

# William G Vandenberghe

## List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

90  
papers

2,798  
citations

24  
h-index

52  
g-index

108  
ext. papers

3,492  
ext. citations

4.1  
avg, IF

5.58  
L-index

#	Paper	IF	Citations
90	Tunnel field-effect transistor without gate-drain overlap. <i>Applied Physics Letters</i> , <b>2007</b> , 91, 053102	3.4	319
89	. <i>IEEE Transactions on Electron Devices</i> , <b>2012</b> , 59, 292-301	2.9	294
88	Dielectric properties of hexagonal boron nitride and transition metal dichalcogenides: from monolayer to bulk. <i>Npj 2D Materials and Applications</i> , <b>2018</b> , 2,	8.8	293
87	Modeling the single-gate, double-gate, and gate-all-around tunnel field-effect transistor. <i>Journal of Applied Physics</i> , <b>2010</b> , 107, 024518	2.5	179
86	Complementary Silicon-Based Heterostructure Tunnel-FETs With High Tunnel Rates. <i>IEEE Electron Device Letters</i> , <b>2008</b> , 29, 1398-1401	4.4	133
85	Boosting the on-current of a n-channel nanowire tunnel field-effect transistor by source material optimization. <i>Journal of Applied Physics</i> , <b>2008</b> , 104, 064514	2.5	107
84	Charge Mediated Reversible Metal-Insulator Transition in Monolayer MoTe <sub>2</sub> and W <sub>x</sub> Mo <sub>1-x</sub> Te <sub>2</sub> Alloy. <i>ACS Nano</i> , <b>2016</b> , 10, 7370-5	16.7	103
83	Optimization of Gate-on-Source-Only Tunnel FETs With Counter-Doped Pockets. <i>IEEE Transactions on Electron Devices</i> , <b>2012</b> , 59, 2070-2077	2.9	94
82	Impact of field-induced quantum confinement in tunneling field-effect devices. <i>Applied Physics Letters</i> , <b>2011</b> , 98, 143503	3.4	89
81	A Novel PNP-like Z-Shaped Tunnel Field-Effect Transistor With Improved Ambipolar Behavior and RF Performance. <i>IEEE Transactions on Electron Devices</i> , <b>2017</b> , 64, 4752-4758	2.9	76
80	Figure of merit for and identification of sub-60 mV/decade devices. <i>Applied Physics Letters</i> , <b>2013</b> , 102, 013510	3.4	72
79	Analytical model for a tunnel field-effect transistor <b>2008</b> ,		61
78	Mermin-Wagner theorem, flexural modes, and degraded carrier mobility in two-dimensional crystals with broken horizontal mirror symmetry. <i>Physical Review B</i> , <b>2016</b> , 93,	3.3	55
77	Imperfect two-dimensional topological insulator field-effect transistors. <i>Nature Communications</i> , <b>2017</b> , 8, 14184	17.4	49
76	High-Mobility Helical Tellurium Field-Effect Transistors Enabled by Transfer-Free, Low-Temperature Direct Growth. <i>Advanced Materials</i> , <b>2018</b> , 30, e1803109	24	49
75	Quantum Mechanical Performance Predictions of p-n-i-n Versus Pocketed Line Tunnel Field-Effect Transistors. <i>IEEE Transactions on Electron Devices</i> , <b>2013</b> , 60, 2128-2134	2.9	48
74	Digital-circuit analysis of short-gate tunnel FETs for low-voltage applications. <i>Semiconductor Science and Technology</i> , <b>2011</b> , 26, 085001	1.8	46

73	Theoretical studies of electronic transport in monolayer and bilayer phosphorene: A critical overview. <i>Physical Review B</i> , <b>2018</b> , 98,	3.3	43
72	Generalized phonon-assisted Zener tunneling in indirect semiconductors with non-uniform electric fields: A rigorous approach. <i>Journal of Applied Physics</i> , <b>2011</b> , 109, 124503	2.5	42
71	A model determining optimal doping concentration and material's band gap of tunnel field-effect transistors. <i>Applied Physics Letters</i> , <b>2012</b> , 100, 193509	3.4	32
70	Tensile strained Ge tunnel field-effect transistors: k <sub>B</sub> material modeling and numerical device simulation. <i>Journal of Applied Physics</i> , <b>2014</b> , 115, 044505	2.5	30
69	Ab initio study of the electronic properties and thermodynamic stability of supported and functionalized two-dimensional Sn films. <i>Physical Review B</i> , <b>2015</b> , 91,	3.3	28
68	Counterdoped Pocket Thickness Optimization of Gate-on-Source-Only Tunnel FETs. <i>IEEE Transactions on Electron Devices</i> , <b>2013</b> , 60, 6-12	2.9	27
67	Zener tunneling in semiconductors under nonuniform electric fields. <i>Journal of Applied Physics</i> , <b>2010</b> , 107, 054520	2.5	25
66	Low-field mobility in ultrathin silicon nanowire junctionless transistors. <i>Applied Physics Letters</i> , <b>2011</b> , 99, 233509	3.4	24
65	Microscopic dielectric permittivities of graphene nanoribbons and graphene. <i>Physical Review B</i> , <b>2016</b> , 94,	3.3	24
64	Fermi Level Manipulation through Native Doping in the Topological Insulator BiSe. <i>ACS Nano</i> , <b>2018</b> , 12, 6310-6318	16.7	23
63	Theoretical Study of the Gate Leakage Current in Sub-10-nm Field-Effect Transistors. <i>IEEE Transactions on Electron Devices</i> , <b>2013</b> , 60, 3862-3869	2.9	22
62	Deformation potentials for band-to-band tunneling in silicon and germanium from first principles. <i>Applied Physics Letters</i> , <b>2015</b> , 106, 013505	3.4	20
61	Tellurium as a successor of silicon for extremely scaled nanowires: a first-principles study. <i>Npj 2D Materials and Applications</i> , <b>2020</b> , 4,	8.8	19
60	Quantum mechanical solver for confined heterostructure tunnel field-effect transistors. <i>Journal of Applied Physics</i> , <b>2014</b> , 115, 053706	2.5	19
59	Two-dimensional quantum mechanical modeling of band-to-band tunneling in indirect semiconductors <b>2011</b> ,		19
58	Theoretical Study of Ballistic Transport in Silicon Nanowire and Graphene Nanoribbon Field-Effect Transistors Using Empirical Pseudopotentials. <i>IEEE Transactions on Electron Devices</i> , <b>2017</b> , 64, 2758-2764 <sup>2.9</sup>	2.9	18
57	Pseudopotential-based electron quantum transport: Theoretical formulation and application to nanometer-scale silicon nanowire transistors. <i>Journal of Applied Physics</i> , <b>2016</b> , 119, 035701	2.5	18
56	Interfacial graphene growth in the Ni/SiO <sub>2</sub> system using pulsed laser deposition. <i>Applied Physics Letters</i> , <b>2013</b> , 103, 134102	3.4	17

55	Dislocation driven spiral and non-spiral growth in layered chalcogenides. <i>Nanoscale</i> , <b>2018</b> , 10, 15023-15034	3.4	16
54	Monte-Carlo study of electronic transport in non- $\bar{\Gamma}$ -symmetric two-dimensional materials: Silicene and germanene. <i>Journal of Applied Physics</i> , <b>2018</b> , 124, 044306	2.5	15
53	Calculation of room temperature conductivity and mobility in tin-based topological insulator nanoribbons. <i>Journal of Applied Physics</i> , <b>2014</b> , 116, 173707	2.5	13
52	Identification of two-dimensional layered dielectrics from first principles. <i>Nature Communications</i> , <b>2021</b> , 12, 5051	17.4	13
51	Scalable atomistic simulations of quantum electron transport using empirical pseudopotentials. <i>Computer Physics Communications</i> , <b>2019</b> , 244, 156-169	4.2	12
50	Electronic Transport Properties of Silicene Determined from First Principles. <i>Materials</i> , <b>2019</b> , 12,	3.5	11
49	Minimizing performance degradation induced by interfacial recombination in perovskite solar cells through tailoring of the transport layer electronic properties. <i>APL Materials</i> , <b>2018</b> , 6, 036104	5.7	11
48	Novel Device Concepts for Nanotechnology: The Nanowire Pinch-Off FET and Graphene TunnelFET. <i>ECS Transactions</i> , <b>2010</b> , 28, 15-26	1	11
47	Magnetic order and critical temperature of substitutionally doped transition metal dichalcogenide monolayers. <i>Npj 2D Materials and Applications</i> , <b>2021</b> , 5,	8.8	11
46	Carrier transport in two-dimensional topological insulator nanoribbons in the presence of vacancy defects. <i>2D Materials</i> , <b>2019</b> , 6, 025011	5.9	10
45	Field induced quantum confinement in Indirect Semiconductors: Quantum mechanical and modified semiclassical model <b>2011</b> ,		10
44	Magnetic properties and critical behavior of magnetically intercalated WSe <sub>2</sub> : a theoretical study. <i>2D Materials</i> , <b>2021</b> , 8, 025009	5.9	10
43	Critical behavior of the ferromagnets CrI <sub>3</sub> , CrBr <sub>3</sub> , and CrGeTe <sub>3</sub> and the antiferromagnet FeCl <sub>2</sub> : A detailed first-principles study. <i>Physical Review B</i> , <b>2021</b> , 103,	3.3	10
42	New Verbeekite-type polymorphic phase and rich phase diagram in the PdSe <sub>2</sub> -Tex system. <i>Physical Review B</i> , <b>2021</b> , 104,	3.3	9
41	Modeling the impact of junction angles in tunnel field-effect transistors. <i>Solid-State Electronics</i> , <b>2012</b> , 69, 31-37	1.7	7
40	Inter-ribbon tunneling in graphene: An atomistic Bardeen approach. <i>Journal of Applied Physics</i> , <b>2016</b> , 119, 214306	2.5	7
39	An envelope function formalism for lattice-matched heterostructures. <i>Physica B: Condensed Matter</i> , <b>2015</b> , 470-471, 69-75	2.8	6
38	(Invited) Boosting the On-Current of Si-Based Tunnel Field-Effect Transistors. <i>ECS Transactions</i> , <b>2010</b> , 33, 363-372	1	6

37	Tunnel Field-Effect Transistors for Future Low-Power Nano-Electronics. <i>ECS Transactions</i> , <b>2009</b> , 25, 455-462	6
36	Transition-metal nitride halide dielectrics for transition-metal dichalcogenide transistors.. <i>Nanoscale</i> , <b>2021</b> , 14, 157-165	7.7 6
35	Theoretical study of scattering in graphene ribbons in the presence of structural and atomistic edge roughness. <i>Physical Review Materials</i> , <b>2019</b> , 3,	3.2 6
34	Channel Length Optimization for Planar LDMOS Field-Effect Transistors for Low-Voltage Power Applications. <i>IEEE Journal of the Electron Devices Society</i> , <b>2020</b> , 8, 711-715	2.3 6
33	. <i>IEEE Transactions on Electron Devices</i> , <b>2020</b> , 67, 4990-4997	2.9 6
32	Theoretical study of electron transport in silicene and germanene using full-band Monte Carlo simulations <b>2016</b> ,	4
31	A Simulation Study on Process Sensitivity of a Line Tunnel Field-Effect Transistor. <i>IEEE Transactions on Electron Devices</i> , <b>2013</b> , 60, 1019-1027	2.9 4
30	Dielectric properties of mono- and bilayers determined from first principles <b>2017</b> ,	4
29	Phonon-assisted Zener tunneling in a cylindrical nanowire transistor. <i>Journal of Applied Physics</i> , <b>2013</b> , 113, 184507	2.5 4
28	Electronic transport properties of hydrogenated and fluorinated graphene: a computational study. <i>Journal of Physics Condensed Matter</i> , <b>2020</b> , 32, 495502	1.8 4
27	Determining bound states in a semiconductor device with contacts using a nonlinear eigenvalue solver. <i>Journal of Computational Electronics</i> , <b>2014</b> , 13, 753-762	1.8 3
26	Comprehensive Capacitance-Voltage Simulation and Extraction Tool Including Quantum Effects for High-k on SixGe1 and InxGa1As: Part I Model Description and Validation. <i>IEEE Transactions on Electron Devices</i> , <b>2017</b> , 64, 3786-3793	2.9 3
25	Zener tunnelling in graphene based semiconductors [the k-p method]. <i>Journal of Physics: Conference Series</i> , <b>2009</b> , 193, 012111	0.3 3
24	Computing Curie temperature of two-dimensional ferromagnets in the presence of exchange anisotropy. <i>Physical Review Research</i> , <b>2021</b> , 3,	3.9 3
23	Phonon-assisted Zener tunneling in a p-n diode silicon nanowire. <i>Solid-State Electronics</i> , <b>2013</b> , 79, 196-200.	7 2
22	Comprehensive Capacitance-Voltage Simulation and Extraction Tool Including Quantum Effects for High- k on SixGe1 and InxGa1As: Part II Bits and Extraction From Experimental Data. <i>IEEE Transactions on Electron Devices</i> , <b>2017</b> , 64, 3794-3801	2.9 2
21	<b>2014</b> ,	2
20	Shaping the future of nanoelectronics beyond the Si roadmap with new materials and devices <b>2010</b> ,	2

19	Channel Length Scaling Limit for LDMOS Field-Effect Transistors: Semi-classical and Quantum Analysis <b>2020</b> ,		2
18	Energy levels in dilute-donor organic solar cell photocurrent generation: A thienothiophene donor molecule study. <i>Organic Electronics</i> , <b>2021</b> , 92, 106137	3.5	2
17	Special issue on two-dimensional materials. <i>Journal of Computational Electronics</i> , <b>2021</b> , 20, 1-1	1.8	2
16	Quantum Confinement and Interface States in ZnO Nanocrystalline Thin-Film Transistors. <i>IEEE Transactions on Electron Devices</i> , <b>2018</b> , 65, 1787-1795	2.9	1
15	Trigonal Tellurium Nanostructure Formation Energy and Band gap <b>2019</b> ,		1
14	<b>2021</b> ,		1
13	Determining Electronic, Structural, Dielectric, Magnetic, and Transport Properties in Novel Electronic Materials: Using first-principles techniques. <i>IEEE Nanotechnology Magazine</i> , <b>2021</b> , 2-10	1.7	1
12	Generation of empirical pseudopotentials for transport applications and their application to group IV materials. <i>Journal of Applied Physics</i> , <b>2020</b> , 128, 034306	2.5	1
11	Importance of separating contacts from the photosensitive layer in heterojunction phototransistors. <i>Superlattices and Microstructures</i> , <b>2020</b> , 148, 106713	2.8	1
10	Figure-of-Merit for Laterally Diffused MOSFETs with Rectangular and Semi-Circular Field Oxides <b>2021</b> ,		1
9	Ab-Initio Study of Magnetically Intercalated Platinum Diselenide: The Impact of Platinum Vacancies. <i>Materials</i> , <b>2021</b> , 14,	3.5	1
8	First-principles Study of the Electron and Hole Mobility in Silicane <b>2019</b> ,		1
7	A First-Principles Study on the Electronic, Thermodynamic and Dielectric Properties of Monolayer Ca(OH) <sub>2</sub> and Mg(OH) <sub>2</sub> . <i>Nanomaterials</i> , <b>2022</b> , 12, 1774	5.4	1
6	Monte Carlo analysis of phosphorene nanotransistors. <i>Journal of Computational Electronics</i> , <b>2021</b> , 20, 60-69	1.8	0
5	Stannene: A Likely 2D Topological Insulator. <i>Series in Materials Science and Engineering</i> , <b>2016</b> , 379-408		
4	Corrections to Quantum Mechanical Performance Predictions of p-n-i-n Versus Pocketed Line Tunnel Field-Effect Transistors [Jul 13 2128-2134]. <i>IEEE Transactions on Electron Devices</i> , <b>2013</b> , 60, 3605-3605	2.9	
3	High Mobility Channel Materials and Novel Devices for Scaling of Nanoelectronics beyond the Si Roadmap. <i>Materials Research Society Symposia Proceedings</i> , <b>2009</b> , 1194, 49		
2	Electron-Phonon Interactions. <i>Graduate Texts in Physics</i> , <b>2016</b> , 269-314	0.3	

- 1 LDMOS Drift Region With Field Oxides: Figure-of-Merit Derivation and Verification. *IEEE Journal of the Electron Devices Society*, **2022**, 10, 361-366 2.3