

# Kamran Behnia

## List of Publications by Year in descending order

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155  
papers

6,676  
citations

53660

45  
h-index

66788

78  
g-index

160  
all docs

160  
docs citations

160  
times ranked

5292  
citing authors

#	ARTICLE	IF	CITATIONS
1	Pressure induced heavy fermion superconductivity of CeCu <sub>2</sub> Ge <sub>2</sub> . Physics Letters, Section A: General, Atomic and Solid State Physics, 1992, 163, 475-480.	0.9	322
2	On the thermoelectricity of correlated electrons in the zero-temperature limit. Journal of Physics Condensed Matter, 2004, 16, 5187-5198.	0.7	260
3	Field-induced polarization of Dirac valleys in bismuth. Nature Physics, 2012, 8, 89-94.	6.5	240
4	Anomalous Nernst and Righi-Leduc Effects in $Mn_3Si$ : Berry Curvature and Entropy Flow. Physical Review Letters, 2017, 119, 056601.	2.9	212
5	Universal Heat Conduction in YBa <sub>2</sub> Cu <sub>3</sub> O <sub>6.9</sub> . Physical Review Letters, 1997, 79, 483-486.	2.9	200
6	Quantum Oscillations, Thermoelectric Coefficients, and the Fermi Surface of Semimetallic $WTe_2$ . Physical Review Letters, 2015, 114, 176601.	2.9	198
7	Exotic Superconducting Properties in the Electron-Hole-Compensated Heavy-Fermion $\text{URu}_2\text{Si}_2$ . Physical Review Letters, 2007, 99, 116402.	2.9	183
8	Line Nodes in the Superconducting Gap Function of Noncentrosymmetric CePt <sub>3</sub> Si. Physical Review Letters, 2005, 94, 197002.	2.9	165
9	A ferroelectric quantum phase transition inside the superconducting dome of Sr <sub>1-x</sub> CaxTiO <sub>3</sub> . Nature Physics, 2017, 13, 643-648.	6.5	160
10	The Nernst effect and the boundaries of the Fermi liquid picture. Journal of Physics Condensed Matter, 2009, 21, 113101.	0.7	150
11	Signatures of Electron Fractionalization in Ultraquantum Bismuth. Science, 2007, 317, 1729-1731.	6.0	144
12	Nernst effect in metals and superconductors: a review of concepts and experiments. Reports on Progress in Physics, 2016, 79, 046502.	8.1	144
13	Critical Doping for the Onset of a Two-Band Superconducting Ground State in $\text{SrTiO}_3$ . Physical Review Letters, 2014, 112, .	2.9	132
14	Polarized light boosts valleytronics. Nature Nanotechnology, 2012, 7, 488-489.	15.6	121
15	Thermal Conductivity of Superconducting (TMTSF) <sub>2</sub> ClO <sub>4</sub> : Evidence for a Nodeless Gap. Physical Review Letters, 1997, 79, 2125-2128.	2.9	120
16	Angular Position of Nodes in the Superconducting Gap of YBCO. Physical Review Letters, 1997, 78, 2624-2627.	2.9	119
17	Observation of the Nernst signal generated by fluctuating Cooper pairs. Nature Physics, 2006, 2, 683-686.	6.5	109
18	Scalable $T^2$ resistivity in a small single-component Fermi surface. Science, 2015, 349, 945-948.	6.0	106

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19	Thermal Transport and Phonon Hydrodynamics in Strontium Titanate. Physical Review Letters, 2018, 120, 125901.	2.9	104
20	Giant Nernst Effect in CeCoIn <sub>5</sub> . Physical Review Letters, 2004, 92, 217002.	2.9	102
21	Heat Conduction in (BEDT-TTF) <sub>2</sub> Cu(NCS) <sub>2</sub> . Physical Review Letters, 1998, 81, 4728-4731.	2.9	99
22	Phonon hydrodynamics and ultrahigh room-temperature thermal conductivity in thin graphite. Science, 2020, 367, 309-312.	6.0	99
23	Ambipolar Nernst Effect in NbSe <sub>2</sub> . Physical Review Letters, 2003, 91, 066602.	2.9	92
24	Fermi Surface of the Most Dilute Superconductor. Physical Review X, 2013, 3, .	2.8	91
25	Thermal Transport in the Hidden-Order State of URu <sub>2</sub> Si <sub>2</sub> . Physical Review Letters, 2005, 94, 156405.	2.9	89
26	Oscillating Nernst-Ettingshausen Effect in Bismuth across the Quantum Limit. Physical Review Letters, 2007, 98, 166602.	2.9	85
27	Metallicity and Superconductivity in Doped Strontium Titanate. Annual Review of Condensed Matter Physics, 2019, 10, 25-44.	5.2	82
28	Phonon Thermal Hall Effect in Strontium Titanate. Physical Review Letters, 2020, 124, 105901.	2.9	82
29	Evidence for Field-Induced Excitations in Low-Temperature Thermal Conductivity of Bi <sub>2</sub> Sr <sub>2</sub> CaCu <sub>2</sub> O <sub>8</sub> . Physical Review Letters, 1999, 82, 624-627.	2.9	77
30	Thermoelectricity of URu <sub>2</sub> Si <sub>2</sub> : Giant Nernst effect in the hidden-order state. Physical Review B, 2004, 70, .	1.1	73
31	Nernst Effect in Semimetals: The Effective Mass and the Figure of Merit. Physical Review Letters, 2007, 98, 076603.	2.9	73
32	Departure from the Wiedemann-Franz law in WP <sub>2</sub> driven by mismatch in T-square resistivity prefactors. Npj Quantum Materials, 2018, 3, .	1.8	72
33	Angle-resolved Landau spectrum of electrons and holes in bismuth. Physical Review B, 2011, 84, .	1.1	69
34	Nernst effect and dimensionality in the quantum limit. Nature Physics, 2010, 6, 26-29.	6.5	68
35	Field-Induced Fermi Surface Reconstruction and Adiabatic Continuity between Antiferromagnetism and the Hidden-Order State in URu <sub>2</sub> Si <sub>2</sub> . Physical Review Letters, 2007, 98, 166404.	2.9	66
36	Anomalous transverse response of and universality of the room-temperature Physical Review B, 2020, 101, .	1.1	59

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37	Chiral domain walls of Mn <sub>3</sub> Sn and their memory. Nature Communications, 2019, 10, 3021.	5.8	58
38	Confinement in Bechgaard Salts: Anomalous Magnetoresistance and Nuclear Relaxation. Physical Review Letters, 1995, 74, 5272-5275.	2.9	52
39	Thermoelectric Response Near a Quantum Critical Point: The Case of $CeCoIn_5$ . Physical Review Letters, 2007, 99, 147005.	2.9	52
40	Two Phase Transitions Induced by a Magnetic Field in Graphite. Physical Review Letters, 2013, 110, 266601.	2.9	51
41	Observation of Poiseuille flow of phonons in black phosphorus. Science Advances, 2018, 4, eaat3374.	4.7	51
42	Superconducting phase diagram of UPt <sub>3</sub> studied by thermal expansion and specific heat. Journal of Low Temperature Physics, 1990, 81, 299-315.	0.6	50
43	Angle Dependence of the Orbital Magnetoresistance in Bismuth. Physical Review X, 2015, 5, .	2.8	50
44	Finite-temperature violation of the anomalous transverse Wiedemann-Franz law. Science Advances, 2020, 6, eaaz3522.	4.7	50
45	Magnetothermoelectric properties of $Bi_{1-x}Sb_x$ Se <sub>3</sub> . Physical Review B, 2013, 87, .	1.1	49
46	Intrinsic Anomalous Nernst Effect Amplified by Disorder in a Half-Metallic Semimetal. Physical Review X, 2019, 9, .	2.8	45
47	Thermal conductivity of superconducting UPt <sub>3</sub> . Journal of Low Temperature Physics, 1991, 84, 261-278.	0.6	44
48	Thermodynamic evidence for valley-dependent density of states in bulk bismuth. Nature Materials, 2014, 13, 461-465.	13.3	44
49	Strong correlation and low carrier density in $Fe_{1-x}Te_x$ . Physical Review B, 2011, 83, .	1.1	37
50	Electronic instability in bismuth far beyond the quantum limit. New Journal of Physics, 2009, 11, 113012.	1.2	39
51	Metallicity without quasi-particles in room-temperature strontium titanate. Npj Quantum Materials, 2017, 2, .	1.8	39
52	Heat transport in $Bi_{2-x}Sr_{2x}CuO_{6+\delta}$ : Departure from the Wiedemann-Franz law in the vicinity of the metal-insulator transition. Physical Review B, 2005, 72, .	1.1	37
53	Transport anomalies across the quantum limit in semimetallic $Bi_{1-x}Sb_x$ . Physical Review B, 2008, 78, .	1.1	37
54	Drastic Change in Transport of Entropy with Quadrupolar Ordering in PrFe <sub>4</sub> P <sub>12</sub> . Physical Review Letters, 2006, 96, 176402.	2.9	36

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55	Nanoscale Turing patterns in a bismuth monolayer. Nature Physics, 2021, 17, 1031-1036.	6.5	35
56	Origin of the Large Anisotropic Factor of Holes in Bismuth. Physical Review Letters, 2015, 115, 216401.	2.9	34
57	Emptying Dirac valleys in bismuth using high magnetic fields. Nature Communications, 2017, 8, 15297.	5.8	34
58	Internal avalanches in a pile of superconducting vortices. Physical Review B, 2000, 61, R3815-R3818.	1.1	33
59	Phase diagram of bismuth in the extreme quantum limit. Nature Communications, 2010, 1, 47.	5.8	32
60	Absence of Residual Quasiparticle Conductivity in the Underdoped Cuprate YBa <sub>2</sub> Cu <sub>4</sub> O <sub>8</sub> . Physical Review Letters, 2000, 85, 4140-4143.	2.9	31
61	Landau spectrum and twin boundaries of bismuth in the extreme quantum limit. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 14813-14818.	3.3	31
62	Superfluid density and carrier concentration across a superconducting dome: The case of strontium titanate. Physical Review B, 2017, 96, .	1.1	31
63	Multiple nodeless superconducting gaps in optimally doped SrTiO <sub>3</sub> . Physical Review B, 2014, 90, .	1.1	30
64	Nernst effect in the phase-fluctuating superconductor InO <sub>x</sub> . Europhysics Letters, 2008, 83, 57005.	0.7	27
65	T-square resistivity without Umklapp scattering in dilute metallic Bi <sub>2</sub> O <sub>2</sub> Se. Nature Communications, 2020, 11, 3846.	5.8	26
66	Thermal resistivity and hydrodynamics of the degenerate electron fluid in antimony. Nature Communications, 2021, 12, 195.	5.8	26
67	Magnetoresistance of semimetals: The case of antimony. Physical Review Materials, 2018, 2, .	0.9	26
68	Charge transport in a polar metal. Npj Quantum Materials, 2019, 4, .	1.8	25
69	Momentum-space and real-space Berry curvatures in Mn <sub>3</sub> Sn. , 2018, 5, .		25
70	Anisotropic inelastic scattering and its interplay with superconductivity in SrTiO <sub>3</sub> . Physical Review B, 2009, 80, .	1.1	24
71	Wave superconductivity in optimally doped SrTiO <sub>3</sub> unveiled by electron irradiation. Physical Review B, 2015, 92, .	1.1	24
72	Magnetoresistance and valley degree of freedom in bulk bismuth. Journal of Physics Condensed Matter, 2018, 30, 313001.	0.7	24

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73	Heavy Nondegenerate Electrons in Doped Strontium Titanate. Physical Review X, 2020, 10, .	2.8	24
74	Low-field diamagnetic response of the superconducting phases in UPt <sub>3</sub> . Journal of Physics Condensed Matter, 1991, 3, 3517-3525.	0.7	23
75	On mobility of electrons in a shallow Fermi sea over a rough seafloor. Journal of Physics Condensed Matter, 2015, 27, 375501.	0.7	23
76	Nonmonotonic anisotropy in charge conduction induced by antiferrodistortive transition in metallic $\text{SrTiO}_3$ . Physical Review B, 2016, 94, .	1.1	23
77	A lower bound to the thermal diffusivity of insulators. Journal of Physics Condensed Matter, 2019, 31, 405702.	0.7	23
78	Test of the Wiedemann-Franz Law in an Optimally Doped Cuprate. Physical Review Letters, 2004, 92, 177003.	2.9	22
79	On the destruction of the hidden order in $\text{URu}_2\text{Si}_2$ by a strong magnetic field. Europhysics Letters, 2009, 85, 27003.	0.7	22
80	(TMTTF) <sub>2</sub> Br: The First Organic Superconductor in the (TMTTF) <sub>2</sub> X family. Advanced Materials, 1994, 6, 762-765.	11.1	20
81	(TM) <sub>2</sub> X organic superconductors: interplay between 1-D charge localization and higher dimensionality cross-over. Synthetic Metals, 1995, 70, 719-725.	2.1	20
82	Hall plateaus at magic angles in bismuth beyond the quantum limit. Physical Review B, 2009, 79, . Thermoelectric evidence for high-field anomalies in the hidden order phase of $\text{URu}_2\text{Si}_2$	1.1	19
83	Thermoelectric evidence for high-field anomalies in the hidden order phase of $\text{URu}_2\text{Si}_2$	1.1	19
84	The superconducting phases of UPt <sub>3</sub> under pressure. Journal of Applied Physics, 1990, 67, 5200-5202.	1.1	18
85	Finding merit in dividing neighbors. Science, 2016, 351, 124-124.	6.0	18
86	Thermalization and possible signatures of quantum chaos in complex crystalline materials. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 19869-19874.	3.3	16
87	A Monomaterial Nernst Thermopile with Hermaphroditic Legs. Advanced Materials, 2021, 33, e2100751.	11.1	16
88	Lebed Resonance Effects in the Metallic and Spin-Density-Wave Phases of (TMTSF) <sub>2</sub> PF <sub>6</sub> . Europhysics Letters, 1994, 25, 285-290.	0.7	15
89	Quasi-particle vortex scattering in UPt <sub>3</sub> . Physics Letters, Section A: General, Atomic and Solid State Physics, 1997, 234, 64-68.	0.9	15
90	Nernst Response of the Landau Tubes in Graphite across the Quantum Limit. Physical Review Letters, 2011, 106, 246405.	2.9	13

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91	<p>Optimal Seebeck Coefficient of Hopping Electrons in <math>\text{Cu}_2\text{S}</math></p> <p>Physical Review Letters, 2016, 116, 087003.</p>	2.9	13
92	<p>Fermi-Surface Instabilities in the Organic Conductor (TMTSF)<sub>2</sub>NO<sub>3</sub> : High-Pressure Studies. Europhysics Letters, 1995, 29, 635-640.</p> <p>Evidence of Incoherent Carriers Associated with Resonant Impurity Levels and Their Influence on Superconductivity in the Anomalous Superconductor <math>\text{Pb}_{1-x}\text{Bi}_x\text{Te}</math></p> <p>Physical Review Letters, 2016, 116, 087001.</p>	0.7	12
93	<p>Ferroelectric order versus metallicity in <math>\text{SrTiO}_3</math></p>	2.9	12
94			

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109	Measuring thermal conductivity in extreme conditions: Sub-Kelvin temperatures and high (27â€¦T) magnetic fields. Review of Scientific Instruments, 2004, 75, 273-275.	0.6	7
110	Positive Seebeck Coefficient in Highly Doped $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ ( $x = 0.33$ ); Its Origin and Implication. Journal of the Physical Society of Japan, 2021, 90, 053702.	0.7	7
111	Planar Hall effect caused by the memory of antiferromagnetic domain walls in $\text{Mn}_3\text{Ge}$ . Applied Physics Letters, 2020, 117, .	1.5	7
112	Heat conduction in $\text{Bi}(\text{BEDT-TTF})_2\text{X}$ superconductors. Synthetic Metals, 1999, 103, 2046-2047.	2.1	6
113	Comment on "Nernst Effect in Poor Conductors and in the Cuprate Superconductors" Physical Review Letters, 2005, 95, 259703; author reply 259704.	2.9	6
114	Comment on "Signatures of Surface States in Bismuth at High Magnetic Fields" Physical Review Letters, 2010, 104, 059705; author reply 059706.	2.9	6
115	Nernst quantum oscillations in bulk semi-metals. Journal of Physics Condensed Matter, 2011, 23, 094204.	0.7	6
116	Boundary conductance in macroscopic bismuth crystals. Nature Communications, 2022, 13, 189.	5.8	6
117	Giant Nernst effect in heavy-electron metals. Journal of Magnetism and Magnetic Materials, 2007, 310, 446-448.	1.0	5
118	The fragility of distant Cooper pairs. Science, 2017, 355, 26-27.	6.0	5
119	Pairing and vortex states in $\text{Sr}_2\text{RuO}_4$ studied by Hall probe magnetometry. Physica B: Condensed Matter, 2000, 284-288, 543-544.	1.3	4
120	Pressure effect on the magnetic field-temperature phase diagram of. Physica B: Condensed Matter, 2008, 403, 749-751.	1.3	4
121	Elemental Complexity. Science, 2008, 321, 497-498.	6.0	4
122	Wide Critical Fluctuations of the Field-Induced Phase Transition in Graphite. Physical Review Letters, 2021, 126, 106801.	2.9	4
123	Thermal diffusivity and its lower bound in orthorhombic $\text{SnSe}$ . Physical Review B, 2021, 104, .	1.1	4
124	Magneto-Seebeck effect in bismuth. Physical Review B, 2022, 105, .	1.1	4
125	Charged with smuggling heat. Nature, 2001, 414, 696-697.	13.7	3
126	Electron-Hole Pairing in Presence of a Strong Magnetic Field in Graphite. JPSJ News and Comments, 2015, 12, 05.	0.2	3



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127	On the dynamic distinguishability of nodal quasi-particles in overdoped cuprates. SciPost Physics, 2022, 12, .	1.5	3
128	Fermi surface and physical properties of (TMTSF) <sub>2</sub> NO <sub>3</sub> . Synthetic Metals, 1995, 70, 755-756.	2.1	2
129	Symmetry of the superconducting order parameter in Bechgaard salts. Synthetic Metals, 1999, 103, 2030-2033.	2.1	2
130	Characterization of the Mysterious High Field Ordered Phase around H <sub>a</sub> ∞[111] and Finding of a New Phase Boundary in PrFe <sub>4</sub> P <sub>12</sub> . Journal of the Physical Society of Japan, 2012, 81, 084703.	0.7	2
131	Picky about orientation. Nature Physics, 2017, 13, 111-112.	6.5	2
132	Effect of controlled disorder on thermal conductivity of Bi <sub>2</sub> 212. Physica C: Superconductivity and Its Applications, 2000, 341-348, 1809-1812.	0.6	1
133	Low- and zero-energy quasiparticle heat transport in high-T <sub>c</sub> superconductors. Journal of Physics and Chemistry of Solids, 2002, 63, 1065-1068.	1.9	1
134	Anomalous quasiparticle transport and superclean superconducting state of. Journal of Magnetism and Magnetic Materials, 2007, 310, 569-571.	1.0	1
135	Vortex lattice melting in the heavy-fermion superconductor URu <sub>2</sub> Si <sub>2</sub> . Physica C: Superconductivity and Its Applications, 2008, 468, 1258-1261.	0.6	1
136	Exotic superconducting state embedded in the hidden order of. Journal of Physics and Chemistry of Solids, 2008, 69, 3187-3190.	1.9	1
137	Electrons Travel Between Loosely Bound Layers. Physics Magazine, 2015, 8, .	0.1	1
138	Anisotropic Magnetoresistance of Metallic (TMTTF) <sub>2</sub> Br. Europhysics Letters, 1995, 32, 73-77.	0.7	0
139	Commensurability effects in the magnetoresistance of (TMTSF) <sub>2</sub> PF <sub>6</sub> . Synthetic Metals, 1995, 70, 743-746.	2.1	0
140	Religious authorities overrule scientists in Iran. Nature, 2006, 444, 422-422.	13.7	0
141	Hall effect in the quasi two-dimensional strongly correlated metal (M=Co, Rh). Journal of Magnetism and Magnetic Materials, 2007, 310, 334-336.	1.0	0
142	Non-Fermi liquid behavior in the magnetotransport of quasi two-dimensional heavy Fermion compounds CeMn <sub>5</sub> . Journal of Physics and Chemistry of Solids, 2008, 69, 3261-3264.	1.9	0
143	The Mysterious Source of Current-Induced Entropy in Ca <sub>2</sub> RuO <sub>4</sub> . JPSJ News and Comments, 2017, 14, 10.	0.2	0
144	Nernst effect studies of Cooper pair fluctuations. Physica C: Superconductivity and Its Applications, 2018, 552, 38-41.	0.6	0

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145	The Semiclassical Picture. , 2015, , 18-32.		0
146	Experimental Survey III: Correlated Metals. , 2015, , 121-172.		0
147	Magnetothermoelectricity. , 2015, , 44-56.		0
148	Experimental Survey II: Narrow-Gap Semiconductors. , 2015, , 105-120.		0
149	New Frontiers. , 2015, , 193-212.		0
150	Superconductivity and Thermoelectric Phenomena. , 2015, , 173-192.		0
151	Non-Diffusive Thermoelectricity. , 2015, , 33-43.		0
152	The Thermal Wave-Length and Fermi-Liquid Thermoelectricity. , 2015, , 57-72.		0
153	Experimental Survey I: The Periodic Table. , 2015, , 73-104.		0
154	What is measured when measuring a thermoelectric coefficient?. Comptes Rendus Physique, 2022, 23, 25-40.	0.3	0
155	Thermal properties: Thermal conductivity. , 0, , .		0