William G Vandenberghe

List of Publications by Year
in descending order

106 papers	4,003 citations	172207 29 h-index	123241 61 g-index
108 all docs	108 docs citations	108 times ranked	4052 citing authors

#	Article	IF	Citations
1	LDMOS Drift Region With Field Oxides: Figure-of-Merit Derivation and Verification. IEEE Journal of the Electron Devices Society, 2022, 10, 361-366.	1.2	2
2	Contacts to Two-dimensional Materials: Image Forces, Dielectric Environment, and Back-gate. , 2022, , .		0
3	A First-Principles Study on the Electronic, Thermodynamic and Dielectric Properties of Monolayer Ca(OH)2 and Mg(OH)2. Nanomaterials, 2022, 12, 1774.	1.9	5
4	Impact of passivation on the Dirac cones of 2D topological insulators. Journal of Applied Physics, 2022, 131, .	1.1	2
5	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> 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 antife	1.1	36
6	Special issue on two-dimensional materials. Journal of Computational Electronics, 2021, 20, 1-1.	1.3	5
7	Thermodynamic equilibrium theory revealing increased hysteresis in ferroelectric field-effect transistors with free charge accumulation. Communications Physics, 2021, 4, .	2.0	2
8	Energy levels in dilute-donor organic solar cell photocurrent generation: A thienothiophene donor molecule study. Organic Electronics, 2021, 92, 106137.	1.4	9
9	Magnetic order and critical temperature of substitutionally doped transition metal dichalcogenide monolayers. Npj 2D Materials and Applications, 2021, 5, .	3.9	48
10	Figure-of-Merit for Laterally Diffused MOSFETs with Rectangular and Semi-Circular Field Oxides. , 2021, , .		3
11	New Verbeekite-type polymorphic phase and rich phase diagram in the <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>PdSe</mml:mi><mml:mrow><mml:mn>2 system. Physical Review B, 2021, 104, .	1.1	16
12	Ab-Initio Study of Magnetically Intercalated Platinum Diselenide: The Impact of Platinum Vacancies. Materials, 2021, 14, 4167.	1.3	6
13	Identification of two-dimensional layered dielectrics from first principles. Nature Communications, 2021, 12, 5051.	5.8	44
14	Monte Carlo analysis of phosphorene nanotransistors. Journal of Computational Electronics, 2021, 20, 60-69.	1.3	9
15	Magnetic properties and critical behavior of magnetically intercalated WSe₂: a theoretical study. 2D Materials, 2021, 8, 025009.	2.0	16
16	Determining Electronic, Structural, Dielectric, Magnetic, and Transport Properties in Novel Electronic Materials: Using first-principles techniques. IEEE Nanotechnology Magazine, 2021, 15, 68-C3.	0.9	1
17	Computing Curie temperature of two-dimensional ferromagnets in the presence of exchange anisotropy. Physical Review Research, 2021, 3, .	1.3	20
18	Ab initio modeling of few-layer dilute magnetic semiconductors. , 2021, , .		0

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19	Modeling Contact Resistivity in Monolayer Molybdenum disulfide Edge contacts. , 2021, , .		1
20	Ballistic quantum transport study of Al contacting silicane using empirical pseudopotentials. , 2021, , .		0
21	Transition-metal nitride halide dielectrics for transition-metal dichalcogenide transistors. Nanoscale, 2021, 14, 157-165.	2.8	23
22	First-principles study of electronic transport in germanane and hexagonal boron nitride. Physical Review B, 2021, 104, .	1.1	14
23	Channel Length Optimization for Planar LDMOS Field-Effect Transistors for Low-Voltage Power Applications. IEEE Journal of the Electron Devices Society, 2020, 8, 711-715.	1.2	14
24	Generation of empirical pseudopotentials for transport applications and their application to group IV materials. Journal of Applied Physics, 2020, 128, .	1.1	6
25	Importance of separating contacts from the photosensitive layer in heterojunction phototransistors. Superlattices and Microstructures, 2020, 148, 106713.	1.4	2
26	Simulation Study on the Optimization and Scaling Behavior of LDMOS Transistors for Low-Voltage Power Applications. IEEE Transactions on Electron Devices, 2020, 67, 4990-4997.	1.6	13
27	Channel Length Scaling Limit for LDMOS Field-Effect Transistors: Semi-classical and Quantum Analysis. , 2020, , .		4
28	Tellurium as a successor of silicon for extremely scaled nanowires: a first-principles study. Npj 2D Materials and Applications, 2020, 4, .	3.9	39
29	Electronic transport properties of hydrogenated and fluorinated graphene: a computational study. Journal of Physics Condensed Matter, 2020, 32, 495502.	0.7	7
30	Trigonal Tellurium Nanostructure Formation Energy and Band gap. , 2019, , .		1
31	Electronic Transport Properties of Silicane Determined from First Principles. Materials, 2019, 12, 2935.	1.3	14
32	Scalable atomistic simulations of quantum electron transport using empirical pseudopotentials. Computer Physics Communications, 2019, 244, 156-169.	3.0	23
33	Carrier transport in two-dimensional topological insulator nanoribbons in the presence of vacancy defects. 2D Materials, 2019, 6, 025011.	2.0	18
34	First-principles Study of the Electron and Hole Mobility in Silicane. , 2019, , .		1
35	Theoretical study of scattering in graphene ribbons in the presence of structural and atomistic edge roughness. Physical Review Materials, 2019, 3, .	0.9	9
36	Dielectric properties of hexagonal boron nitride and transition metal dichalcogenides: from monolayer to bulk. Npj 2D Materials and Applications, 2018, 2, .	3.9	563

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37	Minimizing performance degradation induced by interfacial recombination in perovskite solar cells through tailoring of the transport layer electronic properties. APL Materials, 2018, 6, .	2.2	29
38	Carrier Transport in a Two-Dimensional Topological Insulator Nanoribbon in the Presence of Vacancy Defects.. , 2018, , .		0
39	Efficient Modeling of Electron Transport with Plane Waves. , 2018, , .		1
40	Modeling of electron transport in nanoribbon devices using Bloch waves. , 2018, , .		0
41	Theoretical studies of electronic transport in monolayer and bilayer phosphorene: A critical overview. Physical Review B, 2018, 98, .	1.1	78
42	Monte-Carlo study of electronic transport in non-<i>Ïƒ</i>h-symmetric two-dimensional materials: Silicene and germanene. Journal of Applied Physics, 2018, 124, .	1.1	28
43	Dislocation driven spiral and non-spiral growth in layered chalcogenides. Nanoscale, 2018, 10, 15023-15034.	2.8	24
44	Highâ€Mobility Helical Tellurium Fieldâ€Effect Transistors Enabled by Transferâ€Free, Lowâ€Temperature Direct Growth. Advanced Materials, 2018, 30, e1803109.	11.1	71
45	Quantum Confinement and Interface States in ZnO Nanocrystalline Thin-Film Transistors. IEEE Transactions on Electron Devices, 2018, 65, 1787-1795.	1.6	2
46	Fermi Level Manipulation through Native Doping in the Topological Insulator Bi₂Se₃. ACS Nano, 2018, 12, 6310-6318.	7.3	37
47	Imperfect two-dimensional topological insulator field-effect transistors. Nature Communications, 2017, 8, 14184.	5.8	79
48	Theoretical Study of Ballistic Transport in Silicon Nanowire and Graphene Nanoribbon Field-Effect Transistors Using Empirical Pseudopotentials. IEEE Transactions on Electron Devices, 2017, 64, 2758-2764.	1.6	23
49	A Novel PNPN-Like Z-Shaped Tunnel Field- Effect Transistor With Improved Ambipolar Behavior and RF Performance. IEEE Transactions on Electron Devices, 2017, 64, 4752-4758.	1.6	106
50	Comprehensive Capacitanceâ€"Voltage Simulation and Extraction Tool Including Quantum Effects for High-k on Si<italic>x</italic>Ge1âˆ'<italic>x</italic> and In<italic>x</italic>Ga1âˆ'<italic>x</italic>As: Part Iâ€"Model Description and Validation. IEEE Transactions on Electron Devices, 2017, 64, 3786-3793.	1.6	3
51	Comprehensive Capacitanceâ€"Voltage Simulation and Extraction Tool Including Quantum Effects for High- k on SixGe1âˆ'x and InxGa1âˆ'xAs: Part IIâ€"Fits and Extraction From Experimental Data. IEEE Transactions on Electron Devices, 2017, 64, 3794-3801.	1.6	4
52	Two-dimensional topological insulator transistors as energy efficient switches robust against material and device imperfections. , 2017, , .		0
53	Dielectric properties of mono- and bilayers determined from first principles. , 2017, , .		4
54	Pseudopotential-based electron quantum transport: Theoretical formulation and application to nanometer-scale silicon nanowire transistors. Journal of Applied Physics, 2016, 119, 035701.	1.1	21

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55	Inter-ribbon tunneling in graphene: An atomistic Bardeen approach. Journal of Applied Physics, 2016, 119, 214306.	1.1	9
56	Electronâ€"Phonon Interactions. Graduate Texts in Physics, 2016, , 269-314.	0.1	0
57	Microscopic dielectric permittivities of graphene nanoribbons and graphene. Physical Review B, 2016, 94, .	1.1	42
58	Stannene: A Likely 2D Topological Insulator. Series in Materials Science and Engineering, 2016, , 379-408.	0.1	0
59	Mermin-Wagner theorem, flexural modes, and degraded carrier mobility in two-dimensional crystals with broken horizontal mirror symmetry. Physical Review B, 2016, 93, .	1.1	78
60	Charge Mediated Reversible Metalâ€"Insulator Transition in Monolayer MoTe₂ and W_{<i>x</i>}Mo_{1â€"<i>x</i>}Te₂ Alloy. ACS Nano, 2016, 10, 7370-7375.	7.3	133
61	Modeling topological-insulator field-effect transistors using the Boltzmann equation. , 2016, , .		0
62	Theoretical study of electron transport in silicene and germanene using full-band Monte Carlo simulations. , 2016, , .		5
63	<i>Ab initio</i>study of the electronic properties and thermodynamic stability of supported and functionalized two-dimensional Sn films. Physical Review B, 2015, 91, .	1.1	39
64	Deformation potentials for band-to-band tunneling in silicon and germanium from first principles. Applied Physics Letters, 2015, 106, 013505.	1.5	23
65	Progress on quantum transport simulation using empirical pseudopotentials. , 2015, , .		1
66	Physics of electronic transport in low-dimensionality materials for future FETs. , 2015, , .		0
67	An envelope function formalism for lattice-matched heterostructures. Physica B: Condensed Matter, 2015, 470-471, 69-75.	1.3	6
68	Transistors performance in the sub-1 nm technology node based on one-dimensional nanomaterials. , 2015, , .		1
69	Realizing a topological-insulator field-effect transistor using iodostannanane. , 2014, , .		4
70	Calculation of room temperature conductivity and mobility in tin-based topological insulator nanoribbons. Journal of Applied Physics, 2014, 116, .	1.1	17
71	Determining bound states in a semiconductor device with contacts using a nonlinear eigenvalue solver. Journal of Computational Electronics, 2014, 13, 753-762.	1.3	3
72	Quantum mechanical solver for confined heterostructure tunnel field-effect transistors. Journal of Applied Physics, 2014, 115, 053706.	1.1	20

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73	Tensile strained Ge tunnel field-effect transistors: kâ€‰Â·â€‰p material modeling and numerical device simulation. Journal of Applied Physics, 2014, 115, 044505.	1.1	34
74	Interfacial graphene growth in the Ni/SiO₂ system using pulsed laser deposition. Applied Physics Letters, 2013, 103, 134102.	1.5	20
75	Theoretical Study of the Gate Leakage Current in Sub-10-nm Field-Effect Transistors. IEEE Transactions on Electron Devices, 2013, 60, 3862-3869.	1.6	35
76	Impact of band non-parabolicity on the onset voltage in a nanowire tunnel field-effect transistor. , 2013, , .		0
77	Phonon-assisted Zener tunneling in a pâ€“n diode silicon nanowire. Solid-State Electronics, 2013, 79, 196-200.	0.8	2
78	Counterdoped Pocket Thickness Optimization of Gate-on-Source-Only Tunnel FETs. IEEE Transactions on Electron Devices, 2013, 60, 6-12.	1.6	43
79	A Simulation Study on Process Sensitivity of a Line Tunnel Field-Effect Transistor. IEEE Transactions on Electron Devices, 2013, 60, 1019-1027.	1.6	8
80	Phonon-assisted Zener tunneling in a cylindrical nanowire transistor. Journal of Applied Physics, 2013, 113, 184507.	1.1	7
81	Quantum Mechanical Performance Predictions of p-n-i-n Versus Pocketed Line Tunnel Field-Effect Transistors. IEEE Transactions on Electron Devices, 2013, 60, 2128-2134.	1.6	57
82	Figure of merit for and identification of sub-60â€‰mV/decade devices. Applied Physics Letters, 2013, 102, .	1.5	95
83	Corrections to â€œQuantum Mechanical Performance Predictions of p-n-i-n Versus Pocketed Line Tunnel Field-Effect Transistorsâ€•[Jul 13 2128-2134]. IEEE Transactions on Electron Devices, 2013, 60, 3605-3605.	1.6	0
84	A model determining optimal doping concentration and materialâ€™s band gap of tunnel field-effect transistors. Applied Physics Letters, 2012, 100, .	1.5	36
85	Modeling the impact of junction angles in tunnel field-effect transistors. Solid-State Electronics, 2012, 69, 31-37.	0.8	10
86	Direct and Indirect Band-to-Band Tunneling in Germanium-Based TFETs. IEEE Transactions on Electron Devices, 2012, 59, 292-301.	1.6	370
87	Optimization of Gate-on-Source-Only Tunnel FETs With Counter-Doped Pockets. IEEE Transactions on Electron Devices, 2012, 59, 2070-2077.	1.6	126
88	The impact of junction angle on tunnel FETs. , 2011, , .		0
89	Field induced quantum confinement in Indirect Semiconductors: Quantum mechanical and modified semiclassical model. , 2011, , .		12
90	Generalized phonon-assisted Zener tunneling in indirect semiconductors with non-uniform electric fields: A rigorous approach. Journal of Applied Physics, 2011, 109, 124503.	1.1	48

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91	Low-field mobility in ultrathin silicon nanowire junctionless transistors. Applied Physics Letters, 2011, 99, .	1.5	29
92	Two-dimensional quantum mechanical modeling of band-to-band tunneling in indirect semiconductors. , 2011, , .		21
93	Impact of field-induced quantum confinement in tunneling field-effect devices. Applied Physics Letters, 2011, 98, .	1.5	99
94	Digital-circuit analysis of short-gate tunnel FETs for low-voltage applications. Semiconductor Science and Technology, 2011, 26, 085001.	1.0	54
95	Shaping the future of nanoelectronics beyond the Si roadmap with new materials and devices. Proceedings of SPIE, 2010, , .	0.8	2
96	(Invited) Boosting the On-Current of Si-Based Tunnel Field-Effect Transistors. ECS Transactions, 2010, 33, 363-372.	0.3	9
97	Novel Device Concepts for Nanotechnology: The Nanowire Pinch-Off FET and Graphene TunnelFET. ECS Transactions, 2010, 28, 15-26.	0.3	14
98	Zener tunneling in semiconductors under nonuniform electric fields. Journal of Applied Physics, 2010, 107, 054520.	1.1	27
99	Modeling the single-gate, double-gate, and gate-all-around tunnel field-effect transistor. Journal of Applied Physics, 2010, 107, .	1.1	217
100	Tunnel Field-Effect Transistors for Future Low-Power Nano-Electronics. ECS Transactions, 2009, 25, 455-462.	0.3	6
101	High Mobility Channel Materials and Novel Devices for Scaling of Nanoelectronics beyond the Si Roadmap. Materials Research Society Symposia Proceedings, 2009, 1194, 49.	0.1	0
102	Zener tunnelling in graphene based semiconductors â€" the kÂ·p method. Journal of Physics: Conference Series, 2009, 193, 012111.	0.3	3
103	Analytical model for a tunnel field-effect transistor. , 2008, , .		77
104	Complementary Silicon-Based Heterostructure Tunnel-FETs With High Tunnel Rates. IEEE Electron Device Letters, 2008, 29, 1398-1401.	2.2	161
105	Boosting the on-current of a n-channel nanowire tunnel field-effect transistor by source material optimization. Journal of Applied Physics, 2008, 104, .	1.1	125
106	Tunnel field-effect transistor without gate-drain overlap. Applied Physics Letters, 2007, 91, .	1.5	384