018, , .		4
141	Parametric local stability condition of a multi-converter system. IEEE Transactions on Automatic Control, 2024, , 1-1.	3.6	4
142	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
143	Linear implicit AC PF cascading failure analysis with power system operations and automation. , 2016, , .		3
144	Local Synchronization of Two DC/AC Converters Via Matching Control. , 2019, , .		3

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145	Rating and matching in peer review systems. , 2014, , .		2
146	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
147	Robust decentralized frequency control: A leaky integrator approach. , 2018, , .		2
148	Quadratic Performance Analysis of Secondary Frequency Controllers. , 2019, , .		2
149	Corrigendum to:â€œTimescale Separation in Autonomous Optimizationâ€•[Feb 21 611-624]. IEEE Transactions on Automatic Control, 2021, 66, 6197-6198.	3.6	2
150	Augmentation of Generalized Multivariable Grid-Forming Control for Power Converters with Cascaded Controllers. , 2022, , .		2
151	Optimal voltage support and Stress Minimization in power networks. , 2015, , .		1
152	A separation principle for optimal IaaS cloud computing distribution. , 2016, , .		1
153	A power consensus algorithm for DC microgrids. * *The work of Claudio De Persis is partially supported by NWO within the program â€œUncertainty Reduction in Smart Energy Systems (URSES)â€• under the auspices of the project ENBARK, by the DST-NWO Indo-Dutch Cooperation on â€œSmart Gridsâ€• under the auspices of the project â€œEnergy management strategies for interconnected smart microgridsâ€•and by the STW Perspectief program â€œRobust Design of Cyber-physical Systemsâ€•under the auspices of the project â€œEnergy Autonomous. IFAC-PapersOnLine, 2017, 50, 10009-10014.	0.5	1
154	Optimal Design of Distributed Controllers for Large-Scale Cyber-Physical Systems. , 2019, , 181-210.		1
155	Incentive Design in Peer Review: Rating and Repeated Endogenous Matching. IEEE Transactions on Network Science and Engineering, 2019, 6, 898-908.	4.1	1
156	Quantitative Sensitivity Bounds for Nonlinear Programming and Time-Varying Optimization. IEEE Transactions on Automatic Control, 2022, 67, 2829-2842.	3.6	1
157	Time-Domain Generalization of Kron Reduction. , 2023, 7, 259-264.		1
158	Synchronization of nonlinear circuits in dynamic electrical networks. , 2014, , .		0
159	Wide-Area Control of Power Networks with Time-Delay. IFAC-PapersOnLine, 2018, 51, 277-282.	0.5	0
160	Two stability theorems concerning power networks. , 2019, , .		0