Bart Soree

List of Publications by Year
in descending order

155	2,862	279798	233421
papers	citations	23 h-index	45 g-index

156	156	156	2496
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Direct and Indirect Band-to-Band Tunneling in Germanium-Based TFETs. IEEE Transactions on Electron Devices, 2012, 59, 292-301.	3.0	370
2	Modeling the single-gate, double-gate, and gate-all-around tunnel field-effect transistor. Journal of Applied Physics, 2010, 107, .	2.5	217
3	Optimization of Gate-on-Source-Only Tunnel FETs With Counter-Doped Pockets. IEEE Transactions on Electron Devices, 2012, 59, 2070-2077.	3.0	126
4	Impact of field-induced quantum confinement in tunneling field-effect devices. Applied Physics Letters, 2011, 98, .	3.3	99
5	Figure of merit for and identification of sub-60â€‰mV/decade devices. Applied Physics Letters, 2013, 102, .	3.3	95
6	Analytical and self-consistent quantum mechanical model forÂaÂsurrounding gate MOS nanowire operated in JFET mode. Journal of Computational Electronics, 2008, 7, 380-383.	2.5	87
7	Analytical model for a tunnel field-effect transistor. , 2008, , .		77
8	Tuning the Fermi Level of SiO₂-Supported Single-Layer Graphene by Thermal Annealing. Journal of Physical Chemistry C, 2010, 114, 6894-6900.	3.1	75
9	Analytical model for point and line tunneling in a tunnel field-effect transistor. , 2008, , .		74
10	Generalized phonon-assisted Zener tunneling in indirect semiconductors with non-uniform electric fields: A rigorous approach. Journal of Applied Physics, 2011, 109, 124503.	2.5	48
11	Magnetic order and critical temperature of substitutionally doped transition metal dichalcogenide monolayers. Npj 2D Materials and Applications, 2021, 5, .	7.9	48
12	Nanoscale domain wall devices with magnetic tunnel junction read and write. Nature Electronics, 2021, 4, 392-398.	26.0	46
13	InGaAs tunnel diodes for the calibration of semi-classical and quantum mechanical band-to-band tunneling models. Journal of Applied Physics, 2014, 115, .	2.5	45
14	Advancing CMOS beyond the Si roadmap with Ge and III/V devices. , 2011, , .		43
15	Temperature-Dependent Modeling and Characterization of Through-Silicon Via Capacitance. IEEE Electron Device Letters, 2011, 32, 563-565.	3.9	42
16	A model determining optimal doping concentration and materialâ€™s band gap of tunnel field-effect transistors. Applied Physics Letters, 2012, 100, .	3.3	36
17	Critical behavior of the ferromagnets <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi mathvariant="normal">CrI</mml:mi><mml:mn>3</mml:mn></mml:msub><mml:mo>,</mml:mo><mml:mo>Â</mml:mo><mml:msub><mml:mi mathvariant="normal">CrBr</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:math> , and <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi mathvariant="normal">CrGeTe</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:math> and the critic	3.2	36
18	Tensile strained Ge tunnel field-effect transistors: kâ€‰Â·â€‰p material modeling and numerical device simulation. Journal of Applied Physics, 2014, 115, 044505.	2.5	34

#	Article	IF	Citations
19	Design and benchmarking of hybrid CMOS-Spin Wave Device Circuits compared to 10nm CMOS. , 2015, , .		34
20	First-principle calculations on gate/dielectric interfaces: on the origin of work function shifts. Microelectronic Engineering, 2005, 80, 272-279.	2.4	32
21	Superior Reliability of Junctionless pFinFETs by Reduced Oxide Electric Field. IEEE Electron Device Letters, 2014, 35, 1179-1181.	3.9	31
22	Non-volatile spin wave majority gate at the nanoscale. AIP Advances, 2017, 7, .	1.3	31
23	Physical modeling of strain-dependent hole mobility in Ge p-channel inversion layers. Journal of Applied Physics, 2009, 106, .	2.5	30
24	Calculation of the electron mobility in III-V inversion layers with high-Î¹ dielectrics. Journal of Applied Physics, 2010, 108, 103705.	2.5	29
25	Low-field mobility in ultrathin silicon nanowire junctionless transistors. Applied Physics Letters, 2011, 99, .	3.3	29
26	Zener tunneling in semiconductors under nonuniform electric fields. Journal of Applied Physics, 2010, 107, 054520.	2.5	27
27	Micromagnetic simulations of magnetoelastic spin wave excitation in scaled magnetic waveguides. Applied Physics Letters, 2017, 111, .	3.3	27
28	Modeling the capacitance-voltage response of In0.53Ga0.47As metal-oxide-semiconductor structures: Charge quantization and nonparabolic corrections. Applied Physics Letters, 2010, 96, 213514.	3.3	25
29	Uniform Strain in Heterostructure Tunnel Field-Effect Transistors. IEEE Electron Device Letters, 2016, 37, 337-340.	3.9	23
30	Two-dimensional quantum mechanical modeling of band-to-band tunneling in indirect semiconductors. , 2011, , .		21
31	Resistivity scaling and electron relaxation times in metallic nanowires. Journal of Applied Physics, 2014, 116, 063714.	2.5	20
32	Quantum mechanical solver for confined heterostructure tunnel field-effect transistors. Journal of Applied Physics, 2014, 115, 053706.	2.5	20
33	Computing Curie temperature of two-dimensional ferromagnets in the presence of exchange anisotropy. Physical Review Research, 2021, 3, .	3.6	20
34	Spintronic majority gates. , 2015, , .		19
35	Proposal for nanoscale cascaded plasmonic majority gates for non-Boolean computation. Scientific Reports, 2017, 7, 17866.	3.3	19
36	Boosting Carrier Mobility of Synthetic Few Layer Graphene on SiO₂ by Interlayer Rotation and Decoupling. Advanced Materials Interfaces, 2018, 5, 1800454.	3.7	19

#	Article	IF	Citations
37	Back hopping in spin transfer torque switching of perpendicularly magnetized tunnel junctions. Physical Review B, 2020, 102, .	3.2	19
38	Quantum transport in a nanosize silicon-on-insulator metal-oxide-semiconductor field-effect transistor. Journal of Applied Physics, 2003, 93, 1230-1240.	2.5	18
39	Modeling surface roughness scattering in metallic nanowires. Journal of Applied Physics, 2015, 118, .	2.5	18
40	Carrier transport in two-dimensional topological insulator nanoribbons in the presence of vacancy defects. 2D Materials, 2019, 6, 025011.	4.4	18
41	Optimization of Tungsten <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mi>Î²</mml:mi></mml:math> -Phase Window for Spin-Orbit-Torque Magnetic Random-Access Memory. Physical Review Applied, 2021, 16, .	3.8	18
42	Quantum transport in a nanosize double-gate metal-oxide-semiconductor field-effect transistor. Journal of Applied Physics, 2004, 96, 2305-2310.	2.5	17
43	Theory of hole mobility in strained Ge and III-V p-channel inversion layers with high-Îº insulators. Journal of Applied Physics, 2010, 108, 123713.	2.5	17
44	Perspective of tunnel-FET for future low-power technology nodes. , 2014, , .		17
45	Comparison of short-channel effects in monolayer MoS2 based junctionless and inversion-mode field-effect transistors. Applied Physics Letters, 2016, 108, 023506.	3.3	17
46	Exchange-driven Magnetic Logic. Scientific Reports, 2017, 7, 12154.	3.3	17
47	Quantum transport in a cylindrical sub-0.1 Î¼m silicon-based MOSFET. Solid-State Electronics, 2002, 46, 435-444.	1.4	16
48	Silicon nanowire pinch-off FET : Basic operation and analytical model. , 2009, , .		16
49	Quantum ballistic transport in the junctionless nanowire pinch-off field effect transistor. Journal of Computational Electronics, 2011, 10, 216-221.	2.5	16
50	Improved source design for p-type tunnel field-effect transistors: Towards truly complementary logic. Applied Physics Letters, 2014, 105, .	3.3	16
51	Single- and multilayer graphene wires as alternative interconnects. Microelectronic Engineering, 2016, 156, 131-135.	2.4	16
52	Efficient solution of the Wignerâ€“Liouville equation using a spectral decomposition of the force field. Journal of Computational Physics, 2017, 350, 314-325.	3.8	16
53	Material-Device-Circuit Co-optimization of 2D Material based FETs for Ultra-Scaled Technology Nodes. Scientific Reports, 2017, 7, 5016.	3.3	16
54	Magnetic properties and critical behavior of magnetically intercalated WSe₂: a theoretical study. 2D Materials, 2021, 8, 025009.	4.4	16

#	Article	IF	Citations
55	Confined magnetoelastic waves in thin waveguides. Physical Review B, 2021, 103, .	3.2	15
56	Novel Device Concepts for Nanotechnology: The Nanowire Pinch-Off FET and Graphene TunnelFET. ECS Transactions, 2010, 28, 15-26.	0.5	14
57	Instant-On Spin Torque in Noncollinear Magnetic Tunnel Junctions. Physical Review Applied, 2018, 10, .	3.8	14
58	Band-Tails Tunneling Resolving the Theory-Experiment Discrepancy in Esaki Diodes. IEEE Journal of the Electron Devices Society, 2018, 6, 633-641.	2.1	14
59	2D ferromagnetism at finite temperatures under quantum scrutiny. Applied Physics Letters, 2020, 117, .	3.3	14
60	Full-zone spectral envelope function formalism for the optimization of line and point tunnel field-effect transistors. Journal of Applied Physics, 2015, 118, .	2.5	13
61	Field induced quantum confinement in Indirect Semiconductors: Quantum mechanical and modified semiclassical model. , 2011, , .		12
62	Si-based tunnel field-effect transistors for low-power nano-electronics. , 2011, , .		12
63	Can p-channel tunnel field-effect transistors perform as good as n-channel?. Applied Physics Letters, 2014, 105, .	3.3	12
64	Doping of graphene for the application in nano-interconnect. Microelectronic Engineering, 2017, 167, 42-46.	2.4	12
65	Benchmarking of monolithic 3D integrated MX<inf>2</inf> FETs with Si FinFETs. , 2017, , .		12
66	Excitation and propagation of spin waves in non-uniformly magnetized waveguides. Journal Physics D: Applied Physics, 2020, 53, 495006.	2.8	12
67	Quantum transport in an ultra-thin SOI MOSFET: Influence of the channel thickness on the Iâ€“V characteristics. Solid State Communications, 2008, 147, 31-35.	1.9	11
68	Long-wavelength, confined optical phonons in InAs nanowires probed by Raman spectroscopy. European Physical Journal B, 2011, 79, 423-428.	1.5	11
69	Skyrmion-induced bound states on the surface of three-dimensional topological insulators. Journal of Applied Physics, 2016, 119, 193903.	2.5	11
70	Conductance of a copper-nanotube bundle interface: Impact of interface geometry and wave-function interference. Physical Review B, 2008, 77, .	3.2	10
71	Modeling the impact of junction angles in tunnel field-effect transistors. Solid-State Electronics, 2012, 69, 31-37.	1.4	10
72	Finite difference magnetoelastic simulator. Open Research Europe, 0, 1, 35.	2.0	10

#	Article	IF	Citations
73	Metal induced charge transfer doping in graphene-ruthenium hybrid interconnects. Carbon, 2021, 183, 999-1011.	10.3	10
74	Energy and momentum balance equations: An approach to quantum transport in closed circuits. Physical Review B, 2002, 66, .	3.2	9
75	Conductance quantization and dissipation. Physics Letters, Section A: General, Atomic and Solid State Physics, 2003, 310, 322-328.	2.1	9
76	System-level assessment and area evaluation of Spin Wave logic circuits. , 2014, , .		9
77	Electric-field induced quantum broadening of the characteristic energy level of traps in semiconductors and oxides. Journal of Applied Physics, 2016, 120, .	2.5	9
78	Inter-ribbon tunneling in graphene: An atomistic Bardeen approach. Journal of Applied Physics, 2016, 119, 214306.	2.5	9
79	Evaluation of multilayer graphene for advanced interconnects. Microelectronic Engineering, 2017, 167, 1-5.	2.4	9
80	Theoretical study of scattering in graphene ribbons in the presence of structural and atomistic edge roughness. Physical Review Materials, 2019, 3, .	2.4	9
81	Modeling of graphene for interconnect applications. , 2016, , .		8
82	Resistivity scaling in metallic thin films and nanowires due to grain boundary and surface roughness scattering. Microelectronic Engineering, 2017, 167, 37-41.	2.4	8
83	Material-Device-Circuit Co-Design of 2-D Materials-Based Lateral Tunnel FETs. IEEE Journal of the Electron Devices Society, 2018, 6, 979-986.	2.1	8
84	Large Variation in Temperature Dependence of Band-to-Band Tunneling Current in Tunnel Devices. IEEE Electron Device Letters, 2019, 40, 1864-1867.	3.9	8
85	Lumped circuit model for inductive antenna spin-wave transducers. Scientific Reports, 2022, 12, 3796.	3.3	8
86	Phonon-assisted Zener tunneling in a cylindrical nanowire transistor. Journal of Applied Physics, 2013, 113, 184507.	2.5	7
87	Skyrmion electrical detection with the use of three-dimensional Topological Insulators/Ferromagnetic bilayers. Scientific Reports, 2017, 7, 17871.	3.3	7
88	Machine Learning for Fast Characterization of Magnetic Logic Devices. , 2018, , .		7
89	Resistivity scaling model for metals with conduction band anisotropy. Physical Review Materials, 2018, 2, .	2.4	7
90	Towards CMOS-compatible single-walled carbon nanotube resonators. Microelectronic Engineering, 2013, 107, 219-222.	2.4	6

#	Article	IF	Citations
91	Graphene wires as alternative interconnects. , 2015, , .		6
92	An envelope function formalism for lattice-matched heterostructures. Physica B: Condensed Matter, 2015, 470-471, 69-75.	2.7	6
93	Non-uniform strain in lattice-mismatched heterostructure tunnel field-effect transistors. , 2016, , .		6
94	Anisotropic bulk and planar Heisenberg ferromagnets in uniform, arbitrarily oriented magnetic fields. Journal of Physics Condensed Matter, 2018, 30, 275801.	1.8	6
95	Ab-Initio Study of Magnetically Intercalated Platinum Diselenide: The Impact of Platinum Vacancies. Materials, 2021, 14, 4167.	2.9	6
96	Barrier permeation effects on the inversion layer subband structure and its applications to the electron mobility. Microelectronic Engineering, 2005, 80, 82-85.	2.4	5
97	Energy filtering in silicon nanowires and nanosheets using a geometric superlattice and its use for steep-slope transistors. Journal of Applied Physics, 2018, 124, .	2.5	5
98	Modeling of Edge Scattering in Graphene Interconnects. IEEE Electron Device Letters, 2018, 39, 1085-1088.	3.9	5
99	Signature of Ballistic Band-Tail Tunneling Current in Tunnel FET. IEEE Transactions on Electron Devices, 2020, 67, 3486-3491.	3.0	5
100	Electronically tunable quantum phase slips in voltage-biased superconducting rings as a base for phase-slip flux qubits. Superconductor Science and Technology, 2020, 33, 125002.	3.5	5
101	Comparison of strained SiGe heterostructure-on-insulator (001) and (110) PMOSFETs: Câ€“V characteristics, mobility, and ON current. Solid-State Electronics, 2011, 65-66, 64-71.	1.4	4
102	System-level assessment and area evaluation of spin wave logic circuits. , 2014, , .		4
103	Area and routing efficiency of SWD circuits compared to advanced CMOS. , 2015, , .		4
104	Design and simulation of plasmonic interference-based majority gate. AIP Advances, 2017, 7, 065116.	1.3	4
105	Phonon-assisted tunneling in direct-bandgap semiconductors. Journal of Applied Physics, 2019, 125, .	2.5	4
106	Skyrmion spin transfer torque due to current confined in a nanowire. Physical Review B, 2020, 102, .	3.2	4
107	General 2D SchrÃ¶dinger-Poisson solver with open boundary conditions for nano-scale CMOS transistors. Journal of Computational Electronics, 2008, 7, 475-484.	2.5	3
108	Modeling of Alternative High-k Dielectrics for Memory Based Applications. ECS Transactions, 2009, 25, 131-145.	0.5	3

#	Article	IF	Citations
109	Modeling drive currents and leakage currents: aÂdynamicÂapproach. Journal of Computational Electronics, 2009, 8, 307-323.	2.5	3
110	Zener tunnelling in graphene based semiconductors â€“ the kÂ·p method. Journal of Physics: Conference Series, 2009, 193, 012111.	0.4	3
111	Electron relaxation times and resistivity in metallic nanowires due to tilted grain boundary planes. , 2015, , .		3
112	Torque field and skyrmion motion by spin transfer torque in a quasi-2D interface in presence of strong spinâ€“orbit interaction. Journal of Applied Physics, 2021, 130, 133903.	2.5	3
113	Characterization of interface interactions between Graphene and Ruthenium. , 2020, , .		3
114	Nonequilibrium mesoscopic quantum transport and conductance quantization. Semiconductor Science and Technology, 2004, 19, S235-S237.	2.0	2
115	A method to calculate tunneling leakage currents in silicon inversion layers. Journal of Applied Physics, 2006, 100, 033708.	2.5	2
116	Tunneling-lifetime model for metal-oxide-semiconductor structures. Physical Review B, 2009, 80, .	3.2	2
117	Ballistic current in metal-oxide-semiconductor field-effect transistors: The role of device topology. Journal of Applied Physics, 2009, 106, 053702.	2.5	2
118	Time dependent transport in 1D micro- and nanostructures: Solving the Boltzmann and Wignerâ€“Boltzmann equations. Journal of Physics: Conference Series, 2009, 193, 012004.	0.4	2
119	Shaping the future of nanoelectronics beyond the Si roadmap with new materials and devices. Proceedings of SPIE, 2010, , .	0.8	2
120	Quantum simulations of electrostatics in Si cylindrical junctionless nanowire nFETs and pFETs with a homogeneous channel including strain and arbitrary crystallographic orientations. Solid-State Electronics, 2012, 71, 30-36.	1.4	2
121	Phonon-assisted Zener tunneling in a pâ€“n diode silicon nanowire. Solid-State Electronics, 2013, 79, 196-200.	1.4	2
122	Modeling of inter-ribbon tunneling in graphene. , 2015, , .		2
123	15-band spectral envelope function formalism applied to broken gap tunnel field-effect transistors. , 2015, , .		2
124	Validity criteria for Fermiâ€™s golden rule scattering rates applied to metallic nanowires. Journal of Physics Condensed Matter, 2016, 28, 365302.	1.8	2
125	Impact of calibrated band-tails on the subthreshold swing of pocketed TFETs. , 2018, , .		2
126	Thermodynamic equilibrium theory revealing increased hysteresis in ferroelectric field-effect transistors with free charge accumulation. Communications Physics, 2021, 4, .	5.3	2

#	Article	IF	Citations
127	Impact of passivation on the Dirac cones of 2D topological insulators. Journal of Applied Physics, 2022, 131, .	2.5	2
128	Quantized conductance without reservoirs: Method of the nonequilibrium statistical operator. Journal of Computational Electronics, 2007, 6, 255-258.	2.5	1
129	Quantum simulations of electrostatics in Si cylindrical nanowire pinch-off nFETs and pFETs with a homogeneous channel including strain and arbitrary crystallographic orientations. , 2011, , .		1
130	Spectral force approach to solve the time-dependent Wigner-Liouville equation. , 2014, , .		1
131	Material selection and device design guidelines for two-dimensional materials based TFETs. , 2017, , .		1
132	Inherent transmission probability limit between valence-band and conduction-band states and calibration of tunnel-FET parasitics. , 2017, , .		1
133	Self-consistent procedure including envelope function normalization for full-zone SchrÃ¶dinger-Poisson problems with transmitting boundary conditions. Journal of Applied Physics, 2018, 124, 204501.	2.5	1
134	Graphene Interconnects - High Performance Twisted 20 nm Graphene Ribbons. , 2018, , .		1
135	Study of the Junction Depth Effect on Ballistic Current Using the Subband Decomposition Method. , 2007, , 205-208.		1
136	Quantum mechanical balance equations for modeling transport in closed electric circuits.. , 2001, , 320-323.		1
137	Quantum transport modeling in mesoscopic structures. , 0, , .		0
138	Energy dissipation in mesoscopic circuits. , 2003, , .		0
139	A new method to calculate leakage current and its applications for sub-45nm MOSFETs. , 0, , .		0
140	Quantized Conductance without the Reservoir Picture. AIP Conference Proceedings, 2007, , .	0.4	0
141	Impact of band non-parabolicity on the onset voltage in a nanowire tunnel field-effect transistor. , 2013, , .		0
142	Modeling and tackling resistivity scaling in metal nanowires. , 2015, , .		0
143	Analytic solution of andoâ€™s surface roughness model with finite domain distribution functions. , 2015, , .		0
144	Multi-layer graphene interconnect. , 2016, , .		0

#	Article	IF	Citations
145	Calibration of the high-doping induced ballistic band-tails tunneling current with In<inf>0.53</inf>Ga<inf>0.47</inf>As Esaki diodes. , 2017, , .		0
146	Self-consistent 30-band simulation approach for (non-)uniformly strained confined heterostructure tunnel field-effect transistors. , 2017, , .		0
147	Flux Quantization and Aharonov-Bohm Effect in Superconducting Rings. Journal of Superconductivity and Novel Magnetism, 2018, 31, 1351-1357.	1.8	0
148	Carrier Transport in a Two-Dimensional Topological Insulator Nanoribbon in the Presence of Vacancy Defects.. , 2018, , .		0
149	Spin-Based Majority Computation. , 2019, , 231-262.		0
150	Voltage-controlled superconducting magnetic memory. AIP Advances, 2019, 9, 125223.	1.3	0
151	Fast Characterization of Input-Output Behavior of Non-Charge-Based Logic Devices by Machine Learning. Electronics (Switzerland), 2020, 9, 1381.	3.1	0
152	Skyrmion elongation, duplication, and rotation by spin-transfer torque under spatially varying spin current. Physical Review B, 2021, 104, .	3.2	0
153	The Junctionless Nanowire Transistor. , 2012, , 303-337.		0
154	Ab initio modeling of few-layer dilute magnetic semiconductors. , 2021, , .		0
155	A Simplified Quantum Mechanical Model for the Electron Distribution in a Si Nanowire. , 2007, , 321-324.		0