Viktor Sverdlov

List of Publications by Citations

166 papers	1,262 citations	18 h-index	30 g-index
262 ext. papers	1,568 ext. citations	2.1 avg, IF	4.55 L-index

#	Paper	IF	Citations
166	. *IEEE Transactions on Electron Devices*, **2007**, 54, 2183-2190	2.9	141
165	The Universality of NBTI Relaxation and its Implications for Modeling and Characterization **2007**,		99
164	Emerging memory technologies: Trends, challenges, and modeling methods. *Microelectronics Reliability*, **2012**, 52, 628-634	1.2	60
163	Nanoscale silicon MOSFETs: A theoretical study. *IEEE Transactions on Electron Devices*, **2003**, 50, 1926-1933	2.9	60
162	CMOS-compatible spintronic devices: a review. *Semiconductor Science and Technology*, **2016**, 31, 113006	1.8	54
161	Implication logic gates using spin-transfer-torque-operated magnetic tunnel junctions for intrinsic logic-in-memory. *Solid-State Electronics*, **2013**, 84, 191-197	1.7	48
160	Silicon spintronics: Progress and challenges. *Physics Reports*, **2015**, 585, 1-40	27.7	43
159	Many-body wave function for a quantum dot in a weak magnetic field. *Physical Review B*, **1999**, 59, 5622-5626	3.3	43
158	Strain-Induced Effects in Advanced MOSFETs. *Computational Microelectronics*, **2011**,		35
157	Current transport models for nanoscale semiconductor devices. *Materials Science and Engineering Reports*, **2008**, 58, 228-270	30.9	28
156	Coulomb gap, Coulomb blockade, and dynamic activation energy in frustrated single-electron arrays. *Physical Review B*, **2003**, 68,	3.3	27
155	Variational wave function for a two-electron quantum dot. *Physica B: Condensed Matter*, **1998**, 255, 145-149	1.9	24
154	Two-band k·p model for the conduction band in silicon: Impact of strain and confinement on band structure and mobility. *Solid-State Electronics*, **2008**, 52, 1563-1568	1.7	24
153	Quantum transport in ultra-scaled double-gate MOSFETs: A Wigner function-based Monte Carlo approach. *Solid-State Electronics*, **2005**, 49, 1510-1515	1.7	23
152	Ultra-scaled Z-RAM cell **2008**,		22
151	Shot-noise suppression at two-dimensional hopping. *Physical Review B*, **2001**, 63,	3.3	22
150	Qubit decoherence by Gaussian low-frequency noise. *JETP Letters*, **2004**, 79, 646-649	1.2	19

149	Various spin-polarization states beyond the maximum-density droplet: A quantum Monte Carlo study. *Physical Review B*, **2002**, 65,	3.3	19
148	Reliability Analysis and Comparison of Implication and Reprogrammable Logic Gates in Magnetic Tunnel Junction Logic Circuits. *IEEE Transactions on Magnetics*, **2013**, 49, 5620-5628	2	18
147	Effective boundary conditions for carriers in ultrathin SOI channels. *IEEE Nanotechnology Magazine*, **2003**, 2, 59-63	2.6	15
146	Variational wave function for a quantum dot in a magnetic field: A quantum Monte Carlo study. *Europhysics Letters*, **1998**, 41, 407-412	1.6	15
145	Charging and Discharging of Oxide Defects in Reliability Issues. *IEEE Transactions on Device and Materials Reliability*, **2008**, 8, 491-500	1.6	14
144	Volume inversion mobility in SOI MOSFETs for different thin body orientations. *Solid-State Electronics*, **2007**, 51, 299-305	1.7	13
143	Two-pulse sub-ns switching scheme for advanced spin-orbit torque MRAM. *Solid-State Electronics*, **2019**, 155, 49-56	1.7	12
142	Fast Switching in Magnetic Tunnel Junctions With Two Pinned Layers: Micromagnetic Modeling. *IEEE Transactions on Magnetics*, **2012**, 48, 1289-1292	2	11
141	Subband splitting and surface roughness induced spin relaxation in (0 0 1) silicon SOI MOSFETs. *Solid-State Electronics*, **2013**, 90, 34-38	1.7	11
140	Reduction of switching time in pentalayer magnetic tunnel junctions with a composite-free layer. *Physica Status Solidi - Rapid Research Letters*, **2011**, 5, 420-422	2.5	11
139	Stochastic model of the resistive switching mechanism in bipolar resistive random access memory: Monte Carlo simulations. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2011**, 29, 01AD03	1.3	11
138	Effects of shear strain on the conduction band in silicon: An efficient two-band k□p theory **2007**,		11
137	MOSFETs below : quantum theory. *Physica E: Low-Dimensional Systems and Nanostructures*, **2003**, 19, 23-27	3	11
136	Nanoscale SOI MOSFETs: a comparison of two options. *Solid-State Electronics*, **2004**, 48, 857-865	1.7	10
135	A multi scale modeling approach to non-radiative multi phonon transitions at oxide defects in MOS structures. *Journal of Computational Electronics*, **2012**, 11, 218-224	1.8	9
134	Electronic band structure modeling in strained Si-nanowires: Two band k □p versus tight binding **2010**,		9
133	Electron subband structure and controlled valley splitting in silicon thin-body SOI FETs: Two-band k □p theory and beyond. *Solid-State Electronics*, **2008**, 52, 1861-1866	1.7	9
132	MRAM-based logic array for large-scale non-volatile logic-in-memory applications **2013**,		8

131	Single-electron soliton avalanches in tunnel-junction arrays. *Physical Review B*, **2001**, 64,	3.3	8
130	Scattering and space-charge effects in Wigner Monte Carlo simulations of single and double barrier devices. *Journal of Computational Electronics*, **2007**, 5, 447-450	1.8	7
129	Robust magnetic field-free switching of a perpendicularly magnetized free layer for SOT-MRAM. *Solid-State Electronics*, **2020**, 168, 107730	1.7	7
128	Intersubband spin relaxation reduction and spin lifetime enhancement by strain in SOI structures. *Microelectronic Engineering*, **2015**, 147, 89-91	2.5	6
127	Spin injection in a semiconductor through a space-charge layer. *Solid-State Electronics*, **2014**, 101, 116-121	1.7	6
126	Temperature dependence of the transport properties of spin field-effect transistors built with InAs and Si channels. *Solid-State Electronics*, **2012**, 71, 25-29	1.7	6
125	Transport modeling for nanoscale semiconductor devices **2010**,		6
124	Modeling of modern MOSFETs with strain. *Journal of Computational Electronics*, **2009**, 8, 192-208	1.8	6
123	Electron subband structure in strained silicon UTB films from the Hensel Hasegawa Nakayama model Part 2 efficient self-consistent numerical solution of the k p schr dinger equation. *Solid-State Electronics*, **2010**, 54, 143-148	1.7	6
122	Subband engineering in -type silicon nanowires using strain and confinement. *Solid-State Electronics* , **2012**, 70, 73-80	1.7	5
121	Rigorous simulation study of a novel non-volatile magnetic flip-flop **2013**,		5
120	A numerical study of Coulomb interaction effects on 2D hopping transport. *Journal of Physics Condensed Matter*, **2006**, 18, 2013-27	1.8	5
119	A numerical study of transport and shot noise in 2D hopping. *Journal of Physics Condensed Matter*, **2006**, 18, 1999-2012	1.8	5
118	Two-pulse magnetic field-free switching scheme for perpendicular SOT-MRAM with a symmetric square free layer. *Physica B: Condensed Matter*, **2020**, 578, 411743	2.8	5
117	Optimization of a Spin-Orbit Torque Switching Scheme Based on Micromagnetic Simulations and Reinforcement Learning. *Micromachines*, **2021**, 12,	3.3	5
116	Coupled spin and charge drift-diffusion approach applied to magnetic tunnel junctions. *Solid-State Electronics*, **2021**, 186, 108103	1.7	5
115	Spin injection and diffusion in silicon based devices from a space charge layer. *Journal of Applied Physics*, **2014**, 115, 17C503	2.5	4
114	Novel bias-field-free spin transfer oscillator. *Journal of Applied Physics*, **2014**, 115, 17C901	2.5	4

113	Modeling Emerging Non-volatile Memories: Current Trends and Challenges. *Physics Procedia*, **2012**, 25, 99-104		4
112	Reduction of momentum and spin relaxation rate in strained thin silicon films **2013**,		4
111	MTJ-based implication logic gates and circuit architecture for large-scale spintronic stateful logic systems **2012**,		4
110	Design and applications of magnetic tunnel junction based logic circuits **2013**,		4
109	Numerical Quadrature of the Subband Distribution Functions in Strained Silicon UTB Devices **2009**,		4
108	Electron subband structure in strained silicon UTB films from the Hensel–Hasegawa–Nakayama model – Part 1 analytical consideration and strain-induced valley splitting. *Solid-State Electronics*, **2010**, 54, 137-142	1.7	4
107	Emerging CMOS Compatible Magnetic Memories and Logic **2020**,		3
106	Valley splitting and spin lifetime enhancement in strained thin silicon films **2014**,		3
105	High performance MRAM-based stateful logic **2014**,		3
104	**2013**,		3
103	Performance analysis and comparison of two 1T/1MTJ-based logic gates **2013**,		3
102	Electron mobility and spin lifetime enhancement in strained ultra-thin silicon films. *Solid-State Electronics*, **2015**, 112, 46-50	1.7	3
101	Modelling of multipurpose spintronic devices. *International Journal of Nanotechnology*, **2015**, 12, 313	1.5	3
100	Reliability-Based Optimization of Spin-Transfer Torque Magnetic Tunnel Junction Implication Logic Gates. *Advanced Materials Research*, **2013**, 854, 89-95	0.5	3
99	Biotin-Streptavidin Sensitive BioFETs and Their Properties. *Communications in Computer and Information Science*, **2010**, 85-95	0.3	3
98	Stochastic modeling hysteresis and resistive switching in bipolar oxide-based memory **2010**,		3
97	Properties of Silicon Ballistic Spin Fin-Based Field-Effect Transistors. *ECS Transactions*, **2011**, 35, 277-2821		3
96	Modeling of Low Concentrated Buffer DNA Detection with Suspend Gate Field-Effect Transistors (SGFET) **2009**,		3

95	Simulation of Field-Effect Biosensors (BioFETs) for Biotin-Streptavidin Complexes **2010**,		3
94	Stochastic modeling of bipolar resistive switching in metal-oxide based memory by Monte Carlo technique. *Journal of Computational Electronics*, **2010**, 9, 146-152	1.8	3
93	Paramagnetic Meissner effect and time reversal non-invariance from spin polarization. *Superlattices and Microstructures*, **1997**, 21, 481-486	2.8	3
92	Theoretical Electron Mobility Analysis in Thin-Body FETs: Dependence on Substrate Orientation and Biaxial Strain. *IEEE Nanotechnology Magazine*, **2007**, 6, 334-340	2.6	3
91	Strain engineering for CMOS devices **2006**,		3
90	Electron Inversion Layer Mobility Enhancement by Uniaxial Stress on (001) and (110) Oriented MOSFETs **2006**,		3
89	Role of edge electron states in the formation of edge magnetoplasmons. *Physical Review B*, **1996**, 54, 16333-16336	3.3	3
88	Scaling, Power Consumption, and Mobility Enhancement Techniques. *Computational Microelectronics*, **2011**, 5-22		3
87	Numerical Analysis of Deterministic Switching of a Perpendicularly Magnetized Spin-Orbit Torque Memory Cell. *IEEE Journal of the Electron Devices Society*, **2021**, 9, 61-67	2.3	3
86	Switching current reduction in advanced spin-orbit torque MRAM **2018**,		3
85	Magnetic Tunnel Junctions with a Composite Free Layer: A New Concept for Future Universal Memory93-101		3
84	A Universal Nonvolatile Processing Environment **2016**, 83-91		2
83	Comprehensive Comparison of Switching Models for Perpendicular Spin-Transfer Torque MRAM Cells **2019**,		2
82	SOT-MRAM based on 1Transistor-1MTJ-cell structure **2015**,		2
81	Variation of Spin Lifetime with Spin Injection Orientation in Strained Thin Silicon Films. *ECS Transactions*, **2015**, 66, 233-240	1	2
80	Dependence of spin lifetime on spin injection orientation in strained silicon films **2015**,		2
79	Influence of Geometry on the Memristive Behavior of the Domain Wall Spintronic Memristors and Its Applications for Measurement. *Journal of Superconductivity and Novel Magnetism*, **2013**, 26, 1745-1748	1.5	2
78	Acoustic Phonon and Surface Roughness Spin Relaxation Mechanisms in Strained Ultra-Scaled Silicon Films. *Advanced Materials Research*, **2013**, 854, 29-34	0.5	2

77	Domain-wall spintronic memristor for capacitance and inductance sensing **2011**,		2
76	Switching time and current reduction using a composite free layer in magnetic tunnel junctions **2011**,		2
75	Thickness Dependence of the Effective Masses in a Strained Thin Silicon Film **2009**,		2
74	The Linear Combination of Bulk Bands-Method for Electron and Hole Subband Calculations in Strained Silicon Films and Surface Layers **2009**,		2
73	Mobility enhancement in thin silicon films: Strain and thickness dependences of the effective masses and non-parabolicity parameter **2008**,		2
72	Modeling current transport in ultra-scaled field-effect transistors. *Microelectronics Reliability*, **2007**, 47, 11-19	1.2	2
71	Electron subband dispersions in ultra-thin silicon films from a two-band k?p theory. *Journal of Computational Electronics*, **2008**, 7, 164-167	1.8	2
70	Wigner Monte Carlo Simulation: Particle Annihilation and Device Applications **2006**,		2
69	Quantum mechanical modeling of advanced sub-10 nm MOSFETs		2
68	Subelectron transport in single-electron-tunneling arrays. *Physical Review B*, **2002**, 65,	3.3	2
67	Stability of the maximum-density droplet state in quantum dots: a quantum Monte Carlo study. *Physica B: Condensed Matter*, **2000**, 284-288, 1776-1777	2.8	2
66	Efficient Demagnetizing Field Calculation for Disconnected Complex Geometries in STT-MRAM Cells **2020**,		2
65	Classical Device Modeling **2011**, 1-96		2
64	Influence of magnetization variations in the free layer on a non-volatile magnetic flip flop. *Solid-State Electronics*, **2015**, 108, 2-7	1.7	1
63	Conductance in a Nanoribbon of Topologically Insulating MoS2 in the 1T Phase. *IEEE Transactions on Electron Devices*, **2020**, 67, 4687-4690	2.9	1
62	Enhancement of Electron Spin Relaxation Time in Thin SOI Films by Spin Injection Orientation and Uniaxial Stress. *Journal of Nano Research*, **2016**, 39, 34-42	1	1
61	Influence of magnetization variations in the free layer on a non-volatile magnetic flip flop **2014**,		1
60	Simulation study of an electrically read- and writable magnetic logic gate. *Microelectronic Engineering*, **2013**, 112, 188-192	2.5	1

59	Non-volatility by spin in modern nanoelectronics **2017**,		1
58	Influence of valley splitting on spin relaxation time in a strained thin silicon film **2015**,		1
57	Influence of device geometry on the non-volatile magnetic flip flop characteristics **2014**,		1
56	Reduction of surface roughness induced spin relaxation in SOI MOSFETs **2012**,		1
55	Using strain to increase the reliability of scaled spin MOSFETs **2013**,		1
54	A stochastic model of bipolar resistive switching in metal-oxide-based memory **2010**,		1
53	Modeling demands for nanoscale devices **2010**,		1
52	Stochastic modeling of the resistive switching mechanism in oxide-based memory **2010**,		1
51	Transport properties of spin field-effect transistors built on Si and InAs **2011**,		1
50	Impact of Confinement of Semiconductor and Band Engineering on Future Device Performance. *ECS Transactions*, **2009**, 19, 15-26	1	1
49	Impact of O□Si□ bond angle fluctuations on the Si□ bond-breakage rate. *Microelectronics Reliability*, **2009**, 49, 998-1002	1.2	1
48	Simulation of field-effect Biosensors (BioFETs) **2008**,		1
47	Self-Consistent Wigner Monte Carlo Simulations of Current in Emerging Nanodevices: Role of Tunneling and Scattering. *AIP Conference Proceedings*, **2007**,	0	1
46	Temperature scaling of CMOS circuit power consumption. *Physica E: Low-Dimensional Systems and Nanostructures*, **2003**, 18, 151-152	3	1
45	Plasma Waves in a Finite Superlattice. *Physica Status Solidi (B): Basic Research*, **1994**, 181, 161-168	1.3	1
44	Topologically Protected and Conventional Subbands in a 1T□MoS2 Nanoribbon Channel **2020**,		1
43	Comprehensive Modeling of Coupled Spin and Charge Transport through Magnetic Tunnel Junctions **2020**,		1
42	Evaluation of Spin Lifetime in Thin-Body FETs: A High Performance Computing Approach. *Lecture Notes in Computer Science*, **2015**, 285-292	0.9	1

41	Modeling of the SET and RESET Process in Bipolar Resistive Oxide-Based Memory Using Monte Carlo Simulations. *Lecture Notes in Computer Science*, **2011**, 87-94	0.9	1
40	Silicon-on-insulator for spintronic applications: spin lifetime and electric spin manipulation. *ChemistrySelect*, **2016**, 1,	1.8	1
39	Efficient two-level parallelization approach to evaluate spin relaxation in a strained thin silicon film. *Journal of Computational Electronics*, **2019**, 18, 28-36	1.8	1
38	Finite element modeling of spin□rbit torques. *Solid-State Electronics*, **2022**, 194, 108323	1.7	1
37	Double Reference Layer STT-MRAM Structures with Improved Performance. *Solid-State Electronics*, **2022**, 194, 108335	1.7	1
36	Electron Subbands in Thin Silicon Films. *Computational Microelectronics*, **2011**, 131-167		0
35	Emerging CMOS Compatible Magnetic Memories and Logic. *IEEE Journal of the Electron Devices Society*, **2021**, 9, 456-463	2.3	0
34	Subbands in a nanoribbon of topologically insulating MoS2 in the 1T? phase. *Solid-State Electronics*, **2021**, 184, 108081	1.7	0
33	Temperature increase in STT-MRAM at writing: A fully three-dimensional finite element approach. *Solid-State Electronics*, **2022**, 193, 108269	1.7	0
32	Interface Effects in Ultra-Scaled MRAM Cells. *Solid-State Electronics*, **2022**, 108373	1.7	0
31	Current and shot noise at spin-dependent hopping through junctions with ferromagnetic contacts. *Solid-State Electronics*, **2019**, 159, 43-50	1.7	
30	Ballistic Conductance in a Topological 1T ′-MoS2 Nanoribbon. *Semiconductors*, **2020**, 54, 1713-1715	0.7	
29	Electron Momentum and Spin Relaxation in Silicon Films. *Mathematics in Industry*, **2016**, 695-700	0.2	
28	Progress in Magnetoresistive Memory: Magnetic Tunnel Junctions with a Composite Free Layer. *International Journal of High Speed Electronics and Systems*, **2014**, 23, 1450014	0.5	
27	Demands of Transport Modeling in Advanced MOSFETs. *Computational Microelectronics*, **2011**, 169-237		
26	Impact of the Surrounding Network on the Si-O Bond-Breakage Energetics. *Materials Research Society Symposia Proceedings*, **2009**, 1177, 31		
25	Perspectives of Silicon for Future Spintronic Applications From the Peculiarities of the Subband Structure in Thin Films. *IEEE Nanotechnology Magazine*, **2011**, 10, 737-743	2.6	
24	Silicon for Spintronic Applications: Strain-Enhanced Valley Splitting **2010**, 281-291		

23	Mobility Modeling in Advanced MOSFETs with Ultra-Thin Silicon Body under Stress. *ECS Transactions*, **2008**, 14, 159-168	1
22	Shot noise in frustrated single-electron arrays. *Applied Physics Letters*, **2003**, 83, 2662-2664	3.4
21	Effect of electromagnetic environment on transport of composite fermions in a narrow constriction between compressible quantum Hall liquids. *Physica B: Condensed Matter*, **2000**, 284-288, 1730-1731	2.8
20	Influence of dynamical screening on the superconducting transition temperature. *Physica C: Superconductivity and Its Applications*, **1994**, 235-240, 2949-2950	1.3
19	On the Theory of Surface Plasma Waves in Superlattices. *Physica Status Solidi (B): Basic Research*, **1991**, 165, K59-K62	1.3
18	Improving failure rates in pulsed SOT-MRAM switching by reinforcement learning. *Microelectronics Reliability*, **2021**, 126, 114231	1.2
17	Shot Noise at 2D Hopping. *Journal of the Physical Society of Japan*, **2003**, 72, 149-150	1.5
16	Quantum Correction to the Semiclassical Electron-Phonon Scattering Operator. *Lecture Notes in Computer Science*, **2006**, 594-601	0.9
15	Monte Carlo Algorithm for Mobility Calculations in Thin Body Field Effect Transistors: Role of Degeneracy and Intersubband Scattering. *Lecture Notes in Computer Science*, **2008**, 157-164	0.9
14	Stateful STT-MRAM-Based Logic for Beyond Von Neumann Computing **2017**, 221-249	
13	Demands for spin-based nonvolatility in emerging digital logic and memory devices for low power computing. *Facta Universitatis - Series Electronics and Energetics*, **2018**, 31, 529-545	0.4
12	A Monte Carlo Evaluation of the Current and Low Frequency Current Noise at Spin-Dependent Hopping. *Lecture Notes in Computer Science*, **2020**, 446-453	0.9
11	Spin-Based CMOS-Compatible Devices. *Lecture Notes in Computer Science*, **2015**, 42-49	0.9
10	Transport in Nanostructures: A Comparative Analysis Using Monte Carlo Simulation, the Spherical Harmonic Method, and Higher Moments Models. *Lecture Notes in Computer Science*, **2010**, 443-450	0.9
9	Band Structure of Relaxed Silicon. *Computational Microelectronics*, **2011**, 45-62	
8	Perturbative Methods for Band Structure Calculations in Silicon. *Computational Microelectronics*, **2011**, 63-81	
7	Strain Effects on the Conduction Band of Silicon. *Computational Microelectronics*, **2011**, 105-121	
6	Efficient Simulations of the Transport Properties of Spin Field-Effect Transistors Built on Silicon Fins. *Lecture Notes in Computer Science*, **2012**, 630-637	0.9

List of Publications

5	Uniaxial Shear Strain as a Mechanism to Increase Spin Lifetime in Thin Film of a SOI-Based Silicon Spin FETs. *Engineering Materials*, **2014**, 127-149	0.4
4	Analysis of Switching Under Fixed Voltage and Fixed Current in Perpendicular STT-MRAM. *IEEE Journal of the Electron Devices Society*, **2020**, 8, 1249-1256	2.3
3	Two-pulse switching scheme and reinforcement learning for energy efficient SOT-MRAM simulations. *Solid-State Electronics*, **2021**, 185, 108075	1.7
2	Edge modes and their conductance in narrow nanoribbons of 2D materials in a topological phase. *Solid-State Electronics*, **2022**, 193, 108266	1.7
1	Reinforcement learning to reduce failures in SOT-MRAM switching. *Microelectronics Reliability*, **2022**, 135, 114570	1.2