

Heiko B Weber

List of Publications by Year in descending order

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149
papers

8,990
citations

109137

35
h-index

40881

93
g-index

156
all docs

156
docs citations

156
times ranked

9750
citing authors

#	ARTICLE	IF	CITATIONS
1	Towards wafer-size graphene layers by atmospheric pressure graphitization of silicon carbide. <i>Nature Materials</i> , 2009, 8, 203-207.	13.3	2,396
2	Driving Current through Single Organic Molecules. <i>Physical Review Letters</i> , 2002, 88, 176804.	2.9	789
3	A single-molecule diode. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005, 102, 8815-8820.	3.3	437
4	Atomic and electronic structure of few-layer graphene on SiC(0001) studied with scanning tunneling microscopy and spectroscopy. <i>Physical Review B</i> , 2008, 77, .	1.1	340
5	Evidence for Crossed Andreev Reflection in Superconductor-Ferromagnet Hybrid Structures. <i>Physical Review Letters</i> , 2004, 93, 197003.	2.9	294
6	Light-field-driven currents in graphene. <i>Nature</i> , 2017, 550, 224-228.	13.7	288
7	Electric Current through a Molecular Rod – Relevance of the Position of the Anchor Groups. <i>Angewandte Chemie - International Edition</i> , 2003, 42, 5834-5838.	7.2	272
8	Simultaneous Deposition of Metallic Bundles of Single-walled Carbon Nanotubes Using Ac-dielectrophoresis. <i>Nano Letters</i> , 2003, 3, 1019-1023.	4.5	263
9	The quasi-free-standing nature of graphene on H-saturated SiC(0001). <i>Applied Physics Letters</i> , 2011, 99, .	1.5	232
10	Statistical Approach to Investigating Transport through Single Molecules. <i>Physical Review Letters</i> , 2007, 98, 176807.	2.9	188
11	Experimental Evidence for Quantum Interference and Vibrationally Induced Decoherence in Single-Molecule Junctions. <i>Physical Review Letters</i> , 2012, 109, 056801.	2.9	185
12	Dislocations in bilayer graphene. <i>Nature</i> , 2014, 505, 533-537.	13.7	185
13	Quantum oscillations and quantum Hall effect in epitaxial graphene. <i>Physical Review B</i> , 2010, 81, .	1.1	168
14	Electronic transport through single conjugated molecules. <i>Chemical Physics</i> , 2002, 281, 113-125.	0.9	167
15	Atrans-Platinum(II) Complex as a Single-Molecule Insulator. <i>Angewandte Chemie - International Edition</i> , 2002, 41, 1183-1186.	7.2	134
16	Low-temperature conductance measurements on single molecules. <i>Applied Physics Letters</i> , 2003, 82, 4137-4139.	1.5	125
17	Switching of a coupled spin pair in a single-molecule junction. <i>Nature Nanotechnology</i> , 2013, 8, 575-579.	15.6	107
18	Tailoring the graphene/silicon carbide interface for monolithic wafer-scale electronics. <i>Nature Communications</i> , 2012, 3, 957.	5.8	106

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19	Structural fluctuations cause spin-split states in tetragonal (CH ₃ NH ₃)PbI ₃ as evidenced by the circular photogalvanic effect. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 9509-9514.	3.3	106
20	Contacting single bundles of carbon nanotubes with alternating electric fields. Applied Physics A: Materials Science and Processing, 2003, 76, 397-400.	1.1	105
21	Linear magnetoresistance in mosaic-like bilayer graphene. Nature Physics, 2015, 11, 650-653.	6.5	93
22	Coherent Electron Trajectory Control in Graphene. Physical Review Letters, 2018, 121, 207401.	2.9	79
23	Single-Molecule Junctions with Epitaxial Graphene Nanoelectrodes. Nano Letters, 2015, 15, 3512-3518.	4.5	78
24	Molecular Wires in Single-Molecule Junctions: Charge Transport and Vibrational Excitations. ChemPhysChem, 2010, 11, 2256-2260.	1.0	77
25	Electron-Electron Interaction in the Magnetoresistance of Graphene. Physical Review Letters, 2012, 108, 106601.	2.9	77
26	Bottom-gated epitaxial graphene. Nature Materials, 2011, 10, 357-360.	13.3	74
27	Resonant Vibrations, Peak Broadening, and Noise in Single Molecule Contacts: The Nature of the First Conductance Peak. Physical Review Letters, 2011, 106, 136807.	2.9	70
28	1550-nm ErAs:In(Al)GaAs large area photoconductive emitters. Applied Physics Letters, 2012, 101, .	1.5	65
29	Charge Transport Through a Cardan-Joint Molecule. Small, 2008, 4, 2229-2235.	5.2	60
30	Light-field control of real and virtual charge carriers. Nature, 2022, 605, 251-255.	13.7	57
31	Quasi-Freestanding Graphene on SiC(0001). Materials Science Forum, 0, 645-648, 629-632.	0.3	46
32	Charge Transport through Molecular Rods with Reduced π -Conjugation. ChemPhysChem, 2008, 9, 2252-2258.	1.0	43
33	An electrical analogy to Mie scattering. Nature Communications, 2016, 7, 12894.	5.8	40
34	Patterning and Visualizing Self-Assembled Monolayers with Low-Energy Electrons. Nano Letters, 2002, 2, 1161-1164.	4.5	39
35	Current annealing and electrical breakdown of epitaxial graphene. Applied Physics Letters, 2011, 98, .	1.5	38
36	Controlled generation of intrinsic near-infrared color centers in 4H-SiC via proton irradiation and annealing. Applied Physics Letters, 2018, 113, .	1.5	37

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37	Experiments on the depolarization near-field scanning optical microscope. Applied Physics Letters, 1999, 74, 179-181.	1.5	36
38	Interaction of carrier envelope phase-stable laser pulses with graphene: the transition from the weak-field to the strong-field regime. New Journal of Physics, 2019, 21, 045003.	1.2	36
39	Highly Efficient and Reversible Covalent Patterning of Graphene: 2D Management of Chemical Information. Angewandte Chemie - International Edition, 2020, 59, 5602-5606.	7.2	36
40	Current noise in single-molecule junctions induced by electronic-vibrational coupling. Physical Review B, 2014, 90, .	1.1	34
41	Ultra-fast transistor-based detectors for precise timing of near infrared and THz signals. Optics Express, 2013, 21, 17941.	1.7	31
42	Magnetic phases of CsCuCl ₃ : Anomalous critical behavior. Physical Review B, 1996, 54, 15924-15927.	1.1	28
43	Fast temporal fluctuations in single-molecule junctions. Faraday Discussions, 2006, 131, 281-289.	1.6	27
44	Origin of nonsaturating linear magnetoresistivity. Physical Review B, 2017, 95, .	1.1	27
45	INFLUENCE OF CHIRAL SYMMETRY ON THE CRITICAL BEHAVIOR OF STACKED TRIANGULAR ANTIFERROMAGNETS. International Journal of Modern Physics B, 1995, 09, 1387-1407.	1.0	25
46	Statistical Analysis of Single-Molecule Junctions. Angewandte Chemie - International Edition, 2004, 43, 2882-2884.	7.2	25
47	Stark Tuning of the Silicon Vacancy in Silicon Carbide. Nano Letters, 2020, 20, 658-663.	4.5	25
48	Molecular embroidering of graphene. Nature Communications, 2021, 12, 552.	5.8	25
49	Conductance properties of single-molecule junctions. Physica E: Low-Dimensional Systems and Nanostructures, 2003, 18, 231-232.	1.3	24
50	An electrostatic gate for mechanically controlled single-molecule junctions. New Journal of Physics, 2012, 14, 123028.	1.2	24
51	Attosecond-fast internal photoemission. Nature Photonics, 2020, 14, 219-222.	15.6	23
52	Nonequilibrium electronic transport and interaction in short metallic nanobridges. Physical Review B, 2001, 63, .	1.1	21
53	An adapted method for analyzing 4H silicon carbide metal-oxide-semiconductor field-effect transistors. Communications Physics, 2019, 2, .	2.0	21
54	Covalently Doped Graphene Superlattices: Spatially Resolved Supratopic- and Janus-Binding. Journal of the American Chemical Society, 2020, 142, 16016-16022.	6.6	21

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55	Transport properties of high-quality epitaxial graphene on 6H-SiC(0001). <i>Solid State Communications</i> , 2011, 151, 1061-1064.	0.9	20
56	An efficient Terahertz rectifier on the graphene/SiC materials platform. <i>Scientific Reports</i> , 2019, 9, 11205.	1.6	20
57	Noncovalent Functionalization and Passivation of Black Phosphorus with Optimized Perylene Diimides for Hybrid Field Effect Transistors. <i>Advanced Materials Interfaces</i> , 2020, 7, 2001290.	1.9	19
58	Analysis of interface trap parameters from double-peak conductance spectra taken on N ⁺ -implanted 3C-SiC MOS capacitors. <i>Physica Status Solidi (B): Basic Research</i> , 2008, 245, 1390-1395.	0.7	18
59	Anomalous Dirac point transport due to extended defects in bilayer graphene. <i>Nature Communications</i> , 2017, 8, 342.	5.8	18
60	Electronic Coherence and Coherent Dephasing in the Optical Control of Electrons in Graphene. <i>Nano Letters</i> , 2021, 21, 9403-9409.	4.5	18
61	The role of vibrations in single-molecule charge transport: A case study of oligoynes with pyridine anchor groups. <i>Physica Status Solidi (B): Basic Research</i> , 2013, 250, 2452-2457.	0.7	17
62	Detection of the Kondo effect in the resistivity of graphene: Artifacts and strategies. <i>Physical Review B</i> , 2013, 88, .	1.1	17
63	Origin of logarithmic resistance correction in graphene. <i>Nature Physics</i> , 2012, 8, 352-352.	6.5	16
64	Contacting Individual Molecules Using Mechanically Controllable Break Junctions. , 2006, , 253-274.		15
65	Robust Graphene Membranes in a Silicon Carbide Frame. <i>ACS Nano</i> , 2013, 7, 4441-4448.	7.3	15
66	Low-Energy Electron Potentiometry: Contactless Imaging of Charge Transport on the Nanoscale. <i>Scientific Reports</i> , 2015, 5, 13604.	1.6	15
67	Molecular Electronics – Integration of Single Molecules in Electronic Circuits. <i>Chimia</i> , 2002, 56, 494-499.	0.3	14
68	Deactivation of nitrogen donors in silicon carbide. <i>Physical Review B</i> , 2006, 74, .	1.1	13
69	Narrow inhomogeneous distribution of spin-active emitters in silicon carbide. <i>Applied Physics Letters</i> , 2021, 118, .	1.5	13
70	New results on the magnetic phases of CsCuCl ₃ in the external field. <i>Solid State Communications</i> , 1997, 102, 609-613.	0.9	12
71	Length-dependence of light-induced currents in graphene. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2020, 53, 154001.	0.6	12
72	Laser-Triggered Bottom-Up Transcription of Chemical Information: Toward Patterned Graphene/MoS ₂ Heterostructures. <i>Journal of the American Chemical Society</i> , 2022, 144, 9645-9650.	6.6	12

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73	Conductance oscillations in mesoscopic rings: Microscopic versus global phase. Physical Review B, 2001, 64, .	1.1	11
74	Terahertz response of patterned epitaxial graphene. New Journal of Physics, 2015, 17, 053045.	1.2	11
75	Charge transport in C ₆₀ -based single-molecule junctions with graphene electrodes. Nanoscale, 2017, 9, 7217-7226.	2.8	11
76	Voltage Dependence of the Amplitude of Aharonov-Bohm Oscillations in Mesoscopic Metal Rings. Journal of Low Temperature Physics, 2000, 118, 467-473.	0.6	10
77	Impurity Conduction in Silicon Carbide. Materials Science Forum, 2007, 556-557, 367-370.	0.3	10
78	A switch for epitaxial graphene electronics: Utilizing the silicon carbide substrate as transistor channel. Applied Physics Letters, 2012, 100, 122102.	1.5	10
79	Maximization of the optical intra-cavity power of whispering-gallery mode resonators via coupling prism. Optics Express, 2016, 24, 26503.	1.7	9
80	Quantitative Investigation of Near Interface Traps in 4H-SiC MOSFETs via Drain Current Deep Level Transient Spectroscopy. Materials Science Forum, 0, 897, 111-114.	0.3	9
81	Covalent Patterning of 2D MoS ₂ . Chemistry - A European Journal, 2021, 27, 13117-13122.	1.7	9
82	Thermal origin of light emission in nonresonant and resonant nanojunctions. Physical Review Research, 2020, 2, .	1.3	9
83	Mechanically controlled tunneling of a single atomic defect. Europhysics Letters, 2001, 54, 654-660.	0.7	8
84	On the Origin of Threshold Voltage Instability under Operating Conditions of 4H-SiC n-Channel MOSFETs. Materials Science Forum, 0, 858, 473-476.	0.3	8
85	Charge transport across single-molecule junctions: charge reconfiguration and structural dynamics. Physica Status Solidi (B): Basic Research, 2007, 244, 4176-4180.	0.7	7
86	Electrical Activation of B ⁺ and N ⁻ Ions Implanted into 4H-SiC. Materials Science Forum, 0, 645-648, 697-700.	0.3	7
87	Z _{1/2} ⁻ and EH ₆ ⁻ Center in 4H-SiC: Not Identical Defects ?. Materials Science Forum, 0, 717-720, 251-254.	0.3	7
88	Characterization of Ge-Doped Homoepitaxial Layers Grown by Chemical Vapor Deposition. Materials Science Forum, 2014, 778-780, 261-264.	0.3	7
89	Gateless patterning of epitaxial graphene by local intercalation. Nanotechnology, 2015, 26, 025302.	1.3	7
90	Electrical Properties of Hydrogen Intercalated Epitaxial Graphene/SiC Interface Investigated by Nanoscale Current Mapping. Materials Science Forum, 0, 821-823, 929-932.	0.3	7

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91	Magnetic phase diagram of CsCuCl ₃ for different field orientations. Journal of Magnetism and Magnetic Materials, 1998, 177-181, 177-178.	1.0	6
92	Implanted bottom gate for epitaxial graphene on silicon carbide. Journal Physics D: Applied Physics, 2012, 45, 154006.	1.3	6
93	Monolithic circuits with epitaxial graphene/silicon carbide transistors. Physica Status Solidi - Rapid Research Letters, 2014, 8, 688-691.	1.2	6
94	Reduction of Density of 4H-SiC / SiO ₂ Interface Traps by Pre-Oxidation Phosphorus Implantation. Materials Science Forum, 0, 778-780, 575-578.	0.3	6
95	Effect of germanium doping on electrical properties of n-type 4H-SiC homoepitaxial layers grown by chemical vapor deposition. Journal of Applied Physics, 2016, 120, .	1.1	6
96	Thermoelectricity of near-resonant tunnel junctions and their relation to Carnot efficiency. Scientific Reports, 2021, 11, 2031.	1.6	6
97	Light-field-driven electronics in the mid-infrared regime: Schottky rectification. Science Advances, 2022, 8, .	4.7	6
98	Molekulare Elektronik. Nachrichten Aus Der Chemie, 2002, 50, 1212-1217.	0.0	5
99	Electrical and Structural Properties of Al-Implanted and Annealed 4H-SiC. Materials Science Forum, 2007, 556-557, 343-346.	0.3	5
100	Transport Properties of Single-Layer Epitaxial Graphene on 6H-SiC (0001). Materials Science Forum, 2010, 645-648, 637-641.	0.3	5
101	Iron-Related Defect Centers in 4H-SiC Detected by Deep Level Transient Spectroscopy. Materials Science Forum, 2011, 679-680, 257-260.	0.3	5
102	Broadband THz detection and homodyne mixing using GaAs high-electron-mobility transistor rectifiers. Proceedings of SPIE, 2013, , .	0.8	5
103	Raman spectroscopy and electrical transport studies of free-standing epitaxial graphene: Evidence of an AB-stacked bilayer. Physical Review B, 2013, 87, .	1.1	5
104	Electrical Nanocharacterization of Epitaxial Graphene/Silicon Carbide Schottky Contacts. Materials Science Forum, 2014, 778-780, 1142-1145.	0.3	5
105	Doping of 4H-SiC with Group IV Elements. Materials Science Forum, 0, 858, 301-307.	0.3	5
106	An ultra-stable setup for measuring electrical and thermoelectrical properties of nanojunctions. Applied Physics Letters, 2019, 115, 083108.	1.5	5
107	Influence of Growth Rate and C/Si-Ratio on the Formation of Point and Extended Defects in 4H-SiC Homoepitaxial Layers Investigated by DLTS. Materials Science Forum, 0, 615-617, 393-396.	0.3	4
108	Impact of AlN Spacer on Electron Mobility of AlGaIn/AlN/GaN Structures on Silicon. Materials Science Forum, 0, 740-742, 502-505.	0.3	4

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109	On Deep Level Transient Spectroscopy of Extended Defects in n-Type 4H-SiC. Materials Science Forum, 0, 897, 201-204.	0.3	4
110	Terahertz generation with ballistic photodiodes under pulsed operation. Semiconductor Science and Technology, 2018, 33, 114015.	1.0	4
111	Removing the orientational degeneracy of the TS defect in 4H-SiC by electric fields and strain. New Journal of Physics, 2021, 23, 073002.	1.2	4
112	Dimensionality effects on nonequilibrium electronic transport in Carbon nanobridges. Physical Review B, 2004, 70, .	1.1	3
113	(Nitrogen-Vacancy)-Complex Formation in SiC: Experiment and Theory. Materials Science Forum, 2007, 556-557, 307-312.	0.3	3
114	Dependence of the Channel Mobility in 3C-SiC n-MOSFETs on the Crystal Orientation and Channel Length. Materials Science Forum, 2012, 717-720, 1113-1116.	0.3	3
115	Determination of the Electrical Capture Process of the EH ₆ -Center in n-Type 4H-SiC. Materials Science Forum, 2013, 740-742, 377-380.	0.3	3
116	In operando observation of dynamic annealing: A case study of boron in germanium nanowire devices. Applied Physics Letters, 2015, 106, 233109.	1.5	3
117	Reduction of Implantation-Induced Point Defects by Germanium Ions in n-Type 4H-SiC. Materials Science Forum, 0, 821-823, 347-350.	0.3	3
118	Passivation and Generation of States at P-Implanted Thermally Grown and Deposited N-Type 4H-SiC/SiO ₂ /SiO ₂ Interfaces. Materials Science Forum, 0, 858, 697-700.	0.3	3
119	Landau-Zener-Stückelberg interferometer on attosecond timescales in graphene. , 2018, , .		3
120	Intrinsic color centers in 4H-silicon carbide formed by heavy ion implantation and annealing. Journal Physics D: Applied Physics, 2022, 55, 105303.	1.3	3
121	Persistent Conductivity in n-Type 3C-SiC Observed at Low Temperatures. Materials Science Forum, 2014, 778-780, 265-268.	0.3	2
122	Graphene Ohmic Contacts to n-Type Silicon Carbide (0001). Materials Science Forum, 0, 821-823, 933-936.	0.3	2
123	Charge Carrier Transport in Large Area Epitaxial Graphene. Annalen Der Physik, 2017, 529, 1700048.	0.9	2
124	On the origin of drain current transients and subthreshold sweep hysteresis in 4H-SiC MOSFETs. Applied Physics Letters, 2019, 115, .	1.5	2
125	Lightwave-controlled electron dynamics in graphene. EPJ Web of Conferences, 2019, 205, 05002.	0.1	2
126	The squeezable nanojunction as a tunable light-matter interface for studying photoluminescence of 2D materials. 2D Materials, 2021, 8, 045034.	2.0	2

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127	Hierarchical Assembly and Sensing Activity of Patterned Graphene-Hamilton Receptor Nanostructures. <i>Advanced Materials Interfaces</i> , 2022, 9, .	1.9	2
128	Universal conductance fluctuations in Cu : Mn nanocontacts. <i>Physica B: Condensed Matter</i> , 2000, 284-288, 1858-1859.	1.3	1
129	Selenium and Tellurium Double Donors in SiC. <i>Materials Science Forum</i> , 2007, 556-557, 607-610.	0.3	1
130	Ionization Energies of Phosphorus Donors in 6H-SiC. <i>Materials Science Forum</i> , 0, 600-603, 441-444.	0.3	1
131	Iron-Related Defect Centers in 3C-SiC. <i>Materials Science Forum</i> , 2011, 679-680, 265-268.	0.3	1
132	Thermally-Assisted Tunneling Model for 3C-SiC p ⁺ -n Diodes. <i>Materials Science Forum</i> , 2011, 679-680, 571-574.	0.3	1
133	Magnetoresistance of AlGaIn/GaN High Electron Mobility Transistors on Silicon. <i>Materials Science Forum</i> , 2014, 778-780, 1180-1184.	0.3	1
134	Epitaxial graphene as an electrode material: a transistor testbed for organic and all-carbon semiconductors. <i>RSC Advances</i> , 2014, 4, 34474.	1.7	1
135	Drain-Current Deep Level Transient Spectroscopy Investigation on Epitaxial Graphene/6H-SiC Field Effect Transistors. <i>Materials Science Forum</i> , 0, 778-780, 436-439.	0.3	1
136	Determination of Performance-Relevant Trapped Charge in 4H Silicon Carbide MOSFETs. <i>Materials Science Forum</i> , 2018, 924, 277-280.	0.3	1
137	Fractional Quantum Conductance Plateaus in Mosaic-Like Conductors and Their Similarities to the Fractional Quantum Hall Effect. <i>Annalen Der Physik</i> , 2019, 531, 1800188.	0.9	1
138	A point-like thermal light source as a probe for sensing light-matter interaction. <i>Scientific Reports</i> , 2022, 12, 4881.	1.6	1
139	Interference and Interaction in Metallic Nanostructures. <i>Lecture Notes in Physics</i> , 2005, , 185-203.	0.3	0
140	Temperature-Dependence of the Leakage Current of 3C-SiC p ⁺ -n Diodes Caused by Extended Defects. <i>Materials Science Forum</i> , 0, 645-648, 343-346.	0.3	0
141	Gated Epitaxial Graphene Devices. <i>Materials Science Forum</i> , 2012, 717-720, 675-678.	0.3	0
142	Publisher's Note: Raman spectroscopy and electrical transport studies of free-standing epitaxial graphene: Evidence of an AB-stacked bilayer [Phys. Rev. B, 195425 (2013)]. <i>Physical Review B</i> , 2013, 87, .	1.1	0
143	Hidden Defects and Unexpected Properties of Graphene – How Advanced TEM Contributes to Materials Development. <i>Microscopy and Microanalysis</i> , 2017, 23, 1752-1753.	0.2	0
144	Electron dynamics in graphene reaching the light-field-driven regime. , 2017, , .		0

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145	Basal Plane Dislocation Conversion Enhancement in 4H-SiC Homo-Epitaxial Layers by Ion Implantation into the Wafer. Materials Science Forum, 2019, 963, 114-118.	0.3	0
146	Organic Field Effect Transistors: Noncovalent Functionalization and Passivation of Black Phosphorus with Optimized Perylene Diimides for Hybrid Field Effect Transistors (Adv. Mater.) Tj ETQq0 0 0 rgBT /Overlock 10Tf 50 697		
147	Light field-driven electron dynamics in 2D-materials. , 2021, , .		0
148	Zero-Bias Transport Anomaly in Metallic Nanobridges. , 2001, , 53-62.		0
149	Molecular Stacking on Graphene. Angewandte Chemie, 0, , .	1.6	0