

# Amador Perez-Tomas

## List of Publications by Year in descending order

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124  
papers

4,184  
citations

236833

25  
h-index

118793

62  
g-index

124  
all docs

124  
docs citations

124  
times ranked

4850  
citing authors

#	ARTICLE	IF	CITATIONS
1	A Survey of Wide Bandgap Power Semiconductor Devices. IEEE Transactions on Power Electronics, 2014, 29, 2155-2163.	5.4	1,700
2	P-type $\hat{I}^2$ -gallium oxide: A new perspective for power and optoelectronic devices. Materials Today Physics, 2017, 3, 118-126.	2.9	166
3	Inhibiting the absorber/Mo-back contact decomposition reaction in Cu <sub>2</sub> ZnSnSe <sub>4</sub> solar cells: the role of a ZnO intermediate nanolayer. Journal of Materials Chemistry A, 2013, 1, 8338.	5.2	151
4	Performance and stability of mixed FAPbI <sub>3</sub> (0.85)MAPbBr <sub>3</sub> (0.15) halide perovskite solar cells under outdoor conditions and the effect of low light irradiation. Nano Energy, 2016, 30, 570-579.	8.2	110
5	Field-effect mobility temperature modeling of 4H-SiC metal-oxide-semiconductor transistors. Journal of Applied Physics, 2006, 100, 114508.	1.1	105
6	Multiwavelength excitation Raman scattering analysis of bulk and two-dimensional MoS <sub>2</sub> : vibrational properties of atomically thin MoS <sub>2</sub> layers. 2D Materials, 2015, 2, 035006.	2.0	97
7	Modelling the inhomogeneous SiC Schottky interface. Journal of Applied Physics, 2013, 114, .	1.1	78
8	Planar Edge Termination Design and Technology Considerations for 1.7-kV 4H-SiC PiN Diodes. IEEE Transactions on Electron Devices, 2005, 52, 2309-2316.	1.6	77
9	p-Type Ultrawide-Band-Gap Spinel ZnGa <sub>2</sub> O <sub>4</sub> : New Perspectives for Energy Electronics. Crystal Growth and Design, 2020, 20, 2535-2546.	1.4	68
10	GaN transistor characteristics at elevated temperatures. Journal of Applied Physics, 2009, 106, .	1.1	67
11	A field-effect electron mobility model for SiC MOSFETs including high density of traps at the interface. Microelectronic Engineering, 2006, 83, 440-445.	1.1	58
12	Characterization and modeling of n-n <sup>+</sup> Si <sup>+</sup> -SiC heterojunction diodes. Journal of Applied Physics, 2007, 102, .	1.1	58
13	Analysis of the AlGaIn/GaN vertical bulk current on Si, sapphire, and free-standing GaN substrates. Journal of Applied Physics, 2013, 113, .	1.1	57
14	Enhancing the intrinsic p-type conductivity of the ultra-wide bandgap Ga <sub>2</sub> O <sub>3</sub> semiconductor. Journal of Materials Chemistry C, 2019, 7, 10231-10239.	2.7	57
15	Heteroepitaxial Beta-Ga <sub>2</sub> O <sub>3</sub> on 4H-SiC for an FET With Reduced Self Heating. IEEE Journal of the Electron Devices Society, 2017, 5, 256-261.	1.2	55
16	Micro and nano analysis of 0.2 $\hat{I}$ © mm Ti/Al/Ni/Au ohmic contact to AlGaIn/GaN. Applied Physics Letters, 2011, 99, 213504.	1.5	47
17	GaN metal-oxide-semiconductor field-effect transistor inversion channel mobility modeling. Journal of Applied Physics, 2009, 105, .	1.1	40
18	Above-Bandgap Photovoltages in Antiferroelectrics. Advanced Materials, 2016, 28, 9644-9647.	11.1	39

#	ARTICLE	IF	CITATIONS
19	Analysis of Al/Ti, Al/Ni multiple and triple layer contacts to p-type 4H-SiC. Solid-State Electronics, 2007, 51, 797-801.	0.8	35
20	PbZrTiO <sub>3</sub> ferroelectric oxide as an electron extraction material for stable halide perovskite solar cells. Sustainable Energy and Fuels, 2019, 3, 382-389.	2.5	35
21	Metal Oxides in Photovoltaics: All-Oxide, Ferroic, and Perovskite Solar Cells. , 2018, , 267-356.		34
22	Origin of large negative electrocaloric effect in antiferroelectric $\text{PbZrO}_3$ . Physical Review B, 2021, 103, .	1.1	34
23	Si <sup>+</sup> /SiC Heterojunctions Fabricated by Direct Wafer Bonding. Electrochemical and Solid-State Letters, 2008, 11, H306.	2.2	31
24	Functional Oxides for Photoneuromorphic Engineering: Toward a Solar Brain. Advanced Materials Interfaces, 2019, 6, 1900471.	1.9	31
25	Effects of cap layer on ohmic Ti/Al contacts to Si <sup>+</sup> implanted GaN. Applied Surface Science, 2009, 255, 6057-6060.	3.1	30
26	Characterization of High-k Ta[ <sub>2</sub> ]Si Oxidized Films on 4H-SiC and Si Substrates as Gate Insulator. Journal of the Electrochemical Society, 2005, 152, G259.	1.3	27
27	High doped MBE Si p <sup>+</sup> and n <sup>+</sup> heterojunction diodes on 4H-SiC. Microelectronics Journal, 2007, 38, 1233-1237.	1.1	26
28	Schottky versus bipolar 3.3 kV SiC diodes. Semiconductor Science and Technology, 2008, 23, 125004.	1.0	26
29	Si/SiC bonded wafer: A route to carbon free SiO <sub>2</sub> on SiC. Applied Physics Letters, 2009, 94, .	1.5	26
30	Analysis of inhomogeneous Ge/SiC heterojunction diodes. Journal of Applied Physics, 2009, 106, .	1.1	26
31	High-Temperature Electrical and Thermal Aging Performance and Application Considerations for SiC Power DMOSFETs. IEEE Transactions on Power Electronics, 2017, 32, 7967-7979.	5.4	26
32	Ultra-high critical electric field of 13.2 MV/cm for Zn-doped p-type $\hat{\Gamma}^2$ -Ga <sub>2</sub> O <sub>3</sub> . Materials Today Physics, 2020, 15, 100263.	2.9	26
33	Temperature dependence of Al/Ti-based Ohmic contact to GaN devices: HEMT and MOSFET. Microelectronic Engineering, 2011, 88, 3140-3144.	1.1	24
34	Enhanced Field Effect Mobility on 4H-SiC by Oxidation at 1500°C. IEEE Journal of the Electron Devices Society, 2014, 2, 114-117.	1.2	24
35	Puzzling robust 2D metallic conductivity in undoped $\hat{\Gamma}^2$ -Ga <sub>2</sub> O <sub>3</sub> thin films. Materials Today Physics, 2019, 8, 10-17.	2.9	24
36	Ga <sub>2</sub> O <sub>3</sub> and Related Ultra-Wide Bandgap Power Semiconductor Oxides: New Energy Electronics Solutions for CO <sub>2</sub> Emission Mitigation. Materials, 2022, 15, 1164.	1.3	24

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37	Modeling the effect of thin gate insulators (SiO <sub>2</sub> , SiN, Al <sub>2</sub> O <sub>3</sub> and HfO <sub>2</sub> ) on AlGaIn/GaN HEMT forward characteristics grown on Si, sapphire and SiC. Materials Science in Semiconductor Processing, 2013, 16, 1336-1345.	1.9	23
38	A Solar Transistor and Photoferroelectric Memory. Advanced Functional Materials, 2018, 28, 1707099.	7.8	23
39	AlGaIn/GaN hybrid MOS-HEMT analytical mobility model. Solid-State Electronics, 2011, 56, 201-206.	0.8	22
40	Wide Band Gap Semiconductor Devices for Power Electronics. Automatika, 2012, 53, 107-116.	1.2	22
41	Deposited Thin SiO <sub>2</sub> for Gate Oxide on n-Type and p-Type GaN. Journal of the Electrochemical Society, 2010, 157, H1008.	1.3	20
42	Effects of Photons on 4H-SiC Rapid Thermal Oxidation Using Nitrous Oxide Gas. Journal of the Electrochemical Society, 2010, 157, G136.	1.3	19
43	Temperature impact and analytical modeling of the AlGaIn/GaN-on-Si saturation drain current and transconductance. Semiconductor Science and Technology, 2012, 27, 125010.	1.0	18
44	Gate current analysis of AlGaIn/GaN on silicon heterojunction transistors at the nanoscale. Applied Physics Letters, 2012, 101, 093505.	1.5	18
45	On the Ti <sub>3</sub> SiC <sub>2</sub> ; Metallic Phase Formation for Robust p-Type 4H-SiC Ohmic Contacts. Materials Science Forum, 0, 778-780, 693-696.	0.3	18
46	Status and Prospects of Cubic Silicon Carbide Power Electronics Device Technology. Materials, 2021, 14, 5831.	1.3	18
47	High-Temperature (1200–1400°C) Dry Oxidation of 3C-SiC on Silicon. Journal of Electronic Materials, 2015, 44, 4167-4174.	1.0	17
48	Giant bulk photovoltaic effect in solar cell architectures with ultra-wide bandgap Ga <sub>2</sub> O <sub>3</sub> transparent conducting electrodes. Materials Today Energy, 2019, 14, 100350.	2.5	17
49	Low loss, large area 4.5 kV 4H-SiC PIN diodes with reduced forward voltage drift. Semiconductor Science and Technology, 2009, 24, 095004.	1.0	16
50	Interface characteristics of n-n and p-n Ge/SiC heterojunction diodes formed by molecular beam epitaxy deposition. Journal of Applied Physics, 2010, 107, .	1.1	16
51	Gate traps inducing band-bending fluctuations on AlGaIn/GaN heterojunction transistors. Applied Physics Letters, 2013, 102, 023511.	1.5	15
52	Nanoscale conductive pattern of the homoepitaxial AlGaIn/GaN transistor. Nanotechnology, 2015, 26, 115203.	1.3	14
53	Electrical activation of nitrogen heavily implanted 3C-SiC(1 0 0). Applied Surface Science, 2015, 353, 958-963.	3.1	14
54	Nanoscale investigation of AlGaIn/GaN-on-Si high electron mobility transistors. Nanotechnology, 2012, 23, 395204.	1.3	13

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55	3C-SiC Transistor With Ohmic Contacts Defined at Room Temperature. IEEE Electron Device Letters, 2016, 37, 1189-1192.	2.2	13
56	A study of the influence of the annealing processes and interfaces with deposited SiO <sub>2</sub> from tetra-ethoxy-silane for reducing the thermal budget in the gate definition of 4H-SiC devices. Thin Solid Films, 2006, 513, 248-252.	0.8	12
57	Modelling the metal-semiconductor band structure in implanted ohmic contacts to GaN and SiC. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 035004.	0.8	12
58	Improved Performance of 4H-SiC PiN Diodes Using a Novel Combined High Temperature Oxidation and Annealing Process. IEEE Transactions on Semiconductor Manufacturing, 2014, 27, 443-451.	1.4	12
59	Interfacial properties of AlN and oxidized AlN on Si. Surface Science, 2010, 604, 63-67.	0.8	11
60	Wafer scale and reliability investigation of thin HfO <sub>2</sub> -AlGaIn/GaN MIS-HEMTs. Microelectronics Reliability, 2012, 52, 2220-2223.	0.9	11
61	1.2 kV Rectifiers Thermal Behaviour: comparison between Si PiN, 4H-SiC Schottky and JBS diodes. , 2007, , .		10
62	SiC MOSFETs with thermally oxidized Ta <sub>2</sub> Si stacked on SiO <sub>2</sub> as high-k gate insulator. Microelectronic Engineering, 2008, 85, 704-709.	1.1	10
63	A study of temperature-related non-linearity at the metal-silicon interface. Journal of Applied Physics, 2012, 112, .	1.1	10
64	Bulk Temperature Impact on the AlGaIn/GaN HEMT Forward Current on Si, Sapphire and Free-Standing GaN. ECS Solid State Letters, 2012, 2, P4-P7.	1.4	10
65	Electrical properties of p-type Zn:Ga <sub>2</sub> O <sub>3</sub> thin films. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2022, 40, .	0.9	10
66	The effect of the temperature on the Bipolar Degradation of 3.3 kV 4H-SiC PiN diodes. , 2008, , .		9
67	Silicon carbide Schottky diodes and MOSFETs: Solutions to performance problems. , 2008, , .		9
68	Characterization of n-n Ge/SiC heterojunction diodes. Applied Physics Letters, 2008, 93, 112104.	1.5	9
69	A HfO <sub>2</sub> -based 800V/300A C Au-free AlGaIn/GaN-on-Si HEMT technology. , 2012, , .		9
70	Integration of HfO <sub>2</sub> on Si/SiC heterojunctions for the gate architecture of SiC power devices. Applied Physics Letters, 2010, 97, 013506.	1.5	8
71	A First Evaluation of Thick Oxide 3C-SiC MOS Capacitors Reliability. IEEE Transactions on Electron Devices, 2020, 67, 237-242.	1.6	8
72	Electrical performance at high temperature and surge current of 1.2 kV power rectifiers: Comparison between Si PiN, 4H-SiC Schottky and JBS diodes. , 2008, , .		7

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73	Temperature behavior and modeling of ohmic contacts to Si <sup>+</sup> implanted n-type GaN. <i>Microelectronics Reliability</i> , 2011, 51, 1325-1329.	0.9	7
74	Improved Channel Mobility by Oxide Nitridation for N-Channel MOSFET on 3C-SiC(100)/Si. <i>Materials Science Forum</i> , 0, 858, 667-670.	0.3	7
75	Ta <sub>2</sub> Si Thermal Oxidation: A Simple Route to a High-k Gate Dielectric on 4H-SiC. <i>Electrochemical and Solid-State Letters</i> , 2004, 7, F93.	2.2	6
76	SiC MOSFET Channel Mobility Dependence on Substrate Doping and Temperature Considering High Density of Interface Traps. <i>Materials Science Forum</i> , 2007, 556-557, 835-838.	0.3	6
77	Direct Visualization of Anti-Ferroelectric Switching Dynamics via Electrocaloric Imaging. <i>Advanced Electronic Materials</i> , 2021, 7, 2100380.	2.6	6
78	Wide and ultra-wide bandgap oxides: where paradigm-shift photovoltaics meets transparent power electronics. , 2018, , .		6
79	IGBT gate driver IC with full-bridge output stage using a modified standard CMOS process. <i>Microelectronics Journal</i> , 2004, 35, 659-666.	1.1	5
80	PECVD Deposited TEOS for Field-Effect Mobility Improvement in 4H-SiC MOSFETs on the (0001) and (11-20) Faces. <i>Materials Science Forum</i> , 2006, 527-529, 1047-1050.	0.3	5
81	Investigation of Si/4H-SiC Hetero-Junction Growth and Electrical Properties. <i>Materials Science Forum</i> , 2009, 615-617, 443-446.	0.3	5
82	Recent progress in 3.3kV SiC diodes. <i>Materials Science and Engineering B: Solid-State Materials for Advanced Technology</i> , 2009, 165, 15-17.	1.7	5
83	3C-SiC films on insulated substrates for high-temperature electrostatic-based resonators. <i>Journal of Micromechanics and Microengineering</i> , 2010, 20, 115007.	1.5	5
84	Bow Free 4" Diameter 3C-SiC Epilayers Formed upon Wafer-Bonded Si/SiC Substrates. <i>ECS Solid State Letters</i> , 2012, 1, P85-P88.	1.4	5
85	Investigation on split-gate RSO MOSFET for 30 V breakdown. , 2008, , .		5
86	Molecular beam epitaxial AlGaN/GaN high electron mobility transistors leakage thermal activation on silicon and sapphire. <i>Applied Physics Letters</i> , 2013, 102, .	1.5	4
87	Bipolar Conduction across a Wafer Bonded p-n Si/SiC Heterojunction. <i>Materials Science Forum</i> , 0, 740-742, 1006-1009.	0.3	4
88	The Cryogenic Testing and Characterisation of SiC Diodes. <i>Materials Science Forum</i> , 0, 778-780, 863-866.	0.3	4
89	Fabrication of 3C-SiC MOS Capacitors Using High-Temperature Oxidation. <i>Materials Science Forum</i> , 0, 821-823, 464-467.	0.3	4
90	4H-SiC MOSFETs Using Thermal Oxidized Ta<sub>2</sub>Si Films as High-k Gate Dielectric. <i>Materials Science Forum</i> , 2005, 483-485, 713-716.	0.3	3

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91	Physical modelling of large area 4H-SiC PiN diodes. , 2009, , .		3
92	2DEG HEMT Mobility vs Inversion Channel MOSFET Mobility. Materials Science Forum, 0, 645-648, 1207-1210.	0.3	3
93	GaN Ohmic contact resistance vs temperature. , 2011, , .		3
94	Ohmic Contact Resistance to GaN Devices Dependence with on Temperature for GaN Devices T. Materials Science Forum, 0, 679-680, 816-819.	0.3	3
95	Physical Modelling of 4H-SiC PiN Diodes. Materials Science Forum, 2012, 717-720, 993-996.	0.3	3
96	Reverse current thermal activation of AlGaIn/GaN HEMTs on Si(111). Microelectronics Reliability, 2012, 52, 2547-2550.	0.9	3
97	Simulations of a Lateral PiN Diode on Si/SiC Substrate for High Temperature Applications. Materials Science Forum, 0, 821-823, 624-627.	0.3	3
98	Physical Characterisation of 3C-SiC(001)/SiO <sub>2</sub> Interface Using XPS. Materials Science Forum, 2017, 897, 151-154.	0.3	3
99	Cryogenic Characterisation and Modelling of Commercial SiC MOSFETs. Materials Science Forum, 0, 897, 557-560.	0.3	3
100	A study on free-standing 3C-SiC bipolar power diodes. Applied Physics Letters, 2021, 118, .	1.5	3
101	A cost-effective high-voltage p-channel MOSFET implemented in a standard twin-tub technology: integrated IGBT gate driver. , 2005, , .		2
102	4H-SiC MOS Structures Fabricated from RTCVD Si Layers Oxidized in Diluted N <sub>2</sub> & O <sub>2</sub> . Materials Science Forum, 2005, 483-485, 673-676.	0.3	2
103	Ta <sub>2</sub> Si short time thermal oxidized layers in N <sub>2</sub> O <sub>2</sub> and O <sub>2</sub> to form high- k gate dielectric on SiC. Applied Surface Science, 2006, 253, 1741-1744.	3.1	2
104	Development of Low Resistance Al/Ti Stacked Metal Contacts to p-Type 4H-SiC. Materials Science Forum, 2007, 556-557, 697-700.	0.3	2
105	Interfacial properties of thermally oxidized Ta <sub>2</sub> Si on Si. Surface and Interface Analysis, 2008, 40, 1164-1167.	0.8	2
106	Functional Oxide as an Extreme High-k Dielectric towards 4H-SiC MOSFET Incorporation. Materials Science Forum, 2017, 897, 155-158.	0.3	2
107	A study of the thermal oxidation of TaSi <sub>2</sub> and Ta <sub>2</sub> Si silicides to form dielectric layers for mis structures on 4H-SiC. , 0, , .		1
108	Characterization of MOS interfaces on protected and un-protected 4H-SiC surfaces. , 2008, , .		1

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109	Ohmic Contacts to implanted GaN. , 2009, , .		1
110	Silicon-on-SiC, a Novel Semiconductor Structure for Power Devices. Materials Science Forum, 2010, 645-648, 1243-1246.	0.3	1
111	SiC on SOI Resonators: A Route for Electrically Driven MEMS in Harsh Environment. Materials Science Forum, 2010, 645-648, 845-848.	0.3	1
112	Innovative 3C-SiC on SiC via Direct Wafer Bonding. Materials Science Forum, 2013, 740-742, 271-274.	0.3	1
113	Enhanced Forward Bias Operation of 4H-SiC PiN Diodes Using High Temperature Oxidation. Materials Research Society Symposia Proceedings, 2014, 1693, 193.	0.1	1
114	Stability of Molecular Devices: Halide Perovskite Solar Cells. Green Chemistry and Sustainable Technology, 2018, , 477-531.	0.4	1
115	Optimization of a very cost-effective high voltage p-channel transistor implemented in a standard twin-tub CMOS technology. Microelectronic Engineering, 2005, 77, 158-167.	1.1	0
116	A study of the influence of N/sub 2/O and N/sub 2/ annealing processes on 4H-SiC MOS structures with deposited TEOS SiO/sub 2/ as gate oxide. , 0, , .		0
117	Modelling of the Anomalous Field-Effect Mobility Peak of O-Ta<sub>2</sub>/Si/4H-SiC High-k MOSFETs Measured in Strong Inversion. Materials Science Forum, 2006, 527-529, 1059-1062.	0.3	0
118	Molecular beam epitaxy Si/4H-SiC heterojunction diodes. , 2007, , .		0
119	Characterization of 4H-SiC Junction Barrier Schottky Diodes by Admittance vs Temperature Analyses. Materials Science Forum, 2009, 615-617, 671-674.	0.3	0
120	Germanium â€“ Silicon Carbide Heterojunction Diodes â€“ A Study in Device Characteristics with Increasing Layer Thickness and Deposition Temperature. Materials Science Forum, 2010, 645-648, 889-892.	0.3	0
121	Characterisation of HfO<sub>2</sub>/Si/SiC MOS Capacitors. Materials Science Forum, 0, 679-680, 674-677.	0.3	0
122	High voltage low Ron in-situ SiN/AlO.35GaNO.65/GaN-on-Si power HEMTs operation up to 300Â°C. , 2012, , .		0
123	On the application of novel high temperature oxidation processes , to enhance the performance of high voltage silicon carbide PIN diodes. , 2014, , .		0
124	Layered metal and highly doped MBE Si contacts for 4H-SiC power devices. , 2008, , .		0