

Robert S Balog

List of Publications by Year in descending order

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140
papers

4,615
citations

186209

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289141

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140
docs citations

140
times ranked

3534
citing authors

#	ARTICLE	IF	CITATIONS
1	Analysis of the Capacitor-Less D-STATCOM for Voltage Profile Improvement in Distribution Network With High PV Penetration. IEEE Open Journal of Power Electronics, 2022, 3, 255-270.	4.0	5
2	Application of a Capacitor-Less D-STATCOM for Power Quality Enhancement in a Typical Telecom Data Center. , 2022, , .		2
3	D-STATCOM for harmonic mitigation in low voltage distribution network with high penetration of nonlinear loads. Renewable Energy, 2020, 145, 1449-1464.	4.3	71
4	An Adaptive Model Predictive Controller for Current Sensorless MPPT in PV Systems. IEEE Open Journal of Power Electronics, 2020, 1, 445-455.	4.0	23
5	Adaptive Model Predictive Controller to Reduce Switching Losses for a Capacitor-Less D-STATCOM. IEEE Open Journal of Power Electronics, 2020, 1, 300-311.	4.0	22
6	A PWM Method for Single-Phase Current-Sourced High Frequency AC Link Inverter. , 2020, , .		4
7	Comparing Connection Topologies of PV Integrated Curved Roof Tile for Improved Performance. , 2020, , .		10
8	Investigation of the Thermal Gradient Impact on Non-Planar Photovoltaics. , 2020, , .		0
9	Parameter Extraction Testbed to Optimize Interconnections of Non-Planar Photovoltaics. , 2020, , .		1
10	A Techno-Economic Study of Rooftop Grid-Connected Photovoltaic-Energy Storage Systems in Qatar. , 2020, , .		1
11	Defining Performance Factors to Design Non-Planar Photovoltaic Interconnection Scheme. , 2020, , .		0
12	Methodology for Designing an Optimal Connection Scheme for Applications of Non-Planar Photovoltaics. , 2020, , .		0
13	Parallel Operation of Capacitor-less D-STATCOM to Allow More Penetration of Photovoltaic Systems in Distribution Network. , 2020, , .		3
14	Fourier Transform and Short-Time Fourier Transform Decomposition for Photovoltaic Arc Fault Detection. , 2020, , .		7
15	Model Predictive Control Based Controller for Grid-Connected Ripple-Port Inverters. , 2020, , .		2
16	Adaptive MPC-based Cost Function for Capacitorless VAR Compensator in Distribution Networks. , 2020, , .		2
17	Commutation Method for a Three-Phase Current-Sourced High-Frequency AC-link Inverter. , 2020, , .		0
18	Non-Planar Photovoltaic Testbed Based on in-situ Parameter Extraction for PV Simulation & Emulation. , 2020, , .		0

#	ARTICLE	IF	CITATIONS
19	Voltage Profile Enhancement Using Capacitor-less D-STATCOM to Increase PV Integration in Distribution Network Under Transient Cloud Conditions. , 2020, , .		0
20	Sizing of Differential Power Processing Converters Based on In-Situ Meteorological Data for Non-Planar Photovoltaic Applications. , 2020, , .		1
21	Low Cost, Stand-Alone, In-situ PV Curve Trace. , 2020, , .		1
22	Autotuning Technique for the Cost Function Weight Factors in Model Predictive Control for Power Electronic Interfaces. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2019, 7, 1408-1420.	3.7	68
23	Development of a Capacitor-less D-STATCOM for Power Quality Improvement in Low Voltage Network. , 2019, , .		10
24	Energy Harvest Potential of Flexible Photovoltaics on Curved Surfaces. , 2019, , .		10
25	Mechatronics Arc Generator for Photovoltaic Arc Fault Detector Testing. , 2019, , .		4
26	Fault-Tolerant D-STATCOM based Matrix Converter. , 2019, , .		4
27	Modeling Methodology for Determining Energy Collection Potential of Photovoltaics Applied To Curved Surfaces. , 2019, , .		1
28	Modeling the Electrical Production Potential of Non-Planar Photovoltaic Modules. , 2019, , .		2
29	New commutation method based on state machine for three-phase HF ac link inverter with passive loads. , 2019, , .		1
30	A Hill-Climbing Optimization Approach for Closed-Loop Auto-Tuning of the Grid-Connected Ripple-Port Inverters. , 2019, , .		0
31	Reactive Power Compensation of Time-Varying Load Using Capacitor-less D-STATCOM. , 2019, , .		7
32	Decoupled Active and Reactive Power Predictive Control for PV Applications Using a Grid-Tied Quasi-Z-Source Inverter. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2018, 6, 1769-1782.	3.7	45
33	Direct Instantaneous Ripple Power Predictive Control for Active Ripple Decoupling of Single-Phase Inverter. IEEE Transactions on Industrial Electronics, 2018, 65, 3165-3175.	5.2	44
34	Effect of Laser Wavelength on AZO Surface Texturing by Direct Laser Processing / Patterning for Thin-Film Silicon Solar Cells Applications. MRS Advances, 2018, 3, 1411-1418.	0.5	1
35	Active power decoupling method based on dual buck circuit with model predictive control. , 2018, , .		9
36	A parameter mismatch study on model predictive control based sensorless current mode. , 2018, , .		6

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37	THD analysis for a high frequency link SCR-based PWM inverter. , 2018, , .		3
38	Comparison between operating modes of distributed generation on voltage profile and stability of distribution systems. , 2018, , .		5
39	Double-Line-Frequency Ripple Model, Analysis, and Impedance Design for Energy-Stored Single-Phase Quasi-Z-Source Photovoltaic System. IEEE Transactions on Industrial Electronics, 2018, 65, 3198-3209.	5.2	39
40	D-STATCOM for a Distribution Network with Distributed PV Generation. , 2018, , .		11
41	Hybrid hysteresis current control and low-frequency current harmonics mitigation based on proportional resonant in dc/ac inverter. IET Power Electronics, 2018, 11, 2093-2101.	1.5	20
42	Capacitor-less D-STATCOM for reactive power compensation. , 2018, , .		16
43	High-Performance Predictive Control of Quasi-Impedance Source Inverter. IEEE Transactions on Power Electronics, 2017, 32, 3251-3262.	5.4	74
44	Optimum number of cascaded multilevel inverters for high-voltage applications based on Pareto analysis. , 2017, , .		6
45	Model Predictive Control of a Voltage-Source Inverter With Seamless Transition Between Islanded and Grid-Connected Operations. IEEE Transactions on Industrial Electronics, 2017, 64, 7906-7918.	5.2	169
46	Model predictive control of multi-string PV systems with battery back-up in a community dc microgrid. , 2017, , .		21
47	A modified symmetric and asymmetric multilevel power inverter with reduced number of power switches controlled by MPC. , 2017, , .		8
48	Constrained decoupled power predictive controller for a single-phase grid-tied inverter. IET Renewable Power Generation, 2017, 11, 659-668.	1.7	15
49	Model Predictive Control of a Capacitorless Matrix Converter-Based STATCOM. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2017, 5, 796-808.	3.7	51
50	Efficient maximum power point tracking using model predictive control for photovoltaic systems under dynamic weather condition. IET Renewable Power Generation, 2017, 11, 1401-1409.	1.7	67
51	Model predictive control for maximum power point tracking of quasi-Z-source inverter based grid-tied photovoltaic power system. , 2017, , .		4
52	MPPT of Photovoltaic Systems Using Sensorless Current-Based Model Predictive Control. IEEE Transactions on Industry Applications, 2017, 53, 1157-1167.	3.3	135
53	Capacitance, dc Voltage Utilization, and Current Stress: Comparison of Double-Line Frequency Ripple Power Decoupling for Single-Phase Systems. IEEE Industrial Electronics Magazine, 2017, 11, 37-49.	2.3	62
54	Optimal sizing of photovoltaic-wind hybrid system for community living environment and smart grid interaction. , 2017, , .		4

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55	Direct decoupled active and reactive predictive power control of grid-tied quasi-Z-source inverter for photovoltaic applications. , 2017, , .		3
56	Comparison of SiC and GaN devices for front-end isolation of quasi-Z-source cascaded multilevel photovoltaic inverter. , 2016, , .		5
57	A variable step-size MPPT for sensorless current model predictive control for photovoltaic systems. , 2016, , .		8
58	Sensorless current model predictive control for maximum power point tracking of single-phase subMultilevel inverter for photovoltaic systems. , 2016, , .		8
59	Comparison of GaN and SiC power devices in application to MW-scale quasi-Z-source cascaded multilevel inverters. , 2016, , .		11
60	Modeling, analysis, and impedance design of battery energy stored single-phase quasi-Z source photovoltaic inverter system. , 2016, , .		13
61	Direct instantaneous ripple power predictive control for active ripple decoupling of single-phase inverter. , 2016, , .		3
62	PWM methods for high frequency voltage link inverter commutation. , 2016, , .		6
63	Model predictive control of a matrix-converter based solid state transformer for utility grid interaction. , 2016, , .		9
64	Commutation technique for high frequency link inverter without operational limitations and dead time. , 2016, , .		4
65	A five-level neutral-point-clamped/H-Bridge quasi-impedance source inverter for grid connected PV system. , 2016, , .		13
66	High fidelity "replay" arc fault detection testbed. , 2016, , .		1
67	Real time arc fault detection in PV systems using wavelet decomposition. , 2016, , .		18
68	Dual buck based power decoupling circuit for single phase inverter/rectifier. , 2016, , .		5
69	A Model Predictive Control technique for utility-scale grid connected battery systems using packed U cells multilevel inverter. , 2016, , .		16
70	Current Ripple Damping Control to Minimize Impedance Network for Single-Phase Quasi-Z Source Inverter System. IEEE Transactions on Industrial Informatics, 2016, 12, 1043-1054.	7.2	86
71	Modeling, Analysis, and Parameters Design of LC-Filter-Integrated Quasi-Z-Source Indirect Matrix Converter. IEEE Transactions on Power Electronics, 2016, 31, 7544-7555.	5.4	35
72	Model predictive control for PV maximum power point tracking of single-phase submultilevel inverter. , 2016, , .		10

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73	Model Predictive Control of Quasi-Z-Source Four-Leg Inverter. IEEE Transactions on Industrial Electronics, 2016, 63, 4506-4516.	5.2	96
74	An active filter method to eliminate dc-side low-frequency power for single-phase quasi-Z source inverter. , 2015, , .		15
75	Loss analysis during dead time and thermal study of gallium nitride devices. , 2015, , .		13
76	High efficiency MPPT by model predictive control considering load disturbances for photovoltaic applications under dynamic weather condition. , 2015, , .		15
77	Auto-tuning the cost function weight factors in a model predictive controller for a matrix converter VAR compensator. , 2015, , .		15
78	Unconditional security for the smart power grids and star networks. , 2015, , .		4
79	Multiobjective Optimization and Topology Selection for a Module-Integrated Inverter. IEEE Transactions on Power Electronics, 2015, 30, 4219-4231.	5.4	29
80	Resource Requirements and Speed versus Geometry of Unconditionally Secure Physical Key Exchanges. Entropy, 2015, 17, 2010-2024.	1.1	16
81	Maximum power point tracking of grid connected photovoltaic system employing model predictive control. , 2015, , .		24
82	Minimized Quasi-Z source network for single-phase inverter. , 2015, , .		11
83	Arc Fault and Flash Signal Analysis in DC Distribution Systems Using Wavelet Transformation. IEEE Transactions on Smart Grid, 2015, 6, 1955-1963.	6.2	123
84	Model predictive decoupled power control for single-phase grid-tied inverter. , 2015, , .		12
85	Model predictive control of grid-tied photovoltaic systems: Maximum power point tracking and decoupled power control. , 2015, , .		15
86	Sensitivity analysis to model parameter errors of MPPT by model predictive control for photovoltaic applications. , 2015, , .		7
87	Maximum power point tracking of photovoltaic systems using sensorless current-based model predictive control. , 2015, , .		10
88	Ripple-port integrated PFC rectifier with fast dynamic response. , 2014, , .		11
89	Model predictive control of a capacitor-less VAR compensator based on a matrix converter. , 2014, , .		7
90	Survey of modelling techniques used in optimisation of power electronic components. IET Power Electronics, 2014, 7, 1192-1203.	1.5	28

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91	Analysis and comparison of two active anti-islanding detection methods. , 2014, , .		2
92	Multiobjective Optimization of the DC-DC Stage of a Module-Integrated Inverter Based on an Efficiency Usage Model. IEEE Journal of Photovoltaics, 2014, 4, 906-914.	1.5	8
93	Maximum Power Point Tracking using Model Predictive Control of a flyback converter for photovoltaic applications. , 2014, , .		29
94	Model Predictive Control of PV Sources in a Smart DC Distribution System: Maximum Power Point Tracking and Droop Control. IEEE Transactions on Energy Conversion, 2014, 29, 913-921.	3.7	240
95	Predicting Variability of High-Penetration Photovoltaic Systems in a Community Microgrid by Analyzing High-Temporal Rate Data. IEEE Transactions on Sustainable Energy, 2014, 5, 1434-1442.	5.9	22
96	Analysis and Design of Smart PV Modules. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2014, 2, 451-459.	3.7	30
97	Multi-Objective Optimization and Design of Photovoltaic-Wind Hybrid System for Community Smart DC Microgrid. IEEE Transactions on Smart Grid, 2014, 5, 2635-2643.	6.2	213
98	An improved MPPT technique for high gain DC-DC converter using model predictive control for photovoltaic applications. , 2014, , .		40
99	Photovoltaic hybrid power harvesting system for emergency applications. , 2013, , .		6
100	Mitigating variability of high penetration photovoltaic systems in a community smart microgrid using non-flat photovoltaic modules. , 2013, , .		5
101	Ripple-Port Module-Integrated Inverter for Grid-Connected PV Applications. IEEE Transactions on Industry Applications, 2013, 49, 2692-2698.	3.3	66
102	A finite-element analysis approach to determine the parasitic capacitances of high-frequency multiwinding transformers for photovoltaic inverters. , 2013, , .		20
103	Design considerations for long-term remote photovoltaic-based power supply using non-planar photovoltaic surfaces. , 2013, , .		7
104	Single-phase PWM rectifier with power decoupling ripple-port for double-line-frequency ripple cancellation. , 2013, , .		34
105	Analysis and design of smart PV modules. , 2013, , .		6
106	AC-link, single-phase, photovoltaic Module Integrated Inverter. , 2013, , .		16
107	Reliability of Candidate Photovoltaic Module-Integrated-Inverter (PV-MII) Topologies-A Usage Model Approach. IEEE Transactions on Power Electronics, 2013, 28, 3019-3027.	5.4	296
108	Experimental verification of energy harvest from non-planar photovoltaic surfaces. , 2013, , .		14

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109	Microinverter and string inverter grid-connected photovoltaic system — A comprehensive study. , 2013, , .		75
110	Coupled-Inductor Filter: A Basic Filter Building Block. IEEE Transactions on Power Electronics, 2013, 28, 537-546.	5.4	62
111	Multi-objective optimization of the DC-DC stage of a Module-Integrated Inverter based on an efficiency usage model. , 2013, , .		0
112	Arc fault and flash detection in DC photovoltaic arrays using wavelets. , 2013, , .		22
113	Information Theoretically Secure, Enhanced Johnson Noise Based Key Distribution over the Smart Grid with Switched Filters. PLoS ONE, 2013, 8, e70206.	1.1	30
114	Decision making framework for photovoltaic cell technologies using six sigma. , 2012, , .		0
115	Decision making framework for solar photovoltaic power conditioning unit topologies using Six Sigma. , 2012, , .		2
116	Determination of parasitic parameters in a high frequency magnetic to improve the manufacturability, performance, and efficiency of a PV inverter. , 2012, , .		10
117	Reliability of a PV-module integrated inverter (PV-MII): A usage model approach. , 2012, , .		3
118	Smart PV modules — Design considerations. , 2012, , .		8
119	FEA tool approach for determination of parasitic capacitance of the windings in high frequency coupled inductors filters. , 2012, , .		3
120	Ripple-port module-integrated inverter for grid-connected PV applications. , 2012, , .		6
121	Reliability of candidate photovoltaic module-integrated-inverter topologies. , 2012, , .		18
122	Minimum Energy and Capacitance Requirements for Single-Phase Inverters and Rectifiers Using a Ripple Port. IEEE Transactions on Power Electronics, 2012, 27, 4690-4698.	5.4	440
123	Optimization of photovoltaic-wind hybrid system for apartment complexes and other community living environments by minimizing excess capacity. , 2012, , .		14
124	Multi-objective optimization of the energy capture and boost inductor mass in a module-integrated converter (MIC) photovoltaic energy system. , 2012, , .		7
125	Control and Circuit Techniques to Mitigate Partial Shading Effects in Photovoltaic Arrays. IEEE Journal of Photovoltaics, 2012, 2, 532-546.	1.5	414
126	The Load as an Energy Asset in a Distributed DC SmartGrid Architecture. IEEE Transactions on Smart Grid, 2012, 3, 253-260.	6.2	138

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127	Multi-objective design optimization of renewable energy system inverters using a Descriptive language for the components. , 2011, , .		10
128	Novel non-flat photovoltaic module geometries and implications to power conversion. , 2011, , .		11
129	Bus Selection in Multibus DC Microgrids. IEEE Transactions on Power Electronics, 2011, 26, 860-867.	5.4	88
130	Charge It!. IEEE Power and Energy Magazine, 2011, 9, 54-64.	1.6	56
131	Analysis and mitigation of common mode voltages in photovoltaic power systems. , 2011, , .		23
132	Predicting capacitor reliability in a module-integrated photovoltaic inverter using stress factors from an environmental usage model. , 2010, , .		21
133	Capacitor-less VAR compensator based on matrix converter. , 2010, , .		9
134	A photovoltaic module thermal model using observed insolation and meteorological data to support a long life, highly reliable module-integrated inverter design by predicting expected operating temperature. , 2009, , .		32
135	A System Design Approach for Unattended Solar Energy Harvesting Supply. IEEE Transactions on Power Electronics, 2009, 24, 952-962.	5.4	78
136	Cost-Effective Hundred-Year Life for Single-Phase Inverters and Rectifiers in Solar and LED Lighting Applications Based on Minimum Capacitance Requirements and a Ripple Power Port. , 2009, , .		155
137	A System Design Approach for Unattended Solar Energy Harvesting Supply. IEEE Transactions on Power Electronics, 2009, , .	5.4	0
138	Power Electronics Needs for Achieving Grid-Parity Solar Energy Costs. , 2008, , .		27
139	Design considerations for long-term remote photovoltaic-based power supply. IEEE Applied Power Electronics Conference and Exposition, 2008, , .	0.0	7
140	Bus Selection in Multibus DC Power Systems. , 2007, , .		10