

Jukka P Pekola

List of Publications by Year in descending order

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145
papers

6,876
citations

71102

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62596

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145
all docs

145
docs citations

145
times ranked

3306
citing authors

#	ARTICLE	IF	CITATIONS
1	Opportunities for mesoscopics in thermometry and refrigeration: Physics and applications. <i>Reviews of Modern Physics</i> , 2006, 78, 217-274.	45.6	890
2	Single-electron current sources: Toward a refined definition of the ampere. <i>Reviews of Modern Physics</i> , 2013, 85, 1421-1472.	45.6	285
3	Towards quantum thermodynamics in electronic circuits. <i>Nature Physics</i> , 2015, 11, 118-123.	16.7	281
4	Efficient Peltier refrigeration by a pair of normal metal/insulator/superconductor junctions. <i>Applied Physics Letters</i> , 1996, 68, 1996-1998.	3.3	236
5	Single-mode heat conduction by photons. <i>Nature</i> , 2006, 444, 187-190.	27.8	236
6	On-Chip Maxwell's Demon as an Information-Powered Refrigerator. <i>Physical Review Letters</i> , 2015, 115, 260602.	7.8	229
7	Thermometry by Arrays of Tunnel Junctions. <i>Physical Review Letters</i> , 1994, 73, 2903-2906.	7.8	205
8	Violation of the Wiedemann-Franz Law in a Single-Electron Transistor. <i>Physical Review Letters</i> , 2008, 100, 066801.	7.8	174
9	Test of the Jarzynski and Crooks Fluctuation Relations in an Electronic System. <i>Physical Review Letters</i> , 2012, 109, 180601.	7.8	171
10	Nonequilibrium fluctuations in quantum heat engines: theory, example, and possible solid state experiments. <i>New Journal of Physics</i> , 2015, 17, 035012.	2.9	168
11	Tunable photonic heat transport in a quantum heat valve. <i>Nature Physics</i> , 2018, 14, 991-995.	16.7	158
12	Environment-Assisted Tunneling as an Origin of the Dynes Density of States. <i>Physical Review Letters</i> , 2010, 105, 026803.	7.8	153
13	Micrometre-scale refrigerators. <i>Reports on Progress in Physics</i> , 2012, 75, 046501.	20.1	152
14	Heat Transistor: Demonstration of Gate-Controlled Electronic Refrigeration. <i>Physical Review Letters</i> , 2007, 99, 027203.	7.8	135
15	Quantum Jump Approach for Work and Dissipation in a Two-Level System. <i>Physical Review Letters</i> , 2013, 111, 093602.	7.8	127
16	Otto refrigerator based on a superconducting qubit: Classical and quantum performance. <i>Physical Review B</i> , 2016, 94, .	3.2	115
17	Fast Electron Thermometry for Ultrasensitive Calorimetric Detection. <i>Physical Review Applied</i> , 2015, 3, .	3.8	105
18	Distribution of entropy production in a single-electron box. <i>Nature Physics</i> , 2013, 9, 644-648.	16.7	97

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19	Calorimetric measurement of work in a quantum system. <i>New Journal of Physics</i> , 2013, 15, 115006.	2.9	88
20	Thermal characteristics of silicon nitride membranes at sub-Kelvin temperatures. <i>Applied Physics Letters</i> , 1998, 72, 1305-1307.	3.3	85
21	Recombination-Limited Energy Relaxation in a Bardeen-Cooper-Schrieffer Superconductor. <i>Physical Review Letters</i> , 2009, 102, 017003.	7.8	85
22	Vanishing quasiparticle density in a hybrid Al/Cu/Al single-electron transistor. <i>Physical Review B</i> , 2012, 85, .	3.2	83
23	Electronic Refrigeration at the Quantum Limit. <i>Physical Review Letters</i> , 2009, 102, 200801.	7.8	82
24	Heat rectification via a superconducting artificial atom. <i>Communications Physics</i> , 2020, 3, .	5.3	80
25	Experimental Determination of Dynamical Lee-Yang Zeros. <i>Physical Review Letters</i> , 2017, 118, 180601.	7.8	77
26	<i>Colloquium</i>: Quantum heat transport in condensed matter systems. <i>Reviews of Modern Physics</i> , 2021, 93, .	45.6	73
27	Nonadiabatic Charge Pumping in a Hybrid Single-Electron Transistor. <i>Physical Review Letters</i> , 2008, 101, 066801.	7.8	67
28	Thermal Conductance of a Single-Electron Transistor. <i>Physical Review Letters</i> , 2017, 119, 077701.	7.8	66
29	Trapping of quasiparticles of a nonequilibrium superconductor. <i>Applied Physics Letters</i> , 2000, 76, 2782-2784.	3.3	64
30	Arrays of normal metal tunnel junctions in weak Coulomb blockade regime. <i>Applied Physics Letters</i> , 1995, 67, 2096-2098.	3.3	63
31	One dimensional arrays and solitary tunnel junctions in the weak coulomb blockade regime: CBT thermometry. <i>Journal of Low Temperature Physics</i> , 1997, 108, 191-215.	1.4	57
32	Work and its fluctuations in a driven quantum system. <i>Physical Review B</i> , 2013, 87, .	3.2	52
33	Reaching the ultimate energy resolution of a quantum detector. <i>Nature Communications</i> , 2020, 11, 367.	12.8	51
34	Real-Time Observation of Discrete Andreev Tunneling Events. <i>Physical Review Letters</i> , 2011, 106, 217003.	7.8	50
35	Absorption refrigerators based on Coulomb-coupled single-electron systems. <i>Physical Review B</i> , 2018, 98, .	3.2	49
36	Violation of the Fluctuation-Dissipation Theorem in Time-Dependent Mesoscopic Heat Transport. <i>Physical Review Letters</i> , 2010, 104, 220601.	7.8	48

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37	Thermal budget of superconducting digital circuits at subkelvin temperatures. Journal of Applied Physics, 2006, 99, 084501.	2.5	43
38	Work and heat for two-level systems in dissipative environments: Strong driving and non-Markovian dynamics. Physical Review B, 2015, 91, .	3.2	43
39	Refrigeration of a dielectric membrane by superconductor/insulator/normal-metal/insulator/superconductor tunneling. Applied Physics Letters, 1997, 70, 1885-1887.	3.3	42
40	Heat transport through a Josephson junction. Physical Review B, 2013, 87, .	3.2	42
41	Tunnel-Junction Thermometry Down to Millikelvin Temperatures. Physical Review Applied, 2015, 4, .	3.8	42
42	Statistics of the dissipated energy in driven single-electron transitions. Europhysics Letters, 2011, 96, 67004.	2.0	41
43	Excitation of Single Quasiparticles in a Small Superconducting Al Island Connected to Normal-Metal Leads by Tunnel Junctions. Physical Review Letters, 2013, 111, 147001.	7.8	40
44	Thermodynamics of Gambling Demons. Physical Review Letters, 2021, 126, 080603.	7.8	38
45	Probing quasiparticle excitations in a hybrid single electron transistor. Applied Physics Letters, 2012, 100, .	3.3	37
46	Trapping hot quasi-particles in a high-power superconducting electronic cooler. New Journal of Physics, 2013, 15, 085013.	2.9	36
47	Tunable quasiparticle trapping in Meissner and vortex states of mesoscopic superconductors. Nature Communications, 2016, 7, 10977.	12.8	36
48	Electron Thermalization in Metallic Islands Probed by Coulomb Blockade Thermometry. Journal of Low Temperature Physics, 2004, 134, 1119-1143.	1.4	34
49	Dispersive Thermometry with a Josephson Junction Coupled to a Resonator. Physical Review Applied, 2016, 6, .	3.8	34
50	Optimal Probabilistic Work Extraction beyond the Free Energy Difference with a Single-Electron Device. Physical Review Letters, 2019, 122, 150604.	7.8	34
51	Incomplete measurement of work in a dissipative two level system. New Journal of Physics, 2015, 17, 055014.	2.9	33
52	On-Chip Refrigeration by Evaporation of Hot Electrons at Sub-Kelvin Temperatures. Journal of Low Temperature Physics, 2000, 120, 281-290.	1.4	32
53	Speeding up a quantum refrigerator via counterdiabatic driving. Physical Review B, 2019, 100, .	3.2	31
54	Magnetic-field-induced stabilization of nonequilibrium superconductivity in a normal-metal/insulator/superconductor junction. Physical Review B, 2011, 84, .	3.2	30

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55	Cooling of a superconductor by quasiparticle tunneling. <i>Applied Physics Letters</i> , 1999, 74, 3020-3022.	3.3	29
56	Fast thermometry with a proximity Josephson junction. <i>Applied Physics Letters</i> , 2018, 112, .	3.3	29
57	Moments of work in the two-point measurement protocol for a driven open quantum system. <i>Physical Review B</i> , 2014, 90, .	3.2	28
58	Maxwell's demon based on a single qubit. <i>Physical Review B</i> , 2016, 93, .	3.2	28
59	Thermal Conductance by the Inverse Proximity Effect in a Superconductor. <i>Physical Review Letters</i> , 2010, 105, 097004.	7.8	27
60	Experimental realization of a Coulomb blockade refrigerator. <i>Physical Review B</i> , 2014, 90, .	3.2	27
61	Entropy production in a non-Markovian environment. <i>Physical Review E</i> , 2015, 92, 012107.	2.1	26
62	Electron-phonon heat transport in arrays of Al islands with submicrometer-sized tunnel junctions. <i>Physical Review B</i> , 1996, 54, R8353-R8356.	3.2	25
63	Fabrication of mesoscopic superconducting Nb wires using conventional electron-beam lithographic techniques. <i>Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena</i> , 2002, 20, 386.	1.6	25
64	Noninvasive Thermometer Based on the Zero-Bias Anomaly of a Superconducting Junction for Ultrasensitive Calorimetry. <i>Physical Review Applied</i> , 2018, 10, .	3.8	25
65	Electric field control of radiative heat transfer in a superconducting circuit. <i>Nature Communications</i> , 2020, 11, 4326.	12.8	25
66	Thermodynamic fingerprints of non-Markovianity in a system of coupled superconducting qubits. <i>Physical Review A</i> , 2018, 97, .	2.5	24
67	Numerical investigation of one-dimensional tunnel junction arrays at temperatures above the Coulomb blockade regime. <i>Journal of Applied Physics</i> , 1996, 80, 256-263.	2.5	23
68	Supremacy of incoherent sudden cycles. <i>Physical Review B</i> , 2019, 100, .	3.2	23
69	Noise in Refrigerating Tunnel Junctions and in Microbolometers. <i>Journal of Low Temperature Physics</i> , 2001, 123, 197-218.	1.4	22
70	Finite-time quantum Stirling heat engine. <i>New Journal of Physics</i> , 2021, 23, 033034.	2.9	22
71	Substrate-dependent quasiparticle recombination time in superconducting resonators. <i>Applied Physics Letters</i> , 2011, 99, 062509.	3.3	21
72	A superconductor free of quasiparticles for seconds. <i>Nature Physics</i> , 2022, 18, 145-148.	16.7	19

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73	Coulomb blockade-based nanothermometry in strong magnetic fields. <i>Journal of Applied Physics</i> , 1998, 83, 5582-5584.	2.5	18
74	Distribution of current fluctuations in a bistable conductor. <i>Physical Review B</i> , 2016, 94, .	3.2	18
75	Finite-Size Bath in Qubit Thermodynamics. <i>Journal of Low Temperature Physics</i> , 2016, 184, 1015-1029.	1.4	18
76	Nanoscale quantum calorimetry with electronic temperature fluctuations. <i>Physical Review B</i> , 2018, 98, .	3.2	18
77	Extreme reductions of entropy in an electronic double dot. <i>Physical Review B</i> , 2019, 99, .	3.2	18
78	Accurate Coulomb blockade thermometry up to 60 kelvin. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2016, 374, 20150052.	3.4	17
79	Universal First-Passage-Time Distribution of Non-Gaussian Currents. <i>Physical Review Letters</i> , 2019, 122, 230602.	7.8	17
80	Wide-range thermometer based on the temperature-dependent conductance of planar tunnel junctions. <i>Applied Physics Letters</i> , 2000, 77, 2915-2917.	3.3	16
81	Quantum Trajectory Analysis of Single Microwave Photon Detection by Nanocalorimetry. <i>Physical Review Letters</i> , 2020, 124, 170601.	7.8	16
82	Cascade Electronic Refrigerator Using Superconducting Tunnel Junctions. <i>Physical Review Applied</i> , 2016, 6, .	3.8	15
83	Fluctuation relations for driven coupled classical two-level systems with incomplete measurements. <i>Physical Review E</i> , 2015, 91, 012145.	2.1	14
84	InAs Nanowire with Epitaxial Aluminum as a Single-Electron Transistor with Fixed Tunnel Barriers. <i>Physical Review Applied</i> , 2016, 6, .	3.8	14
85	Anomalous electronic heat capacity of copper nanowires at sub-Kelvin temperatures. <i>Physical Review B</i> , 2018, 97, .	3.2	14
86	Performance of cryogenic microbolometers and calorimeters with on-chip coolers. <i>Applied Physics Letters</i> , 2001, 78, 556-558.	3.3	13
87	Quantum Noise of Electron-Phonon Heat Current. <i>Journal of Low Temperature Physics</i> , 2018, 191, 373-379.	1.4	13
88	Photonic heat transport across a Josephson junction. <i>Physical Review B</i> , 2019, 100, .	3.2	13
89	Nonlinear thermovoltage in a single-electron transistor. <i>Physical Review B</i> , 2019, 99, .	3.2	13
90	Cooper-Pair Box Coupled to Two Resonators: An Architecture for a Quantum Refrigerator. <i>Physical Review Applied</i> , 2022, 17, .	3.8	13

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91	Model for calorimetric measurements in an open quantum system. <i>Physical Review A</i> , 2018, 97, .	2.5	12
92	Crossover between Electron-Phonon and Boundary-Resistance Limits to Thermal Relaxation in Copper Films. <i>Physical Review Applied</i> , 2019, 12, .	3.8	12
93	Active Quasiparticle Suppression in a Non-Equilibrium Superconductor. <i>Nano Letters</i> , 2020, 20, 5065-5071.	9.1	12
94	Using materials for quasiparticle engineering. <i>Materials for Quantum Technology</i> , 2022, 2, 013001.	3.1	12
95	Photonic heat transport in three terminal superconducting circuit. <i>Nature Communications</i> , 2022, 13, 1552.	12.8	12
96	One- and two-dimensional tunnel junction arrays in weak Coulomb blockade regime: Absolute accuracy in thermometry. <i>Applied Physics Letters</i> , 2000, 76, 3747-3749.	3.3	11
97	Statistics of heat exchange between two resistors. <i>Physical Review B</i> , 2015, 92, .	3.2	11
98	Noise of a superconducting magnetic flux sensor based on a proximity Josephson junction. <i>Scientific Reports</i> , 2017, 7, 8011.	3.3	11
99	Heat capacity of mesoscopic superconducting disks. <i>Europhysics Letters</i> , 2000, 50, 649-655.	2.0	10
100	Coulomb Blockade Thermometry in the Milli-Kelvin Temperature Range in High Magnetic Fields. <i>Journal of Low Temperature Physics</i> , 2002, 128, 263-269.	1.4	10
101	Parity effect in Al and Nb single electron transistors in a tunable environment. <i>Applied Physics Letters</i> , 2007, 91, 063512.	3.3	10
102	Work, Free Energy and Dissipation in Voltage Driven Single-Electron Transitions. <i>Journal of Low Temperature Physics</i> , 2012, 169, 70-76.	1.4	10
103	Dissipated work and fluctuation relations for non-equilibrium single-electron transitions. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2013, 2013, P02033.	2.3	10
104	Dephasing and dissipation in qubit thermodynamics. <i>Physical Review E</i> , 2015, 91, 062109.	2.1	10
105	Multifractality of random eigenfunctions and generalization of Jarzynski equality. <i>Nature Communications</i> , 2015, 6, 7010.	12.8	10
106	Thermal conductance of Nb thin films at sub-kelvin temperatures. <i>Scientific Reports</i> , 2017, 7, 41728.	3.3	10
107	Quantifying the quantum heat contribution from a driven superconducting circuit. <i>Physical Review E</i> , 2020, 102, 030102.	2.1	10
108	Spatial and energy resolution of electronic states by shot noise. <i>Physical Review B</i> , 2020, 102, .	3.2	10

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109	Fast and accurate Cooper pair pump. <i>Physical Review B</i> , 2019, 100, .	3.2	9
110	Periodicity in Al/Ti superconducting single electron transistors. <i>Applied Physics Letters</i> , 2009, 95, 052503.	3.3	8
111	Detecting parity effect in a superconducting device in the presence of parity switches. <i>Physical Review B</i> , 2019, 100, .	3.2	8
112	Background charge fluctuations in SET-transistors. <i>European Physical Journal D</i> , 1996, 46, 2293-2294.	0.4	7
113	Integrated SINIS refrigerators for efficient cooling of cryogenic detectors. , 2002, , .		7
114	Reversing the Landauer's erasure: Single-electron Maxwell's demon operating at the limit of thermodynamic efficiency. <i>Physica Status Solidi (B): Basic Research</i> , 2017, 254, 1600677.	1.5	7
115	Coulomb blockade thermometry. <i>European Physical Journal D</i> , 1996, 46, 3345-3352.	0.4	6
116	Milling a silicon nitride membrane by focused ion beam. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2016, 34, .	1.2	6
117	Fluctuation relation for qubit calorimetry. <i>Physical Review E</i> , 2016, 94, 062127.	2.1	6
118	Energy fluctuations of a finite free-electron Fermi gas. <i>Physical Review E</i> , 2016, 94, 022123.	2.1	6
119	Multiplexing Superconducting Qubit Circuit for Single Microwave Photon Generation. <i>Journal of Low Temperature Physics</i> , 2017, 189, 60-75.	1.4	6
120	Interplay of the Inverse Proximity Effect and Magnetic Field in Out-of-Equilibrium Single-Electron Devices. <i>Physical Review Applied</i> , 2017, 7, .	3.8	6
121	An electron turnstile for frequency-to-power conversion. <i>Nature Nanotechnology</i> , 2022, 17, 239-243.	31.5	6
122	Utilization of the superconducting transition for characterizing low-quality-factor superconducting resonators. <i>Applied Physics Letters</i> , 2019, 115, 022601.	3.3	5
123	Hybrid master equation for calorimetric measurements. <i>Physical Review A</i> , 2019, 99, .	2.5	5
124	Thermally pumped on-chip maser. <i>Physical Review B</i> , 2020, 102, .	3.2	5
125	Optimized Proximity Thermometer for Ultrasensitive Detection. <i>Physical Review Applied</i> , 2020, 13, .	3.8	5
126	Modification of electron-phonon coupling by micromachining and suspension. <i>Journal of Applied Physics</i> , 2020, 127, .	2.5	5

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127	Influence of magnetic field on cooling by normal-insulatorâ€“superconductor junctions. Journal of Applied Physics, 2000, 88, 326-330.	2.5	4
128	Determining the parameters of a random telegraph signal by digital low pass filtering. Applied Physics Letters, 2018, 112, .	3.3	4
129	Self-Calibrating Superconducting Pair-Breaking Detector. Physical Review Letters, 2021, 127, 147001.	7.8	4
130	Ultrasensitive Calorimetric Detection of Single Photons from Qubit Decay. Physical Review X, 2022, 12, .	8.9	4
131	Magnetometry with Low-Resistance Proximity Josephson Junction. Journal of Low Temperature Physics, 2018, 191, 344-353.	1.4	3
132	Radio-Frequency Coulomb-Blockade Thermometry. Physical Review Applied, 2022, 17, .	3.8	3
133	Ultimate Accuracy of Frequency to Power Conversion by Single-Electron Injection. Physical Review Letters, 2022, 129, .	7.8	3
134	Microrefrigeration by NIS tunnel junctions. European Physical Journal D, 1996, 46, 2763-2764.	0.4	2
135	Fabrication and characterization of small tunnel junctions through a thin dielectric membrane. Applied Physics Letters, 1998, 73, 2369-2371.	3.3	2
136	Charge-vortex interplay in a superconducting Coulomb-blockaded island. Physical Review B, 2015, 92, .	3.2	2
137	Downconversion of quantum fluctuations of photonic heat current in a circuit. Physical Review B, 2021, 104, .	3.2	2
138	Low Temperature Characteristics of the Metalâ€“Superconductor NIS Tunneling Thermometer. Journal of Low Temperature Physics, 2022, 207, 220-225.	1.4	2
139	Electronic structure of a mesoscopic superconducting disk: Quasiparticle tunneling between the giant vortex core and the disk edge. Physical Review B, 2019, 99, .	3.2	1
140	Quantum thermodynamics at low temperatures. Europhysics News, 2021, 52, 15-17.	0.3	1
141	Electron-phonon coupling of epigraphene at millikelvin temperatures measured by quantum transport thermometry. Applied Physics Letters, 2021, 118, 103102.	3.3	1
142	Influence of device non-uniformities on the accuracy of Coulomb blockade thermometry. Metrologia, 0, , .	1.2	1
143	Hot electron effects in metallic single electron components. European Physical Journal D, 1996, 46, 2295-2296.	0.4	0
144	IV-Curves of tunnel junction arrays at lowered temperature by numerical simulation. European Physical Journal D, 1996, 46, 591-592.	0.4	0

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145	Silicon Single Electron Transistors with Single and Multi Dot Characteristics. Materials Research Society Symposia Proceedings, 2000, 638, 1.	0.1	0