David Jimenez

List of Publications by Year
in descending order

104 papers	3,036 citations	201674 27 h-index	175258 52 g-index
105 all docs	105 docs citations	105 times ranked	3115 citing authors

#	Article	IF	Citations
1	Continuous Analytic Iâ€“V Model for Surrounding-Gate MOSFETs. IEEE Electron Device Letters, 2004, 25, 571-573.	3.9	254
2	Explicit Continuous Model for Long-Channel Undoped Surrounding Gate MOSFETs. IEEE Transactions on Electron Devices, 2005, 52, 1868-1873.	3.0	198
3	The environment of graphene probed by electrostatic force microscopy. Applied Physics Letters, 2008, 92, .	3.3	156
4	Quantum-size effects in hafnium-oxide resistive switching. Applied Physics Letters, 2013, 102, 183505.	3.3	151
5	Modeling of Nanoscale Gate-All-Around MOSFETs. IEEE Electron Device Letters, 2004, 25, 314-316.	3.9	136
6	Analytic Model for the Surface Potential and Drain Current in Negative Capacitance Field-Effect Transistors. IEEE Transactions on Electron Devices, 2010, 57, 2405-2409.	3.0	128
7	Multidomain ferroelectricity as a limiting factor for voltage amplification in ferroelectric field-effect transistors. Applied Physics Letters, 2010, 97, .	3.3	111
8	Metal-Ferroelectric-Meta-Oxide-semiconductor field effect transistor with sub-60mV/decade subthreshold swing and internal voltage amplification. , 2010, , .		97
9	Explicit Drain-Current Model of Graphene Field-Effect Transistors Targeting Analog and Radio-Frequency Applications. IEEE Transactions on Electron Devices, 2011, 58, 4049-4052.	3.0	97
10	Negative capacitance detected. Nature Materials, 2015, 14, 137-139.	27.5	93
11	Tunable Grapheneâ€“GaSe Dual Heterojunction Device. Advanced Materials, 2016, 28, 1845-1852.	21.0	90
12	Drift-diffusion model for single layer transition metal dichalcogenide field-effect transistors. Applied Physics Letters, 2012, 101, .	3.3	84
13	Unified compact model for the ballistic quantum wire and quantum well metal-oxide-semiconductor field-effect-transistor. Journal of Applied Physics, 2003, 94, 1061-1068.	2.5	77
14	Explicit Analytical Charge and Capacitance Models of Undoped Double-Gate MOSFETs. IEEE Transactions on Electron Devices, 2007, 54, 1718-1724.	3.0	70
15	An Accurate and Verilog-A Compatible Compact Model for Graphene Field-Effect Transistors. IEEE Nanotechnology Magazine, 2014, 13, 895-904.	2.0	66
16	Design and analysis of silicon antiresonant reflecting optical waveguides for evanescent field sensor. Journal of Lightwave Technology, 2000, 18, 966-972.	4.6	62
17	Magnetically Induced Field Effect in Carbon Nanotube Devices. Nano Letters, 2007, 7, 960-964.	9.1	62
18	Explicit Drain Current, Charge and Capacitance Model of Graphene Field-Effect Transistors. IEEE Transactions on Electron Devices, 2011, 58, 4377-4383.	3.0	55

#	Article	IF	Citations
19	Compact model for highly-doped double-gate SOI MOSFETs targeting baseband analog applications. Solid-State Electronics, 2007, 51, 655-661.	1.4	54
20	Physical model of the contact resistivity of metal-graphene junctions. Journal of Applied Physics, 2014, 115, .	2.5	51
21	Analytical Charge and Capacitance Models of Undoped Cylindrical Surrounding-Gate MOSFETs. IEEE Transactions on Electron Devices, 2007, 54, 162-165.	3.0	46
22	The Quantum Point-Contact Memristor. IEEE Electron Device Letters, 2012, 33, 1474-1476.	3.9	46
23	Understanding the electrical response and sensing mechanism of carbon-nanotube-based gas sensors. Carbon, 2015, 87, 330-337.	10.3	46
24	A currentâ€“voltage model for Schottky-barrier graphene-based transistors. Nanotechnology, 2008, 19, 345204.	2.6	44
25	Analog performance of the nanoscale double-gate metal-oxide-semiconductor field-effect-transistor near the ultimate scaling limits. Journal of Applied Physics, 2004, 96, 5271-5276.	2.5	35
26	Large-Signal Model of Graphene Field-Effect Transistorsâ€"Part I: Compact Modeling of GFET Intrinsic Capacitances. IEEE Transactions on Electron Devices, 2016, 63, 2936-2941.	3.0	35
27	A physics-based model of gate-tunable metalâ€“graphene contact resistance benchmarked against experimental data. 2D Materials, 2015, 2, 025006.	4.4	30
28	Short channel effects in graphene-based field effect transistors targeting radio-frequency applications. 2D Materials, 2016, 3, 025036.	4.4	30
29	Two-dimensional analytical threshold voltage roll-off and subthreshold swing models for undoped cylindrical gate all around MOSFET. Solid-State Electronics, 2006, 50, 805-812.	1.4	27
30	Large-Signal Model of Graphene Field- Effect Transistorsâ€"Part II: Circuit Performance Benchmarking. IEEE Transactions on Electron Devices, 2016, 63, 2942-2947.	3.0	24
31	Small-Signal Model for 2D-Material Based FETs Targeting Radio-Frequency Applications: The Importance of Considering Nonreciprocal Capacitances. IEEE Transactions on Electron Devices, 2017, 64, 4715-4723.	3.0	24
32	Understanding the bias dependence of low frequency noise in single layer graphene FETs. Nanoscale, 2018, 10, 14947-14956.	5.6	23
33	Photoresponse of Graphene-Gated Graphene-GaSe Heterojunction Devices. ACS Applied Nano Materials, 2018, 1, 3895-3902.	5.0	23
34	Multilevel recording in Bi-deficient Pt/BFO/SRO heterostructures based on ferroelectric resistive switching targeting high-density information storage in nonvolatile memories. Applied Physics Letters, 2013, 103, .	3.3	20
35	Compact charge and capacitance modeling of undoped ultra-thin body (UTB) SOI MOSFETs. Solid-State Electronics, 2008, 52, 1867-1871.	1.4	19
36	Electrostatics of two-dimensional lateral junctions. Nanotechnology, 2018, 29, 275203.	2.6	19

#	Article	IF	Citations
37	Improved metal-graphene contacts for low-noise, high-density microtransistor arrays for neural sensing. Carbon, 2020, 161, 647-655.	10.3	19
38	Compact Modeling Technology for the Simulation of Integrated Circuits Based on Graphene Fieldâ€Effect Transistors. Advanced Materials, 2022, 34, e2201691.	21.0	19
39	Tuning the band gap of semiconducting carbon nanotube by an axial magnetic field. Applied Physics Letters, 2010, 96, 132101.	3.3	17
40	Initial leakage current related to extrinsic breakdown in HfO2/Al2O3 nanolaminate ALD dielectrics. Microelectronic Engineering, 2011, 88, 1380-1383.	2.4	17
41	Velocity Saturation Effect on Low Frequency Noise in Short Channel Single Layer Graphene Field Effect Transistors. ACS Applied Electronic Materials, 2019, 1, 2626-2636.	4.3	16
42	Statistics of soft and hard breakdown in thin SiO2 gate oxides. Microelectronics Reliability, 2003, 43, 1185-1192.	1.7	15
43	Modeling the breakdown statistics of Al2O3/HfO2 nanolaminates grown by atomic-layer-deposition. Solid-State Electronics, 2012, 71, 48-52.	1.4	15
44	Scaling of graphene field-effect transistors supported on hexagonal boron nitride: radio-frequency stability as a limiting factor. Nanotechnology, 2017, 28, 485203.	2.6	15
45	Electrostatics of metalâ€“graphene interfaces: sharp pâ€“n junctions for electron-optical applications. Nanoscale, 2019, 11, 10273-10281.	5.6	15
46	Large-signal model of 2DFETs: compact modeling of terminal charges and intrinsic capacitances. Npj 2D Materials and Applications, 2019, 3, .	7.9	15
47	Threshold Switching and Conductance Quantization in Al/HfO₂/Si(p) Structures. Japanese Journal of Applied Physics, 2013, 52, 04CD06.	1.5	14
48	Experimental Observation and Modeling of the Impact of Traps on Static and Analog/HF Performance of Graphene Transistors. IEEE Transactions on Electron Devices, 2020, 67, 5790-5796.	3.0	14
49	Radio Frequency Performance Projection and Stability Tradeoff of h-BN Encapsulated Graphene Field-Effect Transistors. IEEE Transactions on Electron Devices, 2019, 66, 1567-1573.	3.0	12
50	A Small-Signal GFET Equivalent Circuit Considering an Explicit Contribution of Contact Resistances. IEEE Microwave and Wireless Components Letters, 2021, 31, 29-32.	3.2	12
51	Contact resistance extraction of graphene FET technologies based on individual device characterization. Solid-State Electronics, 2020, 172, 107882.	1.4	11
52	Sensitivity analysis of a Graphene Field-Effect Transistors by means of Design of Experiments. Mathematics and Computers in Simulation, 2021, 183, 187-197.	4.4	11
53	Low-Frequency Noise Parameter Extraction Method for Single-Layer Graphene FETs. IEEE Transactions on Electron Devices, 2020, 67, 2093-2099.	3.0	10
54	Characterization at the nanometer scale of local electron beam irradiation of CNT based devices. Microelectronic Engineering, 2008, 85, 1413-1416.	2.4	9

#	Article	IF	Citations
55	Accurate Calculation of Gate Tunneling Current in Double-Gate and Single-Gate SOI MOSFETs Through Gate Dielectric Stacks. IEEE Transactions on Electron Devices, 2012, 59, 2589-2596.	3.0	9
56	Explicit model for the gate tunneling current in double-gate MOSFETs. Solid-State Electronics, 2012, 68, 93-97.	1.4	9
57	Nonhomogeneous spatial distribution of filamentary leakage current paths in circular area Pt/HfO2/Pt capacitors. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2013, 31, 01A107.	1.2	9
58	GFET Asymmetric Transfer Response Analysis through Access Region Resistances. Nanomaterials, 2019, 9, 1027.	4.1	9
59	Accurate prediction of the volume inversion impact on undoped Double Gate MOSFET capacitances. International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, 2010, 23, 447-457.	1.9	8
60	The Role of the Fermi Level Pinning in Gate Tunable Graphene-Semiconductor Junctions. IEEE Transactions on Electron Devices, 2016, 63, 4521-4526.	3.0	8
61	A numerical study of scaling issues for trench power MOSFETs. Solid-State Electronics, 2005, 49, 965-975.	1.4	7
62	Intrinsic noise in aggressively scaled field-effect transistors. Journal of Statistical Mechanics: Theory and Experiment, 2009, 2009, P01044.	2.3	7
63	Explicit quantum potential and charge model for double-gate MOSFETs. Solid-State Electronics, 2010, 54, 530-535.	1.4	7
64	Impact of graphene polycrystallinity on the performance of graphene field-effect transistors. Applied Physics Letters, 2014, 104, 043509.	3.3	7
65	Non-Quasi-Static Effects in Graphene Field-Effect Transistors Under High-Frequency Operation. IEEE Transactions on Electron Devices, 2020, 67, 2188-2196.	3.0	7
66	Compact Modeling of pH-Sensitive FETs Based on 2-D Semiconductors. IEEE Transactions on Electron Devices, 2021, 68, 5916-5919.	3.0	7
67	A drain current model for Schottky-barrier CNT-FETs. Journal of Computational Electronics, 2007, 5, 361-364.	2.5	6
68	Large-Signal Model of the Metalâ€"Insulatorâ€"Graphene Diode Targeting RF Applications. IEEE Electron Device Letters, 2019, 40, 1005-1008.	3.9	6
69	2D pn junctions driven out-of-equilibrium. Nanoscale Advances, 2020, 2, 3252-3262.	4.6	6
70	Small-signal parameters extraction and noise analysis of CNTFETs. Semiconductor Science and Technology, 2020, 35, 045024.	2.0	6
71	An Extraction Method for Mobility Degradation and Contact Resistance of Graphene Transistors. IEEE Transactions on Electron Devices, 2022, 69, 4037-4041.	3.0	6
72	Improved boundary conditions for the beam propagation method. IEEE Photonics Technology Letters, 1999, 11, 1000-1002.	2.5	5

#	Article	IF	Citations
73	Exploring the magnetically induced field effect in carbon nanotube-based devices. Physica E: Low-Dimensional Systems and Nanostructures, 2008, 40, 1010-1013.	2.7	5
74	Compact analytical models for the SET and RESET switching statistics of RRAM inspired in the cell-based percolation model of gate dielectric breakdown. , 2013, , .		5
75	Multifunctional High-Frequency Circuit Capabilities of Ambipolar Carbon Nanotube FETs. IEEE Nanotechnology Magazine, 2021, 20, 474-480.	2.0	5
76	A simple model of the nanoscale double gate MOSFET based on the flux method. Physica Status Solidi C: Current Topics in Solid State Physics, 2005, 2, 3086-3089.	0.8	4
77	From dielectric failure to memory function: Learning from oxide breakdown for improved understanding of resistive switching memories. , 2011, , .		4
78	Theory of graphene-field effect transistors. , 2012, , .		4
79	Erratum to â€œLarge-Signal Model of Graphene Field-Effect Transistorsâ€"Part I: Compact Modeling of GFET Intrinsic Capacitancesâ€•[Jul 16 2936-2941]. IEEE Transactions on Electron Devices, 2019, 66, 2459-2459.	3.0	4
80	Does carrier velocity saturation help to enhance <i>f</i>_{max} in graphene field-effect transistors?. Nanoscale Advances, 2020, 2, 4179-4186.	4.6	4
81	Unveiling the impact of the bias-dependent charge neutrality point on graphene based multi-transistor applications. Nano Express, 2021, 2, 036001.	2.4	4
82	Progressive breakdown dynamics and entropy production in ultrathin SiO2 gate oxides. Applied Physics Letters, 2011, 98, .	3.3	3
83	Large-signal model of the bilayer graphene field-effect transistor targeting radio-frequency applications: Theory versus experiment. Journal of Applied Physics, 2015, 118, .	2.5	3
84	Bias dependent variability of low-frequency noise in single-layer graphene FETs. Nanoscale Advances, 2020, 2, 5450-5460.	4.6	3
85	Bias-Dependent Intrinsic RF Thermal Noise Modeling and Characterization of Single-Layer Graphene FETs. IEEE Transactions on Microwave Theory and Techniques, 2021, 69, 4639-4646.	4.6	3
86	Contact resistance assessment and high-frequency performance projection of black phosphorus field-effect transistor technologies. Semiconductor Science and Technology, 2020, 35, 125016.	2.0	3
87	Charge-Based Compact Modeling of Multiple-Gate MOSFET. , 2007, , .		2
88	Explicit model for direct tunneling current in double-gate MOSFETs through a dielectric stack. Solid-State Electronics, 2012, 76, 19-24.	1.4	2
89	Efficient contact resistance extraction from individual device characteristics of graphene FETs. , 2019, , .		2
90	Light propagation studies on laser modified waveguides using scanning near-field optical microscopy. IEEE Photonics Technology Letters, 2001, 13, 809-811.	2.5	1

#	Article	IF	Citations
91	Comment on â€œNew Currentâ€“Voltage Model for Surrounding-Gate Metal Oxide Semiconductor Field-Effect Transistorsâ€. Japanese Journal of Applied Physics, 2006, 45, 6057-6057.	1.5	1
92	Field-effect control of breakdown paths in HfO2 based MIM structures. Microelectronics Reliability, 2013, 53, 1346-1350.	1.7	1
93	Device-to-circuit modeling approach to Metal â€“ Insulator â€“ 2D material FETs targeting the design of linear RF applications. , 2019, , .		1
94	A contact resistance extraction method of 2D-FET technologies without test structures. , 2021, , .		1
95	A Small-Signal Description of Black-Phosphorus Transistor Technologies for High-Frequency Applications. IEEE Microwave and Wireless Components Letters, 2021, 31, 1055-1058.	3.2	1
96	The gate tunable 2D <i>pn</i> junction driven out-of-equilibrium. Journal of Applied Physics, 2021, 130, .	2.5	1
97	New Explicit Charge and Capacitance Models for Undoped Surrounding Gate MOSFETs. , 2007, , .		0
98	Probing nanotube-based ambipolar FET by magnetic field. AIP Conference Proceedings, 2007, , .	0.4	0
99	Current-voltage characteristics of graphene based devices. , 2011, , .		0
100	Interplay between Intrinsic and Contact Phenomena in Carbon Nanotube Devices: From Exponential Magnetoresistance to Chemical Sensing. Fullerenes Nanotubes and Carbon Nanostructures, 2012, 20, 405-410.	2.1	0
101	Analysis of traps-related effects hindering GFETs performance. , 2021, , .		0
102	Input-Referred Low-Frequency Noise Analysis for Single-Layer Graphene FETs. IEEE Transactions on Electron Devices, 2021, 68, 4762-4765.	3.0	0
103	BPFET-based RF electronics: state-of-the-art, small-signal modeling and amplifier design. , 2021, , .		0
104	Schottky-like barrier characterization of field-effect transistors with multiple quasi-ballistic channels. Journal of Applied Physics, 2022, 132, 024501.	2.5	0