Randolph E Elmquist

List of Publications by Year in descending order

106 papers	1,573 citations	279798 23 h-index	377865 34 g-index
106 all docs	106 docs citations	106 times ranked	1023 citing authors

#	Article	IF	Citations
1	Imaging and measuring the electronic properties of epitaxial graphene with a photoemission electron microscope. Journal of Applied Physics, 2022, 131, .	2.5	3
2	Dynamics of transient hole doping in epitaxial graphene. Physical Review B, 2022, 105, .	3.2	4
3	Desorption timescales on epitaxial graphene via Fermi level shifting and Reststrahlen monitoring. Carbon, 2022, 197, 350-358.	10.3	1
4	Graphene quantum Hall effect parallel resistance arrays. Physical Review B, 2021, 103, .	3.2	20
5	A four-terminal-pair Josephson impedance bridge combined with a graphene-quantized Hall resistance. Measurement Science and Technology, 2021, 32, 065007.	2.6	7
6	Graphene Quantum Hall Effect Devices for AC and DC Electrical Metrology. IEEE Transactions on Electron Devices, 2021, 68, 3672-3677.	3.0	17
7	Onsager-Casimir frustration from resistance anisotropy in graphene quantum Hall devices. Physical Review B, 2021, 104, .	3.2	3
8	Abrikosov vortex corrections to effective magnetic field enhancement in epitaxial graphene. Physical Review B, 2021, 104, .	3.2	1
9	Highly sensitive broadband binary photoresponse in gateless epitaxial graphene on 4Hâ€“SiC. Carbon, 2021, 184, 72-81.	10.3	13
10	Magnetotransport in hybrid InSe/monolayer graphene on SiC. Nanotechnology, 2021, 32, 155704.	2.6	3
11	Comparison Between NIST Graphene and AIST GaAs Quantized Hall Devices. IEEE Transactions on Instrumentation and Measurement, 2020, 69, 3103-3108.	4.7	22
12	A Self-Assembled Graphene Ribbon Device on SiC. ACS Applied Electronic Materials, 2020, 2, 204-212.	4.3	4
13	Analytical determination of atypical quantized resistances in graphene p-n junctions. Physica B: Condensed Matter, 2020, 582, 411971.	2.7	15
14	Metrological Suitability of Functionalized Epitaxial Graphene. , 2020, 1, .		0
15	Graphene quantum Hall effect devices for AC and DC resistance metrology. , 2020, , .		2
16	Superconducting Contact Geometries for Next-Generation Quantized Hall Resistance Standards. , 2020, 1.633481E6, .		1
17	Elucidating charge transport mechanisms in cellulose-stabilized graphene inks. Journal of Materials Chemistry C, 2020, 8, 15086-15091.	5.5	10
18	Comparison Between Graphene and GaAs Quantized Hall Devices With a Dual Probe. IEEE Transactions on Instrumentation and Measurement, 2020, 69, 9374-9380.	4.7	2

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19	Development of gateless quantum Hall checkerboard pâ€“n junction devices. Journal Physics D: Applied Physics, 2020, 53, 345302.	2.8	0
20	Nanostructured graphene for nanoscale electron paramagnetic resonance spectroscopy. JPhys Materials, 2020, 3, 014013.	4.2	11
21	Accessing ratios of quantized resistances in graphene pâ€“n junction devices using multiple terminals. AIP Advances, 2020, 10, 025112.	1.3	6
22	Implementation of a graphene quantum Hall Kelvin bridge-on-a-chip for resistance calibrations. Metrologia, 2020, 57, 015007.	1.2	4
23	Analytical determination of atypical quantized resistances in graphene junctions. Physica B: Condensed Matter, 2020, 582, .	2.7	2
24	Development of gateless quantum Hall checkerboard junction devices. Journal Physics D: Applied Physics, 2020, 53, .	2.8	0
25	The quantum Hall effect in the era of the new SI. Semiconductor Science and Technology, 2019, 34, 093004.	2.0	34
26	Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. IEEE Transactions on Instrumentation and Measurement, 2019, 68, 1870-1878.	4.7	32
27	Next-generation crossover-free quantum Hall arrays with superconducting interconnections. Metrologia, 2019, 56, 065002.	1.2	30
28	Two-Terminal and Multi-Terminal Designs for Next-Generation Quantized Hall Resistance Standards: Contact Material and Geometry. IEEE Transactions on Electron Devices, 2019, 66, 3973-3977.	3.0	34
29	Magnetoresistance of Ultralow-Hole-Density Monolayer Epitaxial Graphene Grown on SiC. Materials, 2019, 12, 2696.	2.9	2
30	The units for mass, voltage, resistance, and electrical current in the SI. IEEE Instrumentation and Measurement Magazine, 2019, 22, 9-16.	1.6	7
31	Gateless and reversible Carrier density tunability in epitaxial graphene devices functionalized with chromium tricarbonyl. Carbon, 2019, 142, 468-474.	10.3	37
32	Examining epitaxial graphene surface conductivity and quantum Hall device stability with Parylene passivation. Microelectronic Engineering, 2018, 194, 51-55.	2.4	21
33	Measuring the dielectric and optical response of millimeter-scale amorphous and hexagonal boron nitride films grown on epitaxial graphene. 2D Materials, 2018, 5, 011011.	4.4	24
34	A Table-Top Graphene Quantized Hall Standard. , 2018, , .		4
35	Epitaxial Graphene p-n Junctions. , 2018, , .		0
36	Epitaxial Graphene for High-Current QHE Resistance Standards. , 2018, , .		1

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37	Transport of NIST Graphene Quantized Hall Devices and Comparison with AIST Gallium-Arsenide Quantized Hall Devices. , 2018, , .		1
38	Uncertainty of the Ohm Using Cryogenic and Non-Cryogenic Bridges. , 2018, , .		4
39	Confocal laser scanning microscopy for rapid optical characterization of graphene. Communications Physics, 2018, 1, .	5.3	36
40	Towards epitaxial graphene p-n junctions as electrically programmable quantum resistance standards. Scientific Reports, 2018, 8, 15018.	3.3	31
41	Quantum Hall device data monitoring following encapsulating polymer deposition. Data in Brief, 2018, 20, 1201-1208.	1.0	3
42	Part-per-million quantization and current-induced breakdown of the quantum anomalous Hall effect. Physical Review B, 2018, 98, .	3.2	65
43	Epitaxial graphene for quantum resistance metrology. Metrologia, 2018, 55, R27-R36.	1.2	33
44	Quantum transport in graphene <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>p</mml:mi><mml:mtext>â^’</mml:mtext><mml:mi>n</m junctions with moirÃ© superlattice modulation. Physical Review B, 2018, 98, .	3.2	22
45	Large, non-saturating magnetoresistance in single layer chemical vapor deposition graphene with an h-BN capping layer. Carbon, 2018, 136, 211-216.	10.3	12
46	Temperature dependence of electron density and electronâ€"electron interactions in monolayer epitaxial graphene grown on SiC. 2D Materials, 2017, 4, 025007.	4.4	10
47	Preservation of Surface Conductivity and Dielectric Loss Tangent in Largeâ€Scale, Encapsulated Epitaxial Graphene Measured by Noncontact Microwave Cavity Perturbations. Small, 2017, 13, 1700452.	10.0	29
48	Electrical Stabilization of Surface Resistivity in Epitaxial Graphene Systems by Amorphous Boron Nitride Encapsulation. ACS Omega, 2017, 2, 2326-2332.	3.5	34
49	Epitaxial graphene homogeneity and quantum Hall effect in millimeter-scale devices. Carbon, 2017, 115, 229-236.	10.3	57
50	Crossover from Efrosâ€"Shklovskii to Mott variable range hopping in monolayer epitaxial graphene grown on SiC. Chinese Journal of Physics, 2017, 55, 1235-1241.	3.9	8
51	Chemical-doping-driven crossover from graphene to â€œordinary metalâ€• in epitaxial graphene grown on SiC. Nanoscale, 2017, 9, 11537-11544.	5.6	16
52	Probing the dielectric response of the interfacial buffer layer in epitaxial graphene via optical spectroscopy. Physical Review B, 2017, 96, .	3.2	17
53	Unusual renormalization group (RG) flow and temperature-dependent phase transition in strongly-insulating monolayer epitaxial graphene. RSC Advances, 2017, 7, 31333-31337.	3.6	1
54	Charge Trapping in Monolayer and Multilayer Epitaxial Graphene. Journal of Nanomaterials, 2016, 2016, 1-4.	2.7	2

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55	Millimeter-sized graphene quantum hall devices for resistance standards. , 2016, , .		0
56	Probing electronâ€"electron interactions in multilayer epitaxial graphene grown on SiC using temperature-dependent Hall slope. Solid State Communications, 2016, 236, 41-44.	1.9	1
57	Surface conductance of graphene from non-contact resonant cavity. Measurement: Journal of the International Measurement Confederation, 2016, 87, 146-151.	5.0	23
58	Linear magnetoresistance in monolayer epitaxial graphene grown on SiC. Materials Letters, 2016, 174, 118-121.	2.6	14
59	Variable range hopping and nonlinear transport in monolayer epitaxial graphene grown on SiC. Semiconductor Science and Technology, 2016, 31, 105008.	2.0	8
60	Insulator-quantum Hall transition in monolayer epitaxial graphene. RSC Advances, 2016, 6, 71977-71982.	3.6	12
61	Low Carrier Density Epitaxial Graphene Devices On SiC. Small, 2015, 11, 90-95.	10.0	59
62	Weak localization and microwave-irradiated transport in multilayer epitaxial graphene grown on SiC. Materials Research Express, 2015, 2, 115002.	1.6	0
63	Thermometry for Dirac fermions in graphene. Journal of the Korean Physical Society, 2015, 66, 1-6.	0.7	1
64	Transportation Effect and Basic Characteristics of Metal-Foil Resistors Examined in an International Trilateral Pilot Study. IEEE Transactions on Instrumentation and Measurement, 2015, 64, 1514-1519.	4.7	6
65	Controlling the Fermi Level in a Single-Layer Graphene QHE Device for Resistance Standard. IEEE Transactions on Instrumentation and Measurement, 2015, 64, 1451-1454.	4.7	14
66	Precision high-value resistance scaling with a two-terminal cryogenic current comparator. Review of Scientific Instruments, 2014, 85, 044701.	1.3	20
67	Transportation effect of Ni-Cr based metal-foil standard resistors in a trilateral comparison pilot study between KRISS, NIST, and NMIJ. , 2014, , .		1
68	Development of low carrier density graphene devices. , 2014, , .		0
69	Hot carriers in epitaxial graphene sheets with and without hydrogen intercalation: role of substrate coupling. Nanoscale, 2014, 6, 10562-10568.	5.6	4
70	Localization and electron-electron interactions in few-layer epitaxial graphene. Nanotechnology, 2014, 25, 245201.	2.6	3
71	Dirac fermion heating, current scaling, and direct insulator-quantum Hall transition in multilayer epitaxial graphene. Nanoscale Research Letters, 2013, 8, 360.	5.7	9
72	Graphene Epitaxial Growth on SiC(0001) for Resistance Standards. IEEE Transactions on Instrumentation and Measurement, 2013, 62, 1454-1460.	4.7	37

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73	Low-Ohmic Resistance Comparison: Measurement Capabilities and Resistor Traveling Behavior. IEEE Transactions on Instrumentation and Measurement, 2013, 62, 1723-1728.	4.7	8
74	Characteristics of graphene for quantized hall effect measurements. , 2012, , .		2
75	Quantum Hall effect on centimeter scale chemical vapor deposited graphene films. Applied Physics Letters, 2011, 99, 232110.	3.3	33
76	Characteristics of precision 1â€%oÎ© standard resistors influencing transport behaviour and the uncertainty of key comparisons. Metrologia, 2009, 46, 503-511.	1.2	7
77	RMO comparison final report: 2006â€"2007 Resistance standards comparison between SIM laboratories. SIM.EM-K1, 1 Î©; SIM.EM-K2, 1 GÎ©; SIM.EM-S6, 1 MÎ©. Metrologia, 2009, 46, 01001-01001.	1.2	9
78	Uncertainty Evaluation in a Two-Terminal Cryogenic Current Comparator. IEEE Transactions on Instrumentation and Measurement, 2009, 58, 1170-1175.	4.7	12
79	SIM Comparison of DC Resistance Standards at 1 $Omega$, 1 $hbox{M}Omega$, and 1 $ hbox{G}Omega$. IEEE Transactions on Instrumentation and Measurement, 2009, 58, 1188-1195.	4.7	1
80	SIM comparison of dc resistance at 1 Ω, 1 MΩ, and 1 GΩ. , 2008, , .		1
81	Characterization of loading effects in precision 1 Ω resistors. , 2008, , .		1
82	Uncertainty evaluation in a two-terminal cryogenic current comparator. , 2008, , .		2
83	Power Loading Effects in Precision 1 Î© Resistors. NCSL International Measure, 2008, 3, 50-56.	0.1	1
84	Temperature and Pressure Coefficients of Resistance for Thomas 1 Î© Resistors. NCSL International Measure, 2007, 2, 42-48.	0.1	3
85	Direct Resistance Comparisons From the QHR to 100 Mâ„¦ Using a Cryogenic Current Comparator. IEEE Transactions on Instrumentation and Measurement, 2005, 54, 525-528.	4.7	25
86	Using a high-value resistor in triangle comparisons of electrical standards. IEEE Transactions on Instrumentation and Measurement, 2003, 52, 590-593.	4.7	15
87	The ampere and electrical standards. Journal of Research of the National Institute of Standards and Technology, 2001, 106, 65.	1.2	15
88	Transport behavior of commercially available 100-Î© standard resistors. IEEE Transactions on Instrumentation and Measurement, 2001, 50, 242-244.	4.7	8
89	Characterization of four-terminal-pair resistance standards: a comparison of measurements and theory. IEEE Transactions on Instrumentation and Measurement, 2001, 50, 267-271.	4.7	10
90	Calculable coaxial resistors for precision measurements. IEEE Transactions on Instrumentation and Measurement, 2000, 49, 210-215.	4.7	14

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91	Comparison of quantum Hall effect resistance standards of the NIST and the BIPM. Metrologia, 2000, 37, 173-176.	1.2	24
92	Cryogenic current comparator measurements at 77 K using thallium-2223 thick-film shields. IEEE Transactions on Instrumentation and Measurement, 1999, 48, 383-386.	4.7	8
93	Determination of the von Klitzing constant and the fine-structure constant through a comparison of the quantized Hall resistance and the ohm derived from the NIST calculable capacitor. Metrologia, 1998, 35, 83-96.	1.2	56
94	Calculating the effects of longitudinal resistance in multi-series-connected quantum Hall effect devices. Journal of Research of the National Institute of Standards and Technology, 1998, 103, 561.	1.2	11
95	NIST comparison of the quantized Hall resistance and the realization of the SI OHM through the calculable capacitor. IEEE Transactions on Instrumentation and Measurement, 1997, 46, 264-268.	4.7	69
96	Loading effects in resistance scaling. IEEE Transactions on Instrumentation and Measurement, 1997, 46, 322-324.	4.7	12
97	High-temperature superconductor cryogenic current comparator. IEEE Transactions on Instrumentation and Measurement, 1995, 44, 262-264.	4.7	12
98	Precision tests of quantum hall effect device DC equivalent circuit using double-series and triple-series connections. Journal of Research of the National Institute of Standards and Technology, 1995, 100, 677.	1.2	27
99	Improvements in resistance scaling at NIST using cryogenic current comparators. IEEE Transactions on Instrumentation and Measurement, 1993, 42, 126-130.	4.7	18
100	Leakage current detection in cryogenic current comparator bridges. IEEE Transactions on Instrumentation and Measurement, 1993, 42, 167-169.	4.7	11
101	Isolated ramping current sources for a cryogenic current comparator bridge. Review of Scientific Instruments, 1991, 62, 2457-2460.	1.3	18
102	A measurement of the NBS electrical watt in SI units. IEEE Transactions on Instrumentation and Measurement, 1989, 38, 238-244.	4.7	41
103	NBS determination of the fine-structure constant, and of the quantized Hall resistance and Josephson frequency-to-voltage quotient in SI units. IEEE Transactions on Instrumentation and Measurement, 1989, 38, 284-289.	4.7	80
104	Physics with Negative Ions in Ion Traps. Physica Scripta, 1988, T22, 183-190.	2.5	21
105	Observation of resolved Zeeman thresholds in photodetachment in a magnetic field. Physical Review Letters, 1987, 58, 333-336.	7.8	16
106	Amorphous superconducting ribbons quenched at elevated substrate temperature. Solid State Communications, 1982, 42, 267-270.	1.9	12