

Sourabh Khandelwal

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/1836917/publications.pdf>

Version: 2024-02-01

123
papers

2,991
citations

257450

24
h-index

197818

49
g-index

125
all docs

125
docs citations

125
times ranked

2114
citing authors

#	ARTICLE	IF	CITATIONS
1	Sustained Sub-60 mV/decade Switching via the Negative Capacitance Effect in MoS ₂ Transistors. Nano Letters, 2017, 17, 4801-4806.	9.1	237
2	Negative Capacitance in Short-Channel FinFETs Externally Connected to an Epitaxial Ferroelectric Capacitor. IEEE Electron Device Letters, 2016, 37, 111-114.	3.9	198
3	A Physics-Based Analytical Model for 2DEG Charge Density in AlGaIn/GaN HEMT Devices. IEEE Transactions on Electron Devices, 2011, 58, 3622-3625.	3.0	152
4	Analysis and Compact Modeling of Negative Capacitance Transistor with High ON-Current and Negative Output Differential Resistance—Part II: Model Validation. IEEE Transactions on Electron Devices, 2016, 63, 4986-4992.	3.0	139
5	Analytical Modeling of Surface-Potential and Intrinsic Charges in AlGaIn/GaN HEMT Devices. IEEE Transactions on Electron Devices, 2012, 59, 2856-2860.	3.0	128
6	BSIM6: Analog and RF Compact Model for Bulk MOSFET. IEEE Transactions on Electron Devices, 2014, 61, 234-244.	3.0	105
7	A physics based compact model of I_{on} and C_{off} characteristics in AlGaIn/GaN HEMT devices. Solid-State Electronics, 2012, 76, 60-66.	1.4	101
8	ASM GaN: Industry Standard Model for GaN RF and Power Devices—Part 1: DC, CV, and RF Model. IEEE Transactions on Electron Devices, 2019, 66, 80-86.	3.0	97
9	Robust Surface-Potential-Based Compact Model for GaN HEMT IC Design. IEEE Transactions on Electron Devices, 2013, 60, 3216-3222.	3.0	90
10	Analysis and Compact Modeling of Negative Capacitance Transistor with High ON-Current and Negative Output Differential Resistance—Part I: Model Description. IEEE Transactions on Electron Devices, 2016, 63, 4981-4985.	3.0	85
11	BSIM-IMG: A Compact Model for Ultrathin-Body SOI MOSFETs With Back-Gate Control. IEEE Transactions on Electron Devices, 2012, 59, 2019-2026.	3.0	83
12	Impact of Parasitic Capacitance and Ferroelectric Parameters on Negative Capacitance FinFET Characteristics. IEEE Electron Device Letters, 2017, 38, 142-144.	3.9	71
13	Compact Charge-Based Physical Models for Current and Capacitances in AlGaIn/GaN HEMTs. IEEE Transactions on Electron Devices, 2013, 60, 3746-3752.	3.0	70
14	Compact models of negative-capacitance FinFETs: Lumped and distributed charge models. , 2016, , .		69
15	Capacitance Modeling in Dual Field-Plate Power GaN HEMT for Accurate Switching Behavior. IEEE Transactions on Electron Devices, 2016, 63, 565-572.	3.0	69
16	BSIM-CMG: Standard FinFET compact model for advanced circuit design. , 2015, , .		65
17	ASM GaN: Industry Standard Model for GaN RF and Power Devices—Part-II: Modeling of Charge Trapping. IEEE Transactions on Electron Devices, 2019, 66, 87-94.	3.0	61
18	Physics-Based Multi-Bias RF Large-Signal GaN HEMT Modeling and Parameter Extraction Flow. IEEE Journal of the Electron Devices Society, 2017, 5, 310-319.	2.1	59

#	ARTICLE	IF	CITATIONS
19	Ferroelectric Oscillators and Their Coupled Networks. IEEE Electron Device Letters, 2017, 38, 1614-1617.	3.9	46
20	Surface-Potential-Based Compact Modeling of Gate Current in AlGaIn/GaN HEMTs. IEEE Transactions on Electron Devices, 2015, 62, 443-448.	3.0	44
21	BSIM — Industry standard compact MOSFET models. , 2012, , .		41
22	Modeling of GaN-Based Normally-Off FinFET. IEEE Electron Device Letters, 2014, 35, 612-614.	3.9	40
23	Modeling of source/drain access resistances and their temperature dependence in GaN HEMTs. , 2016, , .		36
24	RF Modeling of FDSOI Transistors Using Industry Standard BSIM-IMG Model. IEEE Transactions on Microwave Theory and Techniques, 2016, 64, 1745-1751.	4.6	34
25	Analysis and Modeling of Cross-Coupling and Substrate Capacitances in GaN HEMTs for Power-Electronic Applications. IEEE Transactions on Electron Devices, 2017, 64, 816-823.	3.0	34
26	Surface Potential Based Modeling of Thermal Noise for HEMT Circuit Simulation. IEEE Microwave and Wireless Components Letters, 2015, 25, 376-378.	3.2	29
27	Piezoelectricity-Induced Schottky Barrier Height Variations in AlGaIn/GaN High Electron Mobility Transistors. IEEE Electron Device Letters, 2015, 36, 902-904.	3.9	27
28	Modeling the impact of substrate depletion in FDSOI MOSFETs. Solid-State Electronics, 2015, 104, 6-11.	1.4	26
29	Capacitance Modeling in IIIâ€V FinFETs. IEEE Transactions on Electron Devices, 2015, 62, 3892-3897.	3.0	25
30	Compact Modeling of Flicker Noise in HEMTs. IEEE Journal of the Electron Devices Society, 2014, 2, 174-178.	2.1	24
31	ASM-HEMT: Compact model for GaN HEMTs. , 2015, , .		24
32	Modeling of kink-effect in RF behaviour of GaN HEMTs using ASM-HEMT model. , 2016, , .		23
33	Analytical Modeling of Flicker Noise in Halo Implanted MOSFETs. IEEE Journal of the Electron Devices Society, 2015, 3, 355-360.	2.1	22
34	Analytical Modeling and Experimental Validation of Threshold Voltage in BSIM6 MOSFET Model. IEEE Journal of the Electron Devices Society, 2015, 3, 240-243.	2.1	22
35	A New Small-Signal Parameter Extraction Technique for Large Gate-Periphery GaN HEMTs. IEEE Microwave and Wireless Components Letters, 2017, 27, 918-920.	3.2	22
36	Extreme Temperature Modeling of AlGaIn/GaN HEMTs. IEEE Transactions on Electron Devices, 2020, 67, 430-437.	3.0	21

#	ARTICLE	IF	CITATIONS
37	Modeling 20-nm Germanium FinFET With the Industry Standard FinFET Model. IEEE Electron Device Letters, 2014, 35, 711-713.	3.9	20
38	A Predictive Tunnel FET Compact Model With Atomistic Simulation Validation. IEEE Transactions on Electron Devices, 2017, 64, 599-605.	3.0	20
39	Thermal resistance modeling in FDSOI transistors with industry standard model BSIM-IMG. Microelectronics Journal, 2016, 56, 171-176.	2.0	19
40	Compact Modeling of Surface Potential, Charge, and Current in Nanoscale Transistors Under Quasi-Ballistic Regime. IEEE Transactions on Electron Devices, 2016, 63, 4151-4159.	3.0	18
41	Unified Compact Model Covering Drift-Diffusion to Ballistic Carrier Transport. IEEE Electron Device Letters, 2016, 37, 134-137.	3.9	17
42	Deep Learning-Based BSIM-CMG Parameter Extraction for 10-nm FinFET. IEEE Transactions on Electron Devices, 2022, 69, 4765-4768.	3.0	17
43	BSIM — Industry standard compact MOSFET models. , 2012, , .		16
44	Pole-Zero Approach to Analyze and Model the Kink in Gain-Frequency Plot of GaN HEMTs. IEEE Microwave and Wireless Components Letters, 2017, 27, 266-268.	3.2	16
45	Anomalous Transconductance in Long Channel Halo Implanted MOSFETs: Analysis and Modeling. IEEE Transactions on Electron Devices, 2017, 64, 376-383.	3.0	15
46	Assessment of NBTI in Presence of Self-Heating in High- k SOI FinFETs. IEEE Electron Device Letters, 2012, 33, 1532-1534.	3.9	14
47	A physics based compact model for drain current in AlGaIn/GaN HEMT devices. , 2012, , .		14
48	GaN HEMT modeling for power and RF applications using ASM-HEMT. , 2016, , .		14
49	Modeling of Subsurface Leakage Current in Low Short Channel MOSFET at Accumulation Bias. IEEE Transactions on Electron Devices, 2016, 63, 1840-1845.	3.0	14
50	Modeling of nonlinear thermal resistance in FinFETs. Japanese Journal of Applied Physics, 2016, 55, 04ED11.	1.5	14
51	A physics based compact model of gate capacitance in AlGaIn/GaN HEMT devices. , 2012, , .		13
52	BSIM-IMG: Compact model for RF-SOI MOSFETs. , 2015, , .		13
53	Modeling of Charge and Quantum Capacitance in Low Effective Mass III-V FinFETs. IEEE Journal of the Electron Devices Society, 2016, 4, 396-401.	2.1	13
54	New industry standard FinFET compact model for future technology nodes. , 2015, , .		12

#	ARTICLE	IF	CITATIONS
55	Characterization of RF Noise in UTBB FD-SOI MOSFET. IEEE Journal of the Electron Devices Society, 2016, 4, 379-386.	2.1	12
56	Consistent Surface-Potential-Based Modeling of Drain and Gate Currents in AlGaIn/GaN HEMTs. IEEE Transactions on Electron Devices, 2020, 67, 455-462.	3.0	12
57	Modeling STI Edge Parasitic Current for Accurate Circuit Simulations. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2015, 34, 1291-1294.	2.7	11
58	Energy-Efficient Ferroelectric Field-Effect Transistor-Based Oscillators for Neuromorphic System Design. IEEE Journal on Exploratory Solid-State Computational Devices and Circuits, 2020, 6, 122-129.	1.5	11
59	Small signal model and analog performance analysis of negative capacitance FETs. Solid-State Electronics, 2021, 186, 108161.	1.4	11
60	Effect of access region and field plate on capacitance behavior of GaN HEMT. , 2015, , .		10
61	InAs FinFETs Performance Enhancement by Superacid Surface Treatment. IEEE Transactions on Electron Devices, 2019, 66, 1856-1861.	3.0	10
62	Analysis of Drain-Current Nonlinearity Using Surface-Potential-Based Model in GaAs pHEMTs. IEEE Transactions on Microwave Theory and Techniques, 2013, 61, 3265-3270.	4.6	9
63	Modeling of Back-Gate Effects on Gate-Induced Drain Leakage and Gate Currents in UTB SOI MOSFETs. IEEE Transactions on Electron Devices, 2017, 64, 3986-3990.	3.0	9
64	Non-Linear RF Modeling of GaN HEMTs with Industry Standard ASM GaN Model (Invited). , 2018, , .		9
65	Analog Neuromorphic System Based on Multi Input Floating Gate MOS Neuron Model. , 2019, , .		8
66	A precise physics-based compact model for 2-DEG charge density in GaAs HEMTs applicable in all regions of device operation. Solid-State Electronics, 2013, 79, 22-25.	1.4	7
67	A surface potential based model for GaN HEMTs. , 2013, , .		7
68	Modeling SiGe FinFETs With Thin Fin and Current-Dependent Source/Drain Resistance. IEEE Electron Device Letters, 2015, 36, 636-638.	3.9	7
69	Analysis and modeling of flicker noise in lateral asymmetric channel MOSFETs. Solid-State Electronics, 2016, 115, 33-38.	1.4	7
70	Impact of p-GaN layer Doping on Switching Performance of Enhancement Mode GaN Devices. , 2018, , .		7
71	Physics-based Compact Models: An Emerging Trend in Simulation-based GaN HEMT Power Amplifier Design. , 2019, , .		7
72	Physics-Oriented Device Model for Packaged GaN Devices. IEEE Transactions on Power Electronics, 2020, 35, 6332-6339.	7.9	7

#	ARTICLE	IF	CITATIONS
73	A Surface-Potential-Based Compact Model for Study of Non-Linearities in AlGaAs/GaAs HEMTs. , 2012, , .		6
74	Modeling of GeOI and validation with Ge-CMOS inverter circuit using BSIM-IMG industry standard model. , 2016, , .		6
75	Predictive effective mobility model for FDSOI transistors using technology parameters. , 2016, , .		6
76	Modeling of threshold voltage for operating point using industry standard BSIM-IMG model. , 2016, , .		6
77	Cross-Domain Optimization of Ferroelectric Parameters for Negative Capacitance Transistorsâ€™ Part I: Constant Supply Voltage. IEEE Transactions on Electron Devices, 2020, 67, 365-370.	3.0	6
78	BSIM-IMG with improved surface potential calculation recipe. , 2014, , .		5
79	New Mobility Model for Accurate Modeling of Transconductance in FDSOI MOSFETs. IEEE Transactions on Electron Devices, 2018, 65, 463-469.	3.0	5
80	Modeling of the Impact of the Substrate Voltage on the Capacitances of GaN-on-Si HEMTs. IEEE Transactions on Electron Devices, 2019, 66, 5103-5110.	3.0	5
81	An Analytical Model for Hot Carrier Induced Long-Term Degradation in Power Amplifiers. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2020, 39, 2000-2005.	2.7	5
82	Frequency Behaviour of FeFET-Based Ultra-Low-Power Coupled Oscillator Neurons. , 2020, , .		5
83	Accurate Non-linear Large Signal Physics-based Modeling for Ka-band GaN Power Amplifier Design with ASM-HEMT. , 2021, , .		5
84	A charge-based capacitance model for AlGaAs/GaAs HEMTs. Solid-State Electronics, 2013, 82, 38-40.	1.4	4
85	Modeling of trapping effects in GaN HEMTs. , 2015, , .		4
86	Consistent Modelling of I-V and C-V Behaviour of GaN HEMTs in Presence of Trapping. , 2019, , .		4
87	DC and RF performances of InAs FinFET and GAA MOSFET on insulator. Solid-State Electronics, 2019, 158, 11-15.	1.4	4
88	Quiescent Drain Voltage Dependence of Pulsed I-V Characteristics of GaN HEMTs: Analysis and Modeling. , 2019, , .		4
89	Optimal Ferroelectric Parameters for Negative Capacitance Field-Effect Transistors Based on Full-Chip Implementationsâ€™ Part II: Scaling of the Supply Voltage. IEEE Transactions on Electron Devices, 2020, 67, 371-376.	3.0	4
90	Characterization of Thermal and Trapping Time Constants in a GaN HEMT. , 2020, , .		4

#	ARTICLE	IF	CITATIONS
91	A Physics-Based Model of Vertical TFETs Part II: Drain Current Model. IEEE Transactions on Electron Devices, 2022, 69, 3974-3982.	3.0	4
92	Compact and Energy Efficient Neuron With Tunable Spiking Frequency in 22-nm FDSOI. IEEE Nanotechnology Magazine, 2022, 21, 189-195.	2.0	4
93	Physics-based Compact Modeling of MSM-2DEG GaN-based Varactors for THz Applications. , 2018, , .		3
94	Design methodology considering evolution of statistical corners under long term degradation. Microelectronics Journal, 2019, 91, 36-41.	2.0	3
95	Modeling the Impact of the High-Field Region on the I_C - V_D Characteristics in GaN HEMTs. IEEE Transactions on Electron Devices, 2019, 66, 4679-4684.	3.0	3
96	An Accurate Compact Model for GaN Power Switches with the Physics-based ASM-HEMT Model. , 2021, , .		3
97	Statistical Modeling of GaN Power Devices with ASM-GaN Model. , 2020, , .		3
98	Modeling Substrate Voltage Effects on GaN I-V Characteristics with ASM-HEMT model. , 2022, , .		3
99	Modeling and Simulation Methodology for SOA-Aware Circuit Design in DC and Pulsed-Mode Operation of HV MOSFETs. IEEE Transactions on Electron Devices, 2013, 60, 714-718.	3.0	2
100	Analysis and modeling of low frequency noise in presence of doping non-uniformity in MOSFETs. , 2016, , .		2
101	Self-aligned gate-last process for quantum-well InAs transistor on insulator. Microelectronic Engineering, 2018, 191, 42-47.	2.4	2
102	Parameter Extraction in ASM-HEMT Model. , 2022, , 131-150.		2
103	A Physics-Based Model of Vertical TFETs Part I: Modeling of Electric Potential. IEEE Transactions on Electron Devices, 2022, 69, 3966-3973.	3.0	2
104	Analysis of low-frequency noise characterisation set-up for electronic devices. , 2018, , .		1
105	A Study of Hard Switching Characteristics of GaN-based DC-DC Boost Power Converter using ASM-GaN Compact Model. , 2018, , .		1
106	Characterization and Modeling of the Impact of the Substrate Potential in the Dynamic and Static Behavior of Power GaN-on-Si HEMTs. , 2018, , .		1
107	Leakage Current and Thermal Effects. , 2019, , 65-87.		1
108	A Computationally Efficient Modelling Methodology for Field-Plates in GaN HEMTs. , 2019, , .		1

#	ARTICLE	IF	CITATIONS
109	Validation of the Industry-Standard ASM-GaN Model for Gate-Length Scaling. , 2020, , .		1
110	Analysis and modeling of OFF-state hysteretic losses in GaN power HEMTs. Solid-State Electronics, 2021, 180, 107995.	1.4	1
111	L-Bot: A Physically Motivated Deep Learning Based Inductor Modeling Tool. , 2021, , .		1
112	Comparison of high-voltage linear transmitter topologies for ultrasound CMUT applications. , 2013, , .		0
113	A Tunable Input-Impedance Matching Approach for Long-term Degradation effects of Power Amplifier. , 2018, , .		0
114	Robust Circuit Model for GaN-Based Radiation-Hard Electronics. , 2018, , .		0
115	Core Model for Independent Multigate MOSFETs. , 2019, , 15-34.		0
116	Model for Terminal Charges and Capacitances in BSIM-IMG. , 2019, , 89-106.		0
117	Channel Current Model With Real Device Effects in BSIM-IMG. , 2019, , 35-63.		0
118	Impact of Via-Inductance on Stability Behavior of Large Gate-Periphery Multi-finger RF Transistors. , 2019, , .		0
119	RF simulation of self-aligned T-shape S/D contact InAs MOSFET on silicon. Solid-State Electronics, 2020, 172, 107885.	1.4	0
120	SLC-ASM-HEMT: An Accurate compact model for SLCFET RF switch. , 2020, , .		0
121	Dependence of AM/PM non-linearity on source field-plate in GaN HEMTs. , 2020, , .		0
122	Noise Models. , 2022, , 125-130.		0
123	Circuit Performance Analysis of Analog RF LNA Designed with Negative Capacitance FET. , 2021, , .		0