Sergio Vazquez

List of Publications by Year
in descending order

153	9,600	117625	69250
papers	citations	34	77
		h-index	g-index

157	157	157	6083
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Model Predictive Control for Power Converters and Drives: Advances and Trends. IEEE Transactions on Industrial Electronics, 2017, 64, 935-947.	7.9	1,305
2	Energy Storage Systems for Transport and Grid Applications. IEEE Transactions on Industrial Electronics, 2010, 57, 3881-3895.	7.9	1,054
3	Model Predictive Control: A Review of Its Applications in Power Electronics. IEEE Industrial Electronics Magazine, 2014, 8, 16-31.	2.6	894
4	Model Predictive Control of an Inverter With Output LC Filter for UPS Applications. IEEE Transactions on Industrial Electronics, 2009, 56, 1875-1883.	7.9	552
5	Guidelines for weighting factors design in Model Predictive Control of power converters and drives. , 2009, , .		490
6	Extended State Observer-Based Sliding-Mode Control for Three-Phase Power Converters. IEEE Transactions on Industrial Electronics, 2017, 64, 22-31.	7.9	426
7	Multilevel Converters: Control and Modulation Techniques for Their Operation and Industrial Applications. Proceedings of the IEEE, 2017, 105, 2066-2081.	21.3	328
8	Predictive Optimal Switching Sequence Direct Power Control for Grid-Connected Power Converters. IEEE Transactions on Industrial Electronics, 2015, 62, 2010-2020.	7.9	302
9	A Review of Power Electronics for Grid Connection of Utility-Scale Battery Energy Storage Systems. IEEE Transactions on Sustainable Energy, 2016, 7, 1778-1790.	8.8	271
10	Enhanced Decoupled Double Synchronous Reference Frame Current Controller for Unbalanced Grid-Voltage Conditions. IEEE Transactions on Power Electronics, 2012, 27, 3934-3943.	7.9	258
11	A Model-Based Direct Power Control for Three-Phase Power Converters. IEEE Transactions on Industrial Electronics, 2008, 55, 1647-1657.	7.9	168
12	Model Predictive Control with constant switching frequency using a Discrete Space Vector Modulation with virtual state vectors. , 2009, , .		137
13	Adaptive Vectorial Filter for Grid Synchronization of Power Converters Under Unbalanced and/or Distorted Grid Conditions. IEEE Transactions on Industrial Electronics, 2014, 61, 1355-1367.	7.9	130
14	Model Predictive Control for Single-Phase NPC Converters Based on Optimal Switching Sequences. IEEE Transactions on Industrial Electronics, 2016, 63, 7533-7541.	7.9	130
15	Electric Vehicle Charging Infrastructure: From Grid to Battery. IEEE Industrial Electronics Magazine, 2021, 15, 37-51.	2.6	130
16	DC-Voltage-Ratio Control Strategy for Multilevel Cascaded Converters Fed With a Single DC Source. IEEE Transactions on Industrial Electronics, 2009, 56, 2513-2521.	7.9	125
17	Feed-Forward Space Vector Modulation for Single-Phase Multilevel Cascaded Converters With Any DC Voltage Ratio. IEEE Transactions on Industrial Electronics, 2009, 56, 315-325.	7.9	122
18	Observer-Based Adaptive Sliding Mode Control of NPC Converters: An RBF Neural Network Approach. IEEE Transactions on Power Electronics, 2019, 34, 3831-3841.	7.9	122

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19	Analysis of the Power Balance in the Cells of a Multilevel Cascaded H-Bridge Converter. IEEE Transactions on Industrial Electronics, 2010, 57, 2287-2296.	7.9	115
20	Multidimensional Modulation Technique for Cascaded Multilevel Converters. IEEE Transactions on Industrial Electronics, 2011, 58, 412-420.	7.9	110
21	Multistep Model Predictive Control for Cascaded H-Bridge Inverters: Formulation and Analysis. IEEE Transactions on Power Electronics, 2018, 33, 876-886.	7.9	107
22	Conventional Space-Vector Modulation Techniques Versus the Single-Phase Modulator for Multilevel Converters. IEEE Transactions on Industrial Electronics, 2010, 57, 2473-2482.	7.9	95
23	Sliding Mode Control of a Three-Phase AC/DC Voltage Source Converter Under Unknown Load Conditions: Industry Applications. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2018, 48, 1771-1780.	9.3	94
24	Predictive control of a three-phase UPS inverter using two steps prediction horizon. , 2010, , .		90
25	Simple Unified Approach to Develop a Time-Domain Modulation Strategy for Single-Phase Multilevel Converters. IEEE Transactions on Industrial Electronics, 2008, 55, 3239-3248.	7.9	89
26	Model Based Adaptive Direct Power Control for Three-Level NPC Converters. IEEE Transactions on Industrial Informatics, 2013, 9, 1148-1157.	11.3	85
27	Variable-Angle Phase-Shifted PWM for Multilevel Three-Cell Cascaded H-Bridge Converters. IEEE Transactions on Industrial Electronics, 2017, 64, 3619-3628.	7.9	84
28	DC-Link Voltage-Balancing Strategy Based on Optimal Switching Sequence Model Predictive Control for Single-Phase H-NPC Converters. IEEE Transactions on Industrial Electronics, 2020, 67, 7410-7420.	7.9	82
29	Three-Dimensional Feedforward Space Vector Modulation Applied to Multilevel Diode-Clamped Converters. IEEE Transactions on Industrial Electronics, 2009, 56, 101-109.	7.9	76
30	Advanced Control Methods for Power Converters in DG Systems and Microgrids. IEEE Transactions on Industrial Electronics, 2021, 68, 5847-5862.	7.9	62
31	Sliding Mode Control of Grid-Connected Neutral-Point-Clamped Converters Via High-Gain Observer. IEEE Transactions on Industrial Electronics, 2022, 69, 4010-4021.	7.9	59
32	Sliding Mode Control in Power Converters and Drives: A Review. IEEE/CAA Journal of Automatica Sinica, 2022, 9, 392-406.	13.1	56
33	Unidimensional Modulation Technique for Cascaded Multilevel Converters. IEEE Transactions on Industrial Electronics, 2009, 56, 2981-2986.	7.9	54
34	Enhanced Switching Frequency Control in FCS-MPC for Power Converters. IEEE Transactions on Industrial Electronics, 2021, 68, 2470-2479.	7.9	48
35	Binary Search Based Flexible Power Point Tracking Algorithm for Photovoltaic Systems. IEEE Transactions on Industrial Electronics, 2021, 68, 5909-5920.	7.9	39
36	Advanced Control Strategies for DC–DC Buck Converters With Parametric Uncertainties via Experimental Evaluation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2020, 67, 5257-5267.	5.4	38

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37	Prediction Model With Harmonic Load Current Components for FCS-MPC of an Uninterruptible Power Supply. IEEE Transactions on Power Electronics, 2022, 37, 322-331.	7.9	37
38	Observer-Based Sliding-Mode Control for Grid-Connected Power Converters Under Unbalanced Grid Conditions. IEEE Transactions on Industrial Electronics, 2022, 69, 517-527.	7.9	33
39	Model predictive control of a VSI with long prediction horizon. , 2011, , .		32
40	Multilevel Multiphase Feedforward Space-Vector Modulation Technique. IEEE Transactions on Industrial Electronics, 2010, 57, 2066-2075.	7.9	31
41	High-Performance Second-Order Sliding Mode Control for NPC Converters. IEEE Transactions on Industrial Informatics, 2020, 16, 5345-5356.	11.3	31
42	Generalized Harmonic Control for CHB Converters With Unbalanced Cells Operation. IEEE Transactions on Industrial Electronics, 2020, 67, 9039-9047.	7.9	29
43	Adaptive Second-Order Sliding Mode Control for Grid-Connected NPC Converters With Enhanced Disturbance Rejection. IEEE Transactions on Power Electronics, 2022, 37, 206-220.	7.9	29
44	Applications and Modulation Methods for Modular Converters Enabling Unequal Cell Power Sharing: Carrier Variable-Angle Phase-Displacement Modulation Methods. IEEE Industrial Electronics Magazine, 2022, 16, 19-30.	2.6	28
45	Variable-Angle PS-PWM Technique for Multilevel Cascaded H-Bridge Converters With Large Number of Power Cells. IEEE Transactions on Industrial Electronics, 2021, 68, 6773-6783.	7.9	28
46	Recent advances on Energy Storage Systems. , 2011, , .		27
47	An Artificial Intelligence Approach for Real-Time Tuning of Weighting Factors in FCS-MPC for Power Converters. IEEE Transactions on Industrial Electronics, 2022, 69, 11987-11998.	7.9	26
48	Model Predictive Control of a switched reluctance machine using discrete Space Vector Modulation. , 2010, , .		24
49	Design and experimental validation of a Model Predictive Control strategy for a VSI with long prediction horizon. , 2013, , .		24
50	FCS-MPC and observer design for a VSI with output LC filter and sinusoidal output currents. , 2017, , .		24
51	Model Predictive Control of Modular Multilevel Converters Using Quadratic Programming. IEEE Transactions on Power Electronics, 2021, 36, 7012-7025.	7.9	24
52	An Improved Implicit Model Predictive Current Control With Continuous Control Set for PMSM Drives. IEEE Transactions on Transportation Electrification, 2022, 8, 2444-2455.	7.8	24
53	Advanced control of a multilevel cascaded H-bridge converter for PV applications. , 2014, , .		23
54	Stationary frame voltage harmonic controller for standalone power generation. , 2007, , .		22

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55	New Space Vector Modulation Technique for Single-Phase Multilevel Converters. , 2007, , .		21
56	Modeling, Control, and Integration of Energy Storage Systems in E-Transportation and Smart Grid. IEEE Transactions on Industrial Electronics, 2018, 65, 6548-6551.	7.9	21
57	Closed-Loop Analytic Filtering Scheme of Capacitor Voltage Ripple in Multilevel Cascaded H-Bridge Converters. IEEE Transactions on Power Electronics, 2020, 35, 8819-8832.	7.9	21
58	Sampling-Time Harmonic Control for Cascaded H-Bridge Converters With Thermal Control. IEEE Transactions on Industrial Electronics, 2020, 67, 2776-2785.	7.9	19
59	Controller design for a single-phase two-cell multilevel cascade H-bridge converter. , 2008, , .		18
60	Adaptive Control for Three-Phase Power Converters With Disturbance Rejection Performance. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2021, 51, 674-685.	9.3	18
61	Fuzzy Sliding-Mode Control for Three-Level NPC AFE Rectifiers: A Chattering Alleviation Approach. IEEE Transactions on Power Electronics, 2022, 37, 11704-11715.	7.9	18
62	Simple modulator with voltage balancing control for the hybrid five-level flying-capacitor based ANPC converter. , 2011, , .		17
63	Voltage balancing in three-level neutral-point-clamped converters via Luenberger observer. Control Engineering Practice, 2014, 25, 36-44.	5.5	17
64	An Algorithm for Fast Flexible Power Point Tracking in Photovoltaic Power Plants. , 2019, , .		17
65	Variable Rounding Level Control Method for Modular Multilevel Converters. IEEE Transactions on Power Electronics, 2021, 36, 4791-4801.	7.9	17
66	K-Best Sphere Decoding Algorithm for Long Prediction Horizon FCS-MPC. IEEE Transactions on Industrial Electronics, 2022, 69, 7571-7581.	7.9	17
67	Predictive Control in Power Converters and Electrical Drivesâ€"Part I. IEEE Transactions on Industrial Electronics, 2016, 63, 3834-3836.	7.9	16
68	Power electronic converters and control techniques in AC microgrids. , 2017, , .		16
69	Common-Mode Voltage Mitigation of Dual Three-Phase Voltage Source Inverters in a Motor Drive Application. IEEE Access, 2021, 9, 67477-67487.	4.2	16
70	Voltages balance control in three phase three-level NPC rectifiers. , 2010, , .		15
71	Generalized Predictive Direct Power Control for AC/DC converters. , 2013, , .		15
72	Basic Control Principles in Power Electronics. , 2018, , 31-68.		15

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73	Model predictive control of cascaded H-bridge inverters based on a fast-optimization algorithm. , 2015, , .		14
74	Adaptive phase-shifted PWM for multilevel cascaded H-bridge converters with large number of power cells. , 2017, , .		14
75	Discontinuous-PWM Method for Multilevel N-Cell Cascaded H-Bridge Converters. IEEE Transactions on Industrial Electronics, 2021, 68, 7996-8005.	7.9	14
76	Two-dimensional modulation technique with dc voltage control for single-phase two-cell cascaded converters. , 2010, , .		13
77	Decoupled Double Synchronous Reference Frame current controller for unbalanced grid voltage conditions. , 2012, , .		13
78	Operation of an hybrid PV-battery system with improved harmonic performance. , 2017, , .		13
79	Efficient FPSoC Prototyping of FCS-MPC for Three-Phase Voltage Source Inverters. Energies, 2020, 13, 1074.	3.1	13
80	Microgrids Power Quality Enhancement Using Model Predictive Control. Electronics (Switzerland), 2021, 10, 328.	3.1	13
81	Optimized Direct Power Control Strategy using Output Regulation Subspaces and Pulse Width Modulation. Industrial Electronics Society (IECON), Annual Conference of IEEE, 2006, , .	0.0	12
82	Control System Design of a Three-Phase Active Front End Using a Sliding-Mode Observer. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2022, 52, 739-748.	9.3	12
83	Integral Sliding-Mode Control-Based Direct Power Control for Three-Level NPC Converters. Energies, 2020, 13, 227.	3.1	12
84	Comparison between FS-MPC control strategy for an UPS inverter application in &#x03B1;-&#x03B2; and abc frames. , 2010, , .		11
85	Second Order Sliding Mode control for three-level NPC converters via extended state observer. , 2015, , .		11
86	Disturbance observer based second order sliding mode control for DC-DC buck converters. , 2017, , .		11
87	A comprehensive comparison of modulation methods for MMC converters. , 2017, , .		11
88	Power Devices Aging Equalization of Interleaved DCâ€"DC Boost Converters via Power Routing. IEEE Journal of Emerging and Selected Topics in Industrial Electronics, 2020, 1, 91-101.	3.9	10
89	Common-Mode Voltage Mitigation Technique in Motor Drive Applications by Applying a Sampling-Time Adaptive Multi-Carrier PWM Method. IEEE Access, 2021, 9, 56115-56126.	4.2	10
90	Parallel Sphere Decoding Algorithm for Long-Prediction-Horizon FCS-MPC. IEEE Transactions on Power Electronics, 2022, 37, 7896-7906.	7.9	10

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91	A dual-loop PI controller for a DC/DC full-bridge power converter with ZVS modulation. , 2009, , .		9
92	Predictive direct power control for grid connected power converters with dc-link voltage dynamic reference design. , 2015, , .		9
93	Robust control for three-phase grid connected power converters via second order sliding mode. , 2015, , .		9
94	Binary search based MPPT algorithm for high-power PV systems. , 2016, , .		9
95	Predictive control in power converters and electrical drivesâ€"part ii [guest editorial]. IEEE Transactions on Industrial Electronics, 2016, 63, 4472-4474.	7.9	9
96	Adaptive Filtering Scheme for a Low-Capacitance StatCom. , 2018, , .		9
97	Low Computational Burden Model Predictive Control for Single-Phase Cascaded H-Bridge Converters Without Weighting Factor. IEEE Transactions on Industrial Electronics, 2023, 70, 2396-2406.	7.9	9
98	Voltage predictive control for microgrids in islanded mode based on Fourier transform. , 2015, , .		8
99	Second-order sliding mode control of power converters using different disturbance observers for DC-link voltage regulation. , 2017, , .		8
100	Real-Time Selective Harmonic Mitigation Technique for Power Converters Based on the Exchange Market Algorithm. Energies, 2020, 13, 1659.	3.1	8
101	Fuzzy Logic System-Based Sliding-Mode Control for Three-Level NPC Converters. IEEE Transactions on Transportation Electrification, 2022, 8, 3307-3319.	7.8	8
102	Power Device Lifetime Extension of Dc-Dc Interleaved Converters via Power Routing. , 2018, , .		7
103	Closed-loop active thermal control via power routing of parallel DC-DC converters. , 2018, , .		7
104	Feed-forward Modulation Technique for more Accurate Operation of Modular Multilevel Converters. IEEE Transactions on Power Electronics, 2021, , 1-1.	7.9	7
105	Digital Implementation Issues for a Three-Phase Power Converter Development Using a Repetitive Control Scheme. , 2007, , .		6
106	Observer-based Direct Power Control for three-level NPC rectifiers. , 2009, , .		6
107	Direct Power Control for three-phase power converters under distorted input voltages. , 2009, , .		6
108	A Generalized Predictive control for T-type power inverters with output LC filter. , 2015, , .		6

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109	Improving Multilevel Flying Capacitor Converters Features Using New Voltage Ratios Definitions. , 0, , .		5
110	Predictive Control in Power Converters and Electrical Drives - Part III. IEEE Transactions on Industrial Electronics, 2016, , 1-1.	7.9	5
111	Flexible Harmonic Control for Three-Level Selective Harmonic Modulation Using the Exchange Market Algorithm. , 2018, , .		5
112	A High-Gain Observer-Based Adaptive Super-Twisting Algorithm for DC-Link Voltage Control of NPC Converters. Energies, 2020, 13, 1110.	3.1	5
113	Optimal Switching Sequence Model Predictive Control for Single-Phase Cascaded H-Bridge. , 2021, , .		5
114	Cascaded Modular Multilevel Converter and Cycloconverter Based Machine Drive System. IEEE Transactions on Industrial Electronics, 2023, 70, 2373-2384.	7.9	5
115	Two-dimensional modulation technique for multilevel cascaded H-bridge converters. , 2009, , .		4
116	Novel modulator for the hybrid two-cell flying-capacitor based ANPC converter. , 2011, , .		4
117	Adaptive phase-shifted PWM for multilevel cascaded H-bridge converters for balanced or unbalanced operation. , 2015, , .		4
118	Variable-angle interleaved DC-DC converters. , 2016, , .		4
119	Backstepping Control of a DC-DC Boost Converters Under Unknown Disturbances. , 2018, , .		4
120	Finite Control Set Model Predictive Control with an Output Current Observer in the dq-Synchronous Reference Frame for an Uninterruptible Power Supply System. , 2019, , .		4
121	FS-MPC Method for MMCs with Large Number of Submodules with Reduced Computational Cost. , 2020, , .		4
122	Simple Control Algorithm to Balance the DC-Link Voltage in Multilevel Four-Leg Four-Wire Diode Clamped Converters. , 2006, , .		3
123	A simple and low cost modulation technique for single-phase multilevel cascade converters based on geometrical considerations. , 2008, , .		3
124	Predictive direct power control for grid-connected power converters with an Extended State Observer based dc-link voltage regulator. , 2016, , .		3
125	Sliding mode control of three-phase power converters with disturbance attenuation performance. , 2017, , .		3
126	High-quality Output Voltage of Multilevel Cascaded H-bridge Converters with Large Number of Cells with Unequal DC Voltages. , 2019, , .		3

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127	FCS-MPC and Observer Design in the dq Synchronous Frame: An Experimental Validation. , 2020, , .		3
128	Space vector modulation for multilevel single-phase cascade converters avoiding the negative effects of the DC voltage unbalance. , 2008, , .		2
129	Analysis of nonlinear modal interaction in stressed power systems using POD-Galerkin characterization. , 2009, , .		2
130	Incorporation of hard excitation limits into power system normal form analysis. , 2009, , .		2
131	Simplified Recursive Newton-type Algorithm for Instantaneous Modal Parameter Estimation of Sub-synchronous Oscillations. Electric Power Components and Systems, 2012, 40, 864-880.	1.8	2
132	A Crankâ€"Nicolson Galerkin approach to the analysis of electromechanical oscillations in stressed power systems. Electric Power Systems Research, 2012, 86, 158-169.	3.6	2
133	Communications scheme of a modular power conversion system. , 2015, , .		2
134	Predictive Control in Power Converters and Electrical Drivesâ€"Part IV. IEEE Transactions on Industrial Electronics, 2016, 63, 5804-5806.	7.9	2
135	Simple Control Algorithm to Balance the DC-Link Voltage in Multilevel Four-Leg Four-Wire Diode Clamped Converters. , 2006, , .		2
136	Power Quality Management of Interconnected Microgrids using Model Predictive Control. IFAC-PapersOnLine, 2020, 53, 12918-12923.	0.9	2
137	POD-Galerkin characterization of inter-area oscillations in power systems. , 2009, , .		1
138	Fast Response Energy Storage Systems. Green Energy and Technology, 2013, , 367-427.	0.6	1
139	Direct power control of three-phase three-level neutral-point-clamped converters with control input saturation. , 2013, , .		1
140	A simple model predictive control strategy aiming at enhancing the performance of modular multilevel converters. , 2017, , .		1
141	Generating the Arm Voltage References of Modular Multilevel Converters Employing Predictive Technique. , 2018, , .		1
142	Improving the operation of the modular multilevel converters with model predictive control. , 2018, , .		1
143	Cost-effective Design of Modular Multilevel Converter Employing Full-bridge Submodules. , 2019, , .		1
144	A Generalized Voltage Balancing Algorithm for Modular Multilevel Cascaded Converters. , 2019, , .		1

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145	The Influence of MPPT Algorithms in the Lifespan of the Capacitor Across the PV Array. IEEE Access, 2022, 10, 40945-40952.	4.2	1
146	A voltage measurement based control of a SSSC. , 2010, , .		0
147	Educational software interface for power electronic applications. , 2010, , .		0
148	Educational hardware/software interface for power electronic applications. , 2012, , .		0
149	Flexible and cost effective hybrid energy storage system based on batteries and ultracapacitors. , 2015, , .		0
150	Adaptive Sliding Mode Observer Design for Three-Phase Grid Voltage Parameters Under Unbalanced Faults. , 2019, , .		0
151	FCS Model Predictive Torque Control with Switching Period Tracking for EV Powertrains. , 2020, , .		0
152	Common-Mode Voltage Harmonic Reduction in Variable Speed Drives Applying a Variable-Angle Carrier Phase-Displacement PWM Method. Energies, 2021, 14, 2929.	3.1	0
153	A Floquet theoryâ€based fast timeâ€domain stability analysis for N â€parallel inverters system. IET Power Electronics, 2022, 15, 186-202.	2.1	0