C David Wright

List of Publications by Year
in descending order

111 papers	8,561 citations	117625 34 h-index	45317 90 g-index
115 all docs	115 docs citations	115 times ranked	5918 citing authors

#	Article	IF	Citations
1	All-optical spiking neurosynaptic networks with self-learning capabilities. Nature, 2019, 569, 208-214.	27.8	847
2	Integrated all-photonic non-volatile multi-level memory. Nature Photonics, 2015, 9, 725-732.	31.4	833
3	Photonics for artificial intelligence and neuromorphic computing. Nature Photonics, 2021, 15, 102-114.	31.4	764
4	Parallel convolutional processing using an integrated photonic tensor core. Nature, 2021, 589, 52-58.	27.8	723
5	An optoelectronic framework enabled by low-dimensional phase-change films. Nature, 2014, 511, 206-211.	27.8	599
6	On-chip photonic synapse. Science Advances, 2017, 3, e1700160.	10.3	399
7	Beyond vonâ€Neumann Computing with Nanoscale Phaseâ€Change Memory Devices. Advanced Functional Materials, 2013, 23, 2248-2254.	14.9	336
8	In-memory computing on a photonic platform. Science Advances, 2019, 5, eaau5759.	10.3	238
9	Arithmetic and Biologicallyâ€Inspired Computing Using Phaseâ€Change Materials. Advanced Materials, 2011, 23, 3408-3413.	21.0	237
10	Models for phase-change of Ge2Sb2Te5 in optical and electrical memory devices. Journal of Applied Physics, 2004, 95, 504-511.	2.5	217
11	Calculating with light using a chip-scale all-optical abacus. Nature Communications, 2017, 8, 1256.	12.8	201
12	Fast and reliable storage using a 5â€‰â€‰bit, nonvolatile photonic memory cell. Optica, 2019, 6, 1.	9.3	195
13	Onâ€Chip Photonic Memory Elements Employing Phaseâ€Change Materials. Advanced Materials, 2014, 26, 1372-1377.	21.0	189
14	Nonvolatile Reconfigurable Phaseâ€Change Metadevices for Beam Steering in the Near Infrared. Advanced Functional Materials, 2018, 28, 1704993.	14.9	187
15	Nonvolatile Allâ€Optical 1 Ã— 2 Switch for Chipscale Photonic Networks. Advanced Optical Materials, 2017, 5, 1600346.	7.3	165
16	Reconfigurable multilevel control of hybrid all-dielectric phase-change metasurfaces. Optica, 2020, 7, 476.	9.3	153
17	Plasmonic nanogap enhanced phase-change devices with dual electrical-optical functionality. Science Advances, 2019, 5, eaaw2687.	10.3	131
18	Deviceâ€Level Photonic Memories and Logic Applications Using Phaseâ€Change Materials. Advanced Materials, 2018, 30, e1802435.	21.0	129

#	Article	IF	Citations
19	Controlled switching of phase-change materials by evanescent-field coupling in integrated photonics [Invited]. Optical Materials Express, 2018, 8, 2455.	3.0	113
20	Fast Highâ€Responsivity Fewâ€Layer MoTe₂ Photodetectors. Advanced Optical Materials, 2016, 4, 1750-1754.	7.3	109
21	Multilevel Ultrafast Flexible Nanoscale Nonvolatile Hybrid Graphene Oxideâ€“Titanium Oxide Memories. ACS Nano, 2017, 11, 3010-3021.	14.6	98
22	A Nonvolatile Phaseâ€Change Metamaterial Color Display. Advanced Optical Materials, 2019, 7, 1801782.	7.3	97
23	Design of practicable phase-change metadevices for near-infrared absorber and modulator applications. Optics Express, 2016, 24, 13563.	3.4	81
24	A New Facile Route to Flexible and Semiâ€Transparent Electrodes Based on Water Exfoliated Graphene and their Singleâ€Electrode Triboelectric Nanogenerator. Advanced Materials, 2018, 30, e1802953.	21.0	74
25	Highly Efficient Rubreneâ€“Graphene Chargeâ€Transfer Interfaces as Phototransistors in the Visible Regime. Advanced Materials, 2017, 29, 1702993.	21.0	58
26	Experimental investigation of silicon and silicon nitride platforms for phase-change photonic in-memory computing. Optica, 2020, 7, 218.	9.3	58
27	Crystallization of Ge2Sb2Te5 films by amplified femtosecond optical pulses. Journal of Applied Physics, 2012, 112, .	2.5	57
28	Tunable Volatility of Ge₂Sb₂Te₅ in Integrated Photonics. Advanced Functional Materials, 2019, 29, 1807571.	14.9	57
29	Integrated 256 Cell Photonic Phase-Change Memory With 512-Bit Capacity. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-7.	2.9	54
30	The Design of Rewritable Ultrahigh Density Scanning-Probe Phase-Change Memories. IEEE Nanotechnology Magazine, 2011, 10, 900-912.	2.0	53
31	Accumulation-Based Computing Using Phase-Change Memories With FET Access Devices. IEEE Electron Device Letters, 2015, 36, 975-977.	3.9	52
32	Role of Charge Traps in the Performance of Atomically Thin Transistors. Advanced Materials, 2017, 29, 1605598.	21.0	46
33	Tunable optical metasurfaces enabled by chalcogenide phase-change materials: from the visible to the THz. Journal of Optics (United Kingdom), 2020, 22, 114001.	2.2	45
34	On-chip sub-wavelength Bragg grating design based on novel low loss phase-change materials. Optics Express, 2020, 28, 16394.	3.4	39
35	Chalcogenide phase-change devices for neuromorphic photonic computing. Journal of Applied Physics, 2021, 129, .	2.5	35
36	Plasmonically-enhanced all-optical integrated phase-change memory. Optics Express, 2019, 27, 24724.	3.4	35

#	Article	IF	Citations
37	Electric field induced crystallization in phase-change materials for memory applications. Applied Physics Letters, 2011, 98, .	3.3	33
38	Reconfigurable Nanophotonic Cavities with Nonvolatile Response. ACS Photonics, 2018, 5, 4644-4649.	6.6	32
39	Fast simulation of phase-change processes in chalcogenide alloys using a Gillespie-type cellular automata approach. Journal of Applied Physics, 2008, 104, .	2.5	31
40	Low Temperature Annealing Improves the Electrochromic and Degradation Behavior of Tungsten Oxide (WO_x) Thin Films. Journal of Physical Chemistry C, 2017, 121, 20498-20506.	3.1	30
41	Integrated phase-change photonic devices and systems. MRS Bulletin, 2019, 44, 721-727.	3.5	29
42	Electronically Reconfigurable Photonic Switches Incorporating Plasmonic Structures and Phase Change Materials. Advanced Science, 2022, 9, e2200383.	11.2	29
43	Phase-change devices for simultaneous optical-electrical applications. Scientific Reports, 2017, 7, 9688.	3.3	28
44	Broadband photonic tensor core with integrated ultra-low crosstalk wavelength multiplexers. Nanophotonics, 2022, 11, 4063-4072.	6.0	28
45	Threshold switching via electric field induced crystallization in phase-change memory devices. Applied Physics Letters, 2012, 100, 253105.	3.3	26
46	Reconfigurable phase-change meta-absorbers with on-demand quality factor control. Optics Express, 2018, 26, 25567.	3.4	26
47	Write strategies for multiterabit per square inch scanned-probe phase-change memories. Applied Physics Letters, 2010, 97, 173104.	3.3	25
48	Can conventional phase-change memory devices be scaled down to single-nanometre dimensions?. Nanotechnology, 2017, 28, 035202.	2.6	25
49	Mixedâ€Mode Electroâ€Optical Operation of Ge₂Sb₂Te₅ Nanoscale Crossbar Devices. Advanced Electronic Materials, 2017, 3, 1700079.	5.1	24
50	Humidityâ€Controlled Ultralow Power Layerâ€byâ€Layer Thinning, Nanopatterning and Bandgap Engineering of MoTe₂. Advanced Functional Materials, 2018, 28, 1804434.	14.9	23
51	Master-equation approach to understanding multistate phase-change memories and processors. Applied Physics Letters, 2007, 90, 063113.	3.3	22
52	Phaseâ€change processors, memristors and memflectors. Physica Status Solidi (B): Basic Research, 2012, 249, 1978-1984.	1.5	22
53	A self-resetting spiking phase-change neuron. Nanotechnology, 2018, 29, 195202.	2.6	22
54	Chalcogenide optomemristors for multi-factor neuromorphic computation. Nature Communications, 2022, 13, 2247.	12.8	22

#	Article	IF	Citations
55	A plasmonically enhanced route to faster and more energy-efficient phase-change integrated photonic memory and computing devices. Journal of Applied Physics, 2021, 129, .	2.5	20
56	Engineering Interface-Dependent Photoconductivity in Ge₂Sb₂Te₅ Nanoscale Devices. ACS Applied Materials & Interfaces, 2018, 10, 44906-44914.	8.0	19
57	Behavioral modeling of integrated phase-change photonic devices for neuromorphic computing applications. APL Materials, 2019, 7, .	5.1	17
58	An analytical model for nanoscale electrothermal probe recording on phase-change media. Journal of Applied Physics, 2006, 99, 034301.	2.5	16
59	A simple process for the fabrication of large-area CVD graphene based devices via selective in situ functionalization and patterning. 2D Materials, 2017, 4, 011010.	4.4	16
60	Performance characteristics of phase-change integrated silicon nitride photonic devices in the O and C telecommunications bands. Optical Materials Express, 2020, 10, 1778.	3.0	16
61	Temperature Evolution in Nanoscale Carbon-Based Memory Devices Due to Local Joule Heating. IEEE Nanotechnology Magazine, 2017, 16, 806-811.	2.0	15
62	Polarization-selective reconfigurability in hybridized-active-dielectric nanowires. Science Advances, 2022, 8, .	10.3	15
63	A slope-theory approach to electrical probe recording on phase-change media. Journal of Applied Physics, 2005, 97, 103537.	2.5	14
64	Scanning probe memories â€“ Technology and applications. Current Applied Physics, 2011, 11, e104-e109.	2.4	13
65	Ultrahigh Storage Densities via the Scaling of Patterned Probe Phase-Change Memories. IEEE Nanotechnology Magazine, 2017, 16, 767-772.	2.0	13
66	New routes to the functionalization patterning and manufacture of graphene-based materials for biomedical applications. Interface Focus, 2018, 8, 20170057.	3.0	13
67	Simple technique for determining the refractive index of phase-change materials using near-infrared reflectometry. Optical Materials Express, 2020, 10, 1675.	3.0	13
68	Memristive effects in oxygenated amorphous carbon nanodevices. Nanotechnology, 2018, 29, 035201.	2.6	12
69	Enhanced Performance and Diffusion Robustness of Phase-Change Metasurfaces via a Hybrid Dielectric/Plasmonic Approach. Nanomaterials, 2021, 11, 525.	4.1	11
70	Artificial Biphasic Synapses Based on Nonvolatile Phaseâ€€hange Photonic Memory Cells. Physica Status Solidi - Rapid Research Letters, 2022, 16, .	2.4	11
71	A Model for Multilevel Phase-Change Memories Incorporating Resistance Drift Effects. IEEE Journal of the Electron Devices Society, 2015, 3, 15-23.	2.1	10
72	Phase-Change Metasurfaces for Dyamic Beam Steering and Beam Shaping in the Infrared. , 2018, , .		10

#	Article	IF	Citations
73	Optimisation of readout performance of phase-change probe memory in terms of capping layer and probe tip. Electronic Materials Letters, 2014, 10, 1045-1049.	2.2	9
74	Modelling the phaseâ€transition in phaseâ€change materials. Physica Status Solidi (B): Basic Research, 2013, 250, 944-948.	1.5	8
75	Single-Step Fabrication of High-Performance Extraordinary Transmission Plasmonic Metasurfaces Employing Ultrafast Lasers. ACS Applied Materials & Interfaces, 2022, 14, 3446-3454.	8.0	8
76	An integrated photonics engine for unsupervised correlation detection. Science Advances, 2022, 8, .	10.3	8
77	Observation of T2-like coherent optical phonons in epitaxial Ge2Sb2Te5/GaSb(001) films. Scientific Reports, 2013, 3, 2965.	3.3	7
78	Crystal-clear neuronal computing. Nature Nanotechnology, 2016, 11, 655-656.	31.5	7
79	Precise computing with imprecise devices. Nature Electronics, 2018, 1, 212-213.	26.0	7
80	Carbon-Based Resistive Memories. , 2016, , .		6
81	System-Level Simulation for Integrated Phase-Change Photonics. Journal of Lightwave Technology, 2021, 39, 6392-6402.	4.6	6
82	Determination of the anisotropic elastic properties of Ge1Sb2Te4. Applied Physics Letters, 2011, 98, 231911.	3.3	5
83	Electricâ€fieldâ€assisted crystallisation in phaseâ€change materials. Physica Status Solidi (B): Basic Research, 2012, 249, 1897-1901.	1.5	5
84	Understanding the Electro-thermal and Phase-transformation Processes in Phase-change Materials for Data Storage Applications. Materials Research Society Symposia Proceedings, 2003, 803, 73.	0.1	4
85	Ultrafast heating and resolution of recorded crystalline marks in phase-change media. Journal of Applied Physics, 2008, 104, 104912.	2.5	4
86	Design of an optimised readout architecture for phase-change probe memory using Ge2Sb2Te5media. Japanese Journal of Applied Physics, 2014, 53, 028002.	1.5	4
87	Understanding the importance of the temperature dependence of viscosity on the crystallization dynamics in the Ge2Sb2Te5 phase-change material. Journal of Applied Physics, 2017, 121, 224504.	2.5	4
88	Propagation dynamics of the solidâ€“liquid interface in Ge upon ns and fs laser irradiation. Journal Physics D: Applied Physics, 2022, 55, 365104.	2.8	4
89	Approximate Expressions for the Magnetic Potential and Fields of 2-D, Asymmetrical Magnetic Recording Heads. IEEE Transactions on Magnetics, 2016, 52, 1-12.	2.1	3
90	All-optical signal processing using phase-change nanophotonics. , 2017, , .		3

#	Article	IF	Citations
91	The effect of thermal anisotropies during crystallization in phase-change recording media. Journal of Applied Physics, 2008, 104, 044901.	2.5	2
92	Multi-level storage in non-volatile phase-change nanophotonic memories. , 2016, , .		2
93	Simple technique for determining the refractive index of phase-change materials using near-infrared reflectometry. Optical Materials Express, 2020, 10, 1675.	3.0	2
94	Performance characteristics of phase-change integrated silicon nitride photonic devices in the O and C telecommunications bands. Optical Materials Express, 2020, 10, 1778.	3.0	2
95	Phase-change RAM modelling and design via a Gillespie-type cellular automata approach. , 2010, , .		1
96	Response to â€œComment on â€˜Threshold switching via electric field induced crystallization in phase change memory devicesâ€™â€•[Appl. Phys. Lett. 102, 236101 (2012)]. Applied Physics Letters, 2013, 102, 236102.	3.3	1
97	Hybrid silicon/phase-change metasurfaces and nanoantennas for active nanophotonics. Journal of Physics: Conference Series, 2020, 1461, 012164.	0.4	1
98	On-chip phase-change photonic memory and computing. , 2017, , .		1
99	Integrated Phase-change Photonics: A Strategy for Merging Communication and Computing. , 2019, , .		1
100	Role of Enthalpy and Relative Electric Permittivity in Electric Field Induced Nucleation. Materials Research Society Symposia Proceedings, 2012, 1431, 37.	0.1	0
101	Back Cover: Phase-change processors, memristors and memflectors (Phys. Status Solidi B 10/2012). Physica Status Solidi (B): Basic Research, 2012, 249, n/a-n/a.	1.5	0
102	A transfer function approach to reaction rate analysis with applications to phase-change materials and devices. Applied Physics Letters, 2013, 103, 113501.	3.3	0
103	All-photonic nonvolatile memory cells using phase-change materials. , 2015, , .		0
104	Memory Devices: Device-Level Photonic Memories and Logic Applications Using Phase-Change Materials (Adv. Mater. 32/2018). Advanced Materials, 2018, 30, 1870238.	21.0	0
105	Overcoming optical performance and diffusion issues in thermally tunable phase-change metasurfaces. , 2021, , .		0
106	Lithography-Free Fabrication of Extraordinary Transmission Plasmonic Metasurfaces Over Large Areas Employing Ultrafast Lasers. , 2021, , .		0
107	All-photonic in-memory computing based on phase-change materials. , 2019, , .		0
108	10.1063/1.5111840.1. , 2019, , .		0

#	Article	IF	Citations
109	10.1063/1.5111840.2. , 2019, , .		0
110	Experimental investigation of silicon and silicon nitride platforms for phase-change photonic in-memory computing: erratum. Optica, 2020, 7, 1804.	9.3	0
111	Bismuth-based gap-plasmon metasurfaces for visible photonics with volatile tuning potential. , 2021, , .		0