

N Goldsman

List of Publications by Year in descending order

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83
papers

1,246
citations

394421

19
h-index

395702

33
g-index

83
all docs

83
docs citations

83
times ranked

878
citing authors

#	ARTICLE	IF	CITATIONS
1	Semiclassical transport and phonon scattering of electrons in semiconducting carbon nanotubes. Physical Review B, 2003, 68, .	3.2	219
2	Radiation Effects in Commercial 1200 V 24 A Silicon Carbide Power MOSFETs. IEEE Transactions on Nuclear Science, 2012, 59, 3258-3264.	2.0	105
3	Electron Transport and Velocity Oscillations in a Carbon Nanotube. IEEE Nanotechnology Magazine, 2007, 6, 469-474.	2.0	66
4	2-D MOSFET modeling including surface effects and impact ionization by self-consistent solution of the Boltzmann, Poisson, and hole-continuity equations. IEEE Transactions on Electron Devices, 1997, 44, 257-267.	3.0	62
5	CdZnTe heteroepitaxy on 3â€³ (112) Si: Interface, surface, and layer characteristics. Journal of Electronic Materials, 2000, 29, 748-753.	2.2	54
6	Efficient and accurate use of the energy transport method in device simulation. IEEE Transactions on Electron Devices, 1988, 35, 1524-1529.	3.0	50
7	Electron energy distribution for calculation of gate leakage current in MOSFETs. Solid-State Electronics, 1988, 31, 1089-1092.	1.4	41
8	Deterministic MOSFET simulation using a generalized spherical harmonic expansion of the Boltzmann equation. Solid-State Electronics, 1995, 38, 1485-1495.	1.4	40
9	Self-consistent calculations for n-type hexagonal SiC inversion layers. Journal of Applied Physics, 2004, 95, 4223-4234.	2.5	39
10	Compact and Distributed Modeling of Cryogenic Bulk MOSFET Operation. IEEE Transactions on Electron Devices, 2010, 57, 1334-1342.	3.0	39
11	Terrestrial Neutron-Induced Failures in Silicon Carbide Power MOSFETs and Diodes. IEEE Transactions on Nuclear Science, 2018, 65, 1248-1254.	2.0	39
12	Self-Consistent Modeling of Heating and MOSFET Performance in 3-D Integrated Circuits. IEEE Transactions on Electron Devices, 2005, 52, 2395-2403.	3.0	38
13	Deformation potential carrier-phonon scattering in semiconducting carbon nanotube transistors. Applied Physics Letters, 2007, 90, 062110.	3.3	36
14	Empirical pseudopotential band structure of 3C, 4H, and 6H SiC using transferable semiempirical Si and C model potentials. Physical Review B, 2001, 64, .	3.2	32
15	Quantum Modeling and Proposed Designs of CNT-Embedded Nanoscale MOSFETs. IEEE Transactions on Electron Devices, 2005, 52, 577-584.	3.0	32
16	Use of focused-ion-beam and modeling to optimize submicron MOSFET characteristics. IEEE Transactions on Electron Devices, 1998, 45, 453-459.	3.0	28
17	Structure, bonding, and passivation of single carbon-related oxide hole traps near 4H-SiC/SiO ₂ interfaces. Journal of Applied Physics, 2014, 116, .	2.5	26
18	Reconciliation of a hot-electron distribution function with the lucky electron-exponential model in silicon. IEEE Electron Device Letters, 1990, 11, 472-474.	3.9	22

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19	The effect of defects and their passivation on the density of states of the 4H-silicon-carbide/silicon-dioxide interface. Journal of Applied Physics, 2013, 113, 053703.	2.5	22
20	Predicting Cosmic Ray-Induced Failures in Silicon Carbide Power Devices. IEEE Transactions on Nuclear Science, 2019, 66, 1828-1832.	2.0	21
21	Compact modeling of 0.35 μ m SOI CMOS technology node for 4K DC operation using Verilog-A. Microelectron Engineering, 2010, 87, 2518-2524.	2.4	19
22	Tradeoffs and electron temperature calculations in lightly doped drain structures. IEEE Electron Device Letters, 1985, 6, 28-30.	3.9	18
23	Parasitic aware optimization of an RF power scavenging circuit with applications to Smartdust sensor networks. , 2009, , .		18
24	Tellurium desorption kinetics from (112) Si:â€fSi-Te binding energy. Physical Review B, 2000, 61, 8256-8261.	3.2	14
25	Negative bias-and-temperature stress-assisted activation of oxygen-vacancy hole traps in 4H-silicon carbide metal-oxide-semiconductor field-effect transistors. Journal of Applied Physics, 2015, 118, .	2.5	13
26	A methodology to identify and quantify mobility-reducing defects in 4H-silicon carbide power metal-oxide-semiconductor field-effect transistors. Journal of Applied Physics, 2014, 115, 103706.	2.5	12
27	Hydrodynamic device simulation using new state variables tailored for a block Gummel iterative approach. Solid-State Electronics, 1996, 39, 1213-1220.	1.4	11
28	Characterization of 4H-SiC MOSFET Interface Trap Charge Density Using a First Principles Coulomb Scattering Mobility Model and Device Simulation. , 2005, , .		10
29	Frequency domain analysis of the distribution function by small signal solution of the Boltzmann and Poisson equations. , 0, , .		9
30	The intrinsic atomic-level surface roughness mobility limit of 4H-SiC. Journal of Applied Physics, 2018, 124, .	2.5	9
31	Modeling multi-band effects of hot electron transport in silicon by self-consistent solution of the Boltzmann transport and Poisson equations. Solid-State Electronics, 1996, 39, 1695-1700.	1.4	8
32	Coupled Simulation of Device Performance and Heating of Vertically Stacked Three-Dimensional Integrated Circuits. , 2005, , .		8
33	Simulation of electron transport in (0001) and (112 \hat{O}) \hat{A} 4H-SiC inversion layers. Journal of Applied Physics, 2009, 106, .	2.5	8
34	Effects of carbon-related oxide defects on the reliability of 4H-SiC MOSFETs. , 2014, , .		7
35	Determination of space-dependent electron distribution function by combined use of energy and Boltzmann transport equations: improvement, evaluation, and explanation. IEEE Transactions on Electron Devices, 1992, 39, 1821-1828.	3.0	6
36	Coupled modeling of time-dependent full-chip heating and quantum non-isothermal device operation. , 2003, , .		6

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37	Impact Ionization and Freeze-Out Model for Simulation of Low Gate Bias Kink Effect in SOI-MOSFETs Operating at Liquid He Temperature. , 2009, , .		6
38	Faster CMOS inverter switching obtained with channel engineered asymmetrical halo implanted MOSFETs. , 0, , .		4
39	Modeling the enhancement of nanoscale MOSFETs by embedding carbon nanotubes in the channel. , 0, , .		4
40	Spherical Harmonic Modeling of a 0.05 μ m Base BJT: A Comparison with Monte Carlo and Asymptotic Analysis. VLSI Design, 1998, 8, 147-151.	0.5	3
41	Gate leakage current simulation by Boltzmann transport equation and its dependence on the gate oxide thickness. , 0, , .		3
42	Electron mobility of a semiconducting carbon nanotube. , 0, , .		3
43	Time dependence of bias-stress induced threshold-voltage instability measurements. , 2007, , .		3
44	An efficient physics-based gate current calculation by solving space-dependent Boltzmann transport equation. , 0, , .		2
45	Advances in spherical harmonic device modeling: calibration and nanoscale electron dynamics. , 0, , .		2
46	2-D quantum transport device modeling by self-consistent solution of the Wigner and Poisson equations. , 0, , .		2
47	Self-consistent surface mobility and interface charge modeling in conjunction with experiment of 6H-SiC MOSFETs. , 0, , .		2
48	Modeling the limits of gate oxide scaling with a Schrodinger-based method of direct tunneling gate currents of nanoscale MOSFETs. , 0, , .		2
49	Mixed-mode simulation of non-isothermal quantum device operation and full-chip heating. , 0, , .		2
50	Full Wave Modeling of Substrate Doping Effects and Nonideal Conductors in Integrated Circuit Interconnects. , 0, , .		2
51	Impact of Surface Steps on the Roughness Mobility in 4H-SiC. , 0, , .		2
52	Indium Phosphide Resonant Chemical Sensor with a Monolithically Integrated Optical Readout Scheme. , 2007, , .		2
53	Design and testing of a self-powered 3D integrated SOI CMOS system. Microelectronic Engineering, 2008, 85, 388-394.	2.4	2
54	Numerical modeling and design of single photon counter 4H-SiC avalanche photodiodes. , 2008, , .		2

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55	Detailed Study of Breakdown Voltage and Critical Field in Wide Bandgap Semiconductors. , 2019, , .		2
56	Investigation of temperature effects on electron transport in SiC using unique full band Monte Carlo simulation. , 0, , .		1
57	A new pedagogy in electrical and computer engineering: an experiential and conceptual approach. , 0, , .		1
58	Monte Carlo simulation of electron transport in a carbon nanotube. , 0, , .		1
59	Theory and design of field-effect carbon nanotube transistors. , 2003, , .		1
60	Numerical Performance Analysis of Carbon Nanotube (CNT) Embedded MOSFETs. , 2004, , 153-156.		1
61	Numerical Modeling and Characterization of n-Channel 4H-SiC Double-Diffused Vertical Power MOSFET. , 0, , .		1
62	Realization of Self-Powered Electronics by 3-D Integration. , 0, , .		1
63	Low-Field Transport Model for Semiconducting Carbon Nanotubes. , 2005, , .		1
64	Effects of volumetric and potential energy change on indirect to direct bandgap transition of Ge/Sn alloy. Journal of Applied Physics, 2019, 125, 135705.	2.5	1
65	Two dimensional submicron MOSFET simulation using generalized expansion method and fixed point iteration technique to the Boltzmann transport equation. , 0, , .		0
66	Self-aligned subchannel implant complementary metalâ€œoxide semiconductor devices fabrication. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 1997, 15, 2816.	1.6	0
67	The spherical harmonic method: corroboration with Monte Carlo and experiment. , 0, , .		0
68	A physics-based empirical pseudopotential model for calculating band structures of simple and complex semiconductors. , 0, , .		0
69	Gate leakage current simulation for nanoscale NMOSFETs with nitrided gate dielectric by Boltzmann transport equation. , 0, , .		0
70	Modeling the effective mass and Y-junction rectifying current of carbon nanotubes. , 0, , .		0
71	Numerical and experimental characterization of 4H-SiC Schottky diodes. , 0, , .		0
72	Modeling RF effects in integrated circuits with a new 3D alternating-direction-implicit maxwell equation solver. , 0, , .		0

#	ARTICLE	IF	CITATIONS
73	Mobility of (1120) and (0001) orientated 4H-SiC quantized inversion layers. , 0, , .		0
74	Development and implementation of a multi-specialty advanced capstone design course. , 0, , .		0
75	Transport Properties of Wide Band Gap Nanotubes. , 0, , .		0
76	Device Behavior Modeling for Carbon Nanotube Silicon-On-Insulator MOSFETs. , 2005, , .		0
77	An Efficient Inclusion of Self-Heating and Quantum Effects in SOI Device Simulations. , 0, , .		0
78	An Impulse-Response Based Methodology for Modeling Complex Interconnect Networks. , 0, , .		0
79	Application of a parasitic aware model to optimize an RF energy scavenging circuit fabricated in 130 nm CMOS. , 2008, , .		0
80	Self-consistent thermal and electrical analysis of silicon carbide power DMOSFET heating and cooling. , 2009, , .		0
81	The effect of different passivations on near interface trap density of 4H-SiC/SiO ₂ structures. , 2011, , .		0
82	Density functional theory based simulation of carrier transport in silicon carbide and silicon carbide-silicon dioxide interfaces. , 2011, , .		0
83	Identification and quantification of 4H-SiC (0001)/SiO ₂ interface defects by combining density functional and device simulations. , 2013, , .		0