N Goldsman

List of Publications by Year
in descending order

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	Predicting Cosmic Ray-Induced Failures in Silicon Carbide Power Devices. IEEE Transactions on Nuclear Science, 2019, 66, 1828-1832.	2.0	21
2	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
3	Detailed Study of Breakdown Voltage and Critical Field in Wide Bandgap Semiconductors. , 2019, , .		2
4	The intrinsic atomic-level surface roughness mobility limit of 4H-SiC. Journal of Applied Physics, 2018, 124, .	2.5	9
5	Terrestrial Neutron-Induced Failures in Silicon Carbide Power MOSFETs and Diodes. IEEE Transactions on Nuclear Science, 2018, 65, 1248-1254.	2.0	39
6	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
7	Structure, bonding, and passivation of single carbon-related oxide hole traps near 4H-SiC/SiO2 interfaces. Journal of Applied Physics, 2014, 116, .	2.5	26
8	Effects of carbon-related oxide defects on the reliability of 4H-SiC MOSFETs. , 2014, , .		7
9	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
10	Identification and quantification of 4H-SiC (0001)/SiO$_2$ interface defects by combining density functional and device simulations. , 2013, , .		0
11	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
12	Radiation Effects in Commercial 1200 V 24 A Silicon Carbide Power MOSFETs. IEEE Transactions on Nuclear Science, 2012, 59, 3258-3264.	2.0	105
13	The effect of different passivations on near interface trap density of 4H-SiC/SiO<inf>2</inf> structures. , 2011, , .		0
14	Density functional theory based simulation of carrier transport in silicon carbide and silicon carbide-silicon dioxide interfaces. , 2011, , .		0
15	Compact and Distributed Modeling of Cryogenic Bulk MOSFET Operation. IEEE Transactions on Electron Devices, 2010, 57, 1334-1342.	3.0	39
16	Compact modeling of 0.35Î¼m SOI CMOS technology node for 4K DC operation using Verilog-A. Microelectronic Engineering, 2010, 87, 2518-2524.	2.4	19
17	Impact Ionization and Freeze-Out Model for Simulation of Low Gate Bias Kink Effect in SOI-MOSFETs Operating at Liquid He Temperature. , 2009, , .		6
18	Self-consistent thermal and electrical analysis of silicon carbide power DMOSFET heating and cooling. , 2009, , .		0

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19	Parasitic aware optimization of an RF power scavenging circuit with applications to Smartdust sensor networks. , 2009, , .		18
20	Simulation of electron transport in (0001) and (112Ā̄0)ā€˜4H-SiC inversion layers. Journal of Applied Physics, 2009, 106, .	2.5	8
21	Design and testing of a self-powered 3D integrated SOI CMOS system. Microelectronic Engineering, 2008, 85, 388-394.	2.4	2
22	Numerical modeling and design of single photon counter 4H-SiC avalanche photodiodes. , 2008, , .		2
23	Application of a parasitic aware model to optimize an RF energy scavenging circuit fabricated in 130 nm CMOS. , 2008, , .		0
24	Time dependence of bias-stress induced threshold-voltage instability measurements. , 2007, , .		3
25	Indium Phosphide Resonant Chemical Sensor with a Monolithically Integrated Optical Readout Scheme. , 2007, , .		2
26	Electron Transport and Velocity Oscillations in a Carbon Nanotube. IEEE Nanotechnology Magazine, 2007, 6, 469-474.	2.0	66
27	Deformation potential carrier-phonon scattering in semiconducting carbon nanotube transistors. Applied Physics Letters, 2007, 90, 062110.	3.3	36
28	Quantum Modeling and Proposed Designs of CNT-Embedded Nanoscale MOSFETs. IEEE Transactions on Electron Devices, 2005, 52, 577-584.	3.0	32
29	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
30	Characterization of 4H-SiC MOSFET Interface Trap Charge Density Using a First Principles Coulomb Scattering Mobility Model and Device Simulation. , 2005, , .		10
31	Low-Field Transport Model for Semiconducting Carbon Nanotubes. , 2005, , .		1
32	Coupled Simulation of Device Performance and Heating of Vertically Stacked Three-Dimensional Integrated Circuits. , 2005, , .		8
33	Device Behavior Modeling for Carbon Nanotube Silicon-On-Insulator MOSFETs. , 2005, , .		0
34	Self-consistent calculations forn-type hexagonal SiC inversion layers. Journal of Applied Physics, 2004, 95, 4223-4234.	2.5	39
35	Numerical Performance Analysis of Carbon Nanotube (CNT) Embedded MOSFETs. , 2004, , 153-156.		1
36	Coupled modeling of time-dependent full-chip heating and quantum non-isothermal device operation. , 2003, , .		6

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37	Semiclassical transport and phonon scattering of electrons in semiconducting carbon nanotubes. Physical Review B, 2003, 68, .	3.2	219
38	Theory and design of field-effect carbon nanotube transistors. , 2003, , .		1
39	Empirical pseudopotential band structure of3C,4H,and6HSiC using transferable semiempirical Si and C model potentials. Physical Review B, 2001, 64, .	3.2	32
40	CdZnTe heteroepitaxy on 3â€³ (112) Si: Interface, surface, and layer characteristics. Journal of Electronic Materials, 2000, 29, 748-753.	2.2	54
41	Tellurium desorption kinetics from (112) Si:â€ƒSi-Te binding energy. Physical Review B, 2000, 61, 8256-8261.	3.2	14
42	Use of focused-ion-beam and modeling to optimize submicron MOSFET characteristics. IEEE Transactions on Electron Devices, 1998, 45, 453-459.	3.0	28
43	Spherical Harmonic Modeling of a 0.05 Î¼m Base BJT: A Comparison with Monte Carlo and Asymptotic Analysis. VLSI Design, 1998, 8, 147-151.	0.5	3
44	Self-aligned subchannel implant complementary metalâ€"oxide 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
45	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
46	Hydrodynamic device simulation using new state variables tailored for a block Gummel iterative approach. Solid-State Electronics, 1996, 39, 1213-1220.	1.4	11
47	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
48	Deterministic MOSFET simulation using a generalized spherical harmonic expansion of the Boltzmann equation. Solid-State Electronics, 1995, 38, 1485-1495.	1.4	40
49	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
50	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
51	Efficient and accurate use of the energy transport method in device simulation. IEEE Transactions on Electron Devices, 1988, 35, 1524-1529.	3.0	50
52	Electron energy distribution for calculation of gate leakage current in MOSFETs. Solid-State Electronics, 1988, 31, 1089-1092.	1.4	41
53	Tradeoffs and electron temperature calculations in lightly doped drain structures. IEEE Electron Device Letters, 1985, 6, 28-30.	3.9	18
54	An efficient physics-based gate current calculation by solving space-dependent Boltzmann transport equation. , 0, , .		2

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55	Two dimensional submicron MOSFET simulation using generalized expansion method and fixed point iteration technique to the Boltzmann transport equation. , 0, , .		0
56	The spherical harmonic method: corroboration with Monte Carlo and experiment. , 0, , .		0
57	Gate leakage current simulation by Boltzmann transport equation and its dependence on the gate oxide thickness. , 0, , .		3
58	Frequency domain analysis of the distribution function by small signal solution of the Boltzmann and Poisson equations. , 0, , .		9
59	Advances in spherical harmonic device modeling: calibration and nanoscale electron dynamics. , 0, , .		2
60	2-D quantum transport device modeling by self-consistent solution of the Wigner and Poisson equations. , 0, , .		2
61	A physics-based empirical pseudopotential model for calculating band structures of simple and complex semiconductors. , 0, , .		0
62	Gate leakage current simulation for nanoscale NMOSFETs with nitrided gate dielectric by Boltzmann transport equation. , 0, , .		0
63	Modeling the effective mass and Y-junction rectifying current of carbon nanotubes. , 0, , .		0
64	Investigation of temperature effects on electron transport in SiC using unique full band Monte Carlo simulation. , 0, , .		1
65	Self-consistent surface mobility and interface charge modeling in conjunction with experiment of 6H-SiC MOSFETs. , 0, , .		2
66	Faster CMOS inverter switching obtained with channel engineered asymmetrical halo implanted MOSFETs. , 0, , .		4
67	Modeling the limits of gate oxide scaling with a Schrodinger-based method of direct tunneling gate currents of nanoscale MOSFETs. , 0, , .		2
68	A new pedagogy in electrical and computer engineering: an experiential and conceptual approach. , 0, , .		1
69	Monte Carlo simulation of electron transport in a carbon nanotube. , 0, , .		1
70	Numerical and experimental characterization of 4H-SiC Schottky diodes. , 0, , .		0
71	Mixed-mode simulation of non-isothermal quantum device operation and full-chip heating. , 0, , .		2
72	Modeling RF effects in integrated circuits with a new 3D alternating-direction-implicit maxwell equation solver. , 0, , .		0

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73	Electron mobility of a semiconducting carbon nanotube. , 0, , .		3
74	Mobility of (1120) and (0001) orientated 4H-SiC quantized inversion layers. , 0, , .		0
75	Modeling the enhancement of nanoscale MOSFETs by embedding carbon nanotubes in the channel. , 0, , .		4
76	Development and implementation of a multi-specialty advanced capstone design course. , 0, , .		0
77	Numerical Modeling and Characterization of n-Channel 4H-SiC Double-Diffused Vertical Power MOSFET. , 0, , .		1
78	Transport Properties of Wide Band Gap Nanotubes. , 0, , .		0
79	Realization of Self-Powered Electronics by 3-D Integration. , 0, , .		1
80	Full Wave Modeling of Substrate Doping Effects and Nonideal Conductors in Integrated Circuit Interconnects. , 0, , .		2
81	An Efficient Inclusion of Self-Heating and Quantum Effects in SOI Device Simulations. , 0, , .		0
82	An Impulse-Response Based Methodology for Modeling Complex Interconnect Networks. , 0, , .		0
83	Impact of Surface Steps on the Roughness Mobility in 4H-SiC. , 0, , .		2