

# Peter Hirschfeld

## List of Publications by Year in descending order

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148  
papers

8,261  
citations

53939

47  
h-index

54771

88  
g-index

148  
all docs

148  
docs citations

148  
times ranked

4827  
citing authors

#	ARTICLE	IF	CITATIONS
1	The 2021 room-temperature superconductivity roadmap. Journal of Physics Condensed Matter, 2022, 34, 183002.	0.7	79
2	Machine learning of superconducting critical temperature from Eliashberg theory. Npj Computational Materials, 2022, 8, .	3.5	27
3	Iron pnictides and chalcogenides: a new paradigm for superconductivity. Nature, 2022, 601, 35-44.	13.7	98
4	Supercurrents and spontaneous time-reversal symmetry breaking by nonmagnetic disorder in unconventional superconductors. Physical Review B, 2022, 105, .	1.1	9
5	Spin-triplet superconductivity driven by finite-momentum spin fluctuations. Physical Review B, 2022, 105, .	1.1	13
6	Orbital-Selective High-Temperature Cooper Pairing Developed in the Two-Dimensional Limit. Nano Letters, 2022, , .	4.5	4
7	Theory of Spin-Excitation Anisotropy in the Nematic Phase of FeSe Obtained From RIXS Measurements. Frontiers in Physics, 2022, 10, .	1.0	3
8	Leading superconducting instabilities in three-dimensional models for $\text{Sr}_2\text{RuO}_4$ . Physical Review Research, 2022, 4, .	2.3	14
9	Multi-atom quasiparticle scattering interference for superconductor energy-gap symmetry determination. Npj Quantum Materials, 2021, 6, .	1.8	5
10	Interorbital nematicity and the origin of a single electron Fermi pocket in FeSe. Physical Review B, 2021, 103, .	1.1	9
11	Magnetic anisotropy from linear defect structures in correlated electron systems. Physical Review B, 2021, 103, .	1.1	2
12	A15 Nb3Si: a $\sim 10^4$ K superconductor synthesized at a pressure of one megabar and metastable at ambient conditions. Journal of Physics Condensed Matter, 2021, 33, 285705.	0.7	0
13	High-pressure study of the low- Z rich superconductor Be22Re. Physical Review B, 2021, 104, .	1.1	2
14	First-principles study of superconductivity in $\text{La}_2\text{CuO}_4$ and $\text{La}_2\text{CuO}_7$ gallium. Physical Review B, 2021, 104, .	1.1	4
15	Superconducting state of $\text{Sr}_2\text{RuO}_4$ in the presence of longer-range Coulomb interactions. Physical Review B, 2021, 104, .	1.1	4
16	Scattering interference signature of a pair density wave state in the cuprate pseudogap phase. Nature Communications, 2021, 12, 6087.	5.8	4
17	Correlations among STM observables in disordered unconventional superconductors. Physical Review B, 2021, 104, .	1.1	0
18	Quasi-particle interference of the van Hove singularity in Sr2RuO4. Npj Quantum Materials, 2021, 6, .	1.8	10

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19	Study of strain-induced magnetic order and splitting of Bogoliubov Fermi surfaces in spin-1/2 systems: Model Hamiltonians and experimental consequences. Physical Review B, 2020, 102, .	1.1	22
20	Bogoliubov Fermi surfaces in spin-1/2 systems: Model Hamiltonians and experimental consequences. Physical Review B, 2020, 102, .	1.1	22
21	Remarkable low-energy properties of the pseudogapped semimetal Be5Pt. Physical Review B, 2020, 102, .	1.1	1
22	On the Remarkable Superconductivity of FeSe and Its Close Cousins. Symmetry, 2020, 12, 1402.	1.1	91
23	Nematicity and superconductivity: Competition versus cooperation. Physical Review B, 2020, 102, .	1.1	12
24	Effects of momentum-dependent quasiparticle renormalization on the gap structure of iron-based superconductors. Physical Review B, 2020, 101, .	1.1	7
25	Phase-sensitive determination of nodal $d$ -wave order parameter in single-band and multiband superconductors. Physical Review B, 2020, 101, .	1.1	5
26	Atomic-scale electronic structure of the cuprate pair density wave state coexisting with superconductivity. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 14805-14811.	3.3	28
27	Nonlocal correlations in iron pnictides and chalcogenides. Physical Review B, 2020, 102, .	1.1	21
28	Topological ultranodal pair states in iron-based superconductors. Nature Communications, 2020, 11, 523.	5.8	30
29	Disorder and critical current variability in Josephson junctions. Journal of Applied Physics, 2020, 127, .	1.1	6
30	Pairing in the two-dimensional Hubbard model from weak to strong coupling. Physical Review Research, 2020, 2, .	1.3	32
31	Low energy phenomenology of the overdoped cuprates: Viability of the Landau-BCS paradigm. Physical Review Research, 2020, 2, .	1.3	24
32	Quasiparticle interference and symmetry of superconducting order parameter in strongly electron-doped iron-based superconductors. New Journal of Physics, 2019, 21, 083021.	1.2	5
33	Anisotropic spin fluctuations in detwinned FeSe. Nature Materials, 2019, 18, 709-716.	13.3	60
34	Functional form of the superconducting critical temperature from machine learning. Physical Review B, 2019, 100, .	1.1	35
35	Knight Shift and Leading Superconducting Instability from Spin Fluctuations in $Sr_2FeMoO_6$ . Physical Review Letters, 2019, 123, 247001.	2.9	69
36	Detecting sign-changing superconducting gap in LiFeAs using quasiparticle interference. Physical Review B, 2018, 97, .	1.1	10



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55	Superconducting phase diagram of itinerant antiferromagnets. Physical Review B, 2016, 93, .	1.1	14
56	Energy gap evolution across the superconductivity dome in single crystals of $(\text{Ba}_{1-x}\text{K}_x)\text{Fe}_2\text{As}_2$ . Physical Review B, 2016, 94, .	4.7	54
57	Impact of iron-site defects on superconductivity in LiFeAs. Physical Review B, 2016, 94, .	1.1	21
58	Effect of nonmagnetic impurities on $\chi(\mathbf{q}, \omega)$ in the presence of incipient bands. Physical Review B, 2016, 94, .	1.1	11
59	Role of vertex corrections in the matrix formulation of the random phase approximation for the multiorbital Hubbard model. Physical Review B, 2016, 94, .	1.1	16
60	Using gap symmetry and structure to reveal the pairing mechanism in Fe-based superconductors. Comptes Rendus Physique, 2016, 17, 197-231.	0.3	141
61	Collective modes in superconductors with competing $s$ - and $d$ -wave interactions. Physical Review B, 2015, 92, .	1.1	32
62	Robust determination of the superconducting gap sign structure via quasiparticle interference. Physical Review B, 2015, 92, .	1.1	64
63	Electron pairing in the presence of incipient bands in iron-based superconductors. Physical Review B, 2015, 92, .	1.1	79
64	Pairing symmetry of the one-band Hubbard model in the paramagnetic weak-coupling limit: A numerical RPA study. Physical Review B, 2015, 92, .	1.1	50
65	Spin excitations in a model of FeSe with orbital ordering. Physical Review B, 2015, 92, .	1.1	40
66	Iron-based superconductors, seven years later. Physics Today, 2015, 68, 46-52.	0.3	113
67	Effects of Lifshitz Transition on Charge Transport in Magnetic Phases of Fe-Based Superconductors. Physical Review Letters, 2015, 114, 097003.	2.9	22
68	Glide-Plane Symmetry and Superconducting Gap Structure of Iron-Based Superconductors. Physical Review Letters, 2015, 114, 107002.	2.9	17
69	Unified picture of the doping dependence of superconducting transition temperatures in alkali metal/ammonia intercalated FeSe. Physical Review B, 2015, 91, .	1.1	55
70	Model of Electronic Structure and Superconductivity in Orbitally Ordered FeSe. Physical Review Letters, 2015, 115, 026402.	2.9	63
71	Interpretation of Scanning Tunneling Quasiparticle Interference and Impurity States in Cuprates. Physical Review Letters, 2015, 114, 217002.	2.9	54
72	Effect of magnetic frustration on nematicity and superconductivity in iron chalcogenides. Nature Physics, 2015, 11, 953-958.	6.5	255

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73	Origin of electronic dimers in the spin-density wave phase of Fe-based superconductors. Physical Review B, 2014, 89, .	1.1	28
74	Emergent Defect States as a Source of Resistivity Anisotropy in the Nematic Phase of Iron Pnictides. Physical Review Letters, 2014, 113, 127001.	2.9	38
75	Disorder-induced topological change of the superconducting gap structure in iron pnictides. Nature Communications, 2014, 5, 5657.	5.8	86
76	Visualization of atomic-scale phenomena in superconductors: Application to FeSe. Physical Review B, 2014, 90, .	1.1	37
77	Doping effects of Se vacancies in monolayer FeSe. Physical Review B, 2014, 89, .	1.1	36
78	Spin-Orbit Coupling in Fe-Based Superconductors. Journal of Superconductivity and Novel Magnetism, 2013, 26, 2873-2874.	0.8	16
79	Superconducting gap in LiFeAs from three-dimensional spin-fluctuation pairing calculations. Physical Review B, 2013, 88, .	1.1	51
80	Modulations of the Local Pairing Interaction Near Magnetic Impurities in d-Wave Superconductors. Journal of Superconductivity and Novel Magnetism, 2013, 26, 1729-1732.	0.8	2
81	Impurity states and cooperative magnetic order in Fe-based superconductors. Physical Review B, 2013, 88, .	1.1	37
82	Low-energy bound states at interfaces between superconducting and block antiferromagnetic regions in $KxFe_2Se_2$ . Physical Review B, 2013, 88, .	1.1	3
83	Spin fluctuations and superconductivity in $KxFe_2Se_2$ . Physical Review B, 2013, 88, .	1.1	77
84	Local modulations of the spin-fluctuation-mediated pairing interaction by impurities in d-wave superconductors. Physical Review B, 2012, 86, .	1.1	34
85	Evolution of the neutron resonances in $KxFe_2Se_2$ . Physical Review B, 2012, 86, .	1.1	17
86	Evidence for nodes or deep minima in the superconducting gap of underdoped and overdoped $KxFe_2Se_2$ . Physical Review B, 2012, 86, .	1.1	16
87	Evidence for nodes or deep minima in the superconducting gap of underdoped and overdoped $KxFe_2Se_2$ . Physical Review B, 2012, 86, .		

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91	Evolution of symmetry and structure of the gap in iron-based superconductors with doping and interactions. Physical Review B, 2011, 84, .	1.1	81
92	Gap symmetry and structure of Fe-based superconductors. Reports on Progress in Physics, 2011, 74, 124508.	8.1	1,001
93	Two routes to magnetic order by disorder in underdoped cuprates. Physical Review B, 2011, 84, .	1.1	25
94	Interface-induced d-wave pairing. Physical Review B, 2011, 84, .	1.1	12
95	Inelastic neutron and x-ray scattering as probes of the sign structure of the superconducting gap in iron pnictides. Physical Review B, 2011, 83, .	1.1	13
96	Evolution of the Superconducting State of Fe-Based Compounds with Doping. Physical Review Letters, 2011, 107, 147002.	2.9	123
97	Transport properties of three-dimensional extended $d$ -wave states in Fe-based superconductors. Physical Review B, 2010, 81, .	1.1	17
98	Wave pairing from spin fluctuations in the $d$ -wave superconductors. Physical Review B, 2010, 81, .	1.1	173
99	How grain boundaries limit supercurrents in high-temperature superconductors. Nature Physics, 2010, 6, 609-614.	6.5	100
100	Specific heat versus field in the 30 K superconductor $\text{BaFe}_2\text{As}_2$ . Physical Review B, 2010, 81, .	1.1	40
101	Spin fluctuations and superconductivity in a three-dimensional tight-binding model for $\text{BaFe}_2\text{As}_2$ . Physical Review B, 2010, 81, .	1.1	190
102	Sensitivity of the superconducting state and magnetic susceptibility to key aspects of electronic structure in ferropnictides. New Journal of Physics, 2010, 12, 073030.	1.2	134
103	Effect of disorder on the electronic Raman scattering in the superconducting state of iron pnictides. Physical Review B, 2010, 82, .	1.1	6
104	Origin of gap anisotropy in spin fluctuation models of the iron pnictides. Physical Review B, 2009, 79, .	1.1	123
105	Magnetic correlations on the full chains of ortho-II $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ . Physical Review B, 2009, 79, .	1.1	6
106	Extinction of quasiparticle interference in underdoped cuprates with coexisting order. Physical Review B, 2009, 79, .	1.1	22
107	Insensitivity of $d$ -wave pairing to disorder in the high-temperature cuprate superconductors. Physical Review B, 2009, 79, .	1.1	18
108	Inversion of specific heat oscillations with in-plane magnetic field angle in two-dimensional $d$ -wave superconductors. Physical Review B, 2009, 79, .	1.1	14

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109	Probing the pairing symmetry of the iron pnictides with electronic Raman scattering. Physical Review B, 2009, 79, .	1.1	27
110	Reply to "Comment on "Thermodynamic transitions in inhomogeneous $d$ -wave superconductors". Physical Review B, 2009, 79, .	1.1	0
111	Theory of resistivity upturns in metallic cuprates. Physical Review B, 2009, 80, .	1.1	19
112	Near-degeneracy of several pairing channels in multiorbital models for the Fe pnictides. New Journal of Physics, 2009, 11, 025016.	1.2	703
113	Defects in correlated metals and superconductors. Reviews of Modern Physics, 2009, 81, 45-108.	16.4	393
114	Lifting of nodes by disorder in extended- $s$ -state superconductors: Application to ferropnictides. Physical Review B, 2009, 79, .	1.1	120
115	Theory of thermal conductivity in extended- $s$ -state superconductors: Application to ferropnictides. Physical Review B, 2009, 80, .	1.1	37
116	Evolution of the electronic excitation spectrum with strongly diminishing hole density in superconducting $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8+\text{f}$ . Nature Physics, 2008, 4, 319-326.	6.5	143
117	Proximity of antiferromagnetism and superconductivity in $\text{LaFeAsO}$ Effective Hamiltonian from $ab$ initio studies. Physical Review B, 2008, 77, .	1.1	245
118	Determining gap nodal structures in Fe-based superconductors: Theory of the angle dependence of the low-temperature specific heat in an applied magnetic field. Physical Review B, 2008, 77, .	1.1	47
119	Field-induced local moments around nonmagnetic impurities in metallic cuprates. Physical Review B, 2008, 77, .	1.1	7
120	Local quasiparticle lifetimes in $d$ -wave superconductor. Physical Review B, 2008, 77, .	1.1	13
121	Extinction of impurity resonances in large-gap regions of inhomogeneous $d$ -wave superconductors. Physical Review B, 2008, 78, .	1.1	7
122	Josephson effects in $d$ -wave superconductor junctions with magnetic interlayers. Physical Review B, 2008, 77, .by structural supermodulation in	1.1	19
123	$\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ by structural supermodulation in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$	1.1	21
124	Antiferromagnetic correlations and impurity broadening of NMR linewidths in cuprate superconductors. Physical Review B, 2007, 75, .	1.1	49
125	Disorder Effects on the Intrinsic Nonlinear Current Density in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ . IEEE Transactions on Applied Superconductivity, 2007, 17, 906-909.	1.1	4
126	Superconducting Junctions with Ferromagnetic, Antiferromagnetic or Charge-Density-Wave Interlayers. AIP Conference Proceedings, 2006, .	0.3	0



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127	Thermodynamic transitions in inhomogeneous d-wave superconductors. Physical Review B, 2006, 74, .	1.1	44
128	Bound states at the interface between antiferromagnets and superconductors. Physical Review B, 2005, 72, .	1.1	41
129	Anomaly at $T^*$ in the angle-resolved photoemission spectrum of dirty superconductors. Physical Review B, 2005, 71, .	1.1	6
130	Nodal quasiparticle lifetimes in cuprate superconductors. Physical Review B, 2005, 72, .	1.1	41
131	Power spectrum of many impurities in a d-wave superconductor. Physical Review B, 2004, 69, .	1.1	53
132	Elastic forward scattering in the cuprate superconducting state. Physical Review B, 2004, 70, .	1.1	48
133	Electronic structure of d-wave superconducting quantum wires. Physical Review B, 2004, 70, .	1.1	8
134	Quantum interference in nested d-wave superconductors: A real-space perspective. Physical Review B, 2003, 68, .	1.1	27
135	Two impurities in a d-wave superconductor: Local density of states. Physical Review B, 2003, 67, .	1.1	36
136	Vortex state of a d-wave superconductor at low temperatures. Physical Review B, 2001, 63, .	1.1	14
137	Density of states with parity effect in d-wave superconducting quantum wires. Physical Review B, 2001, 64, .	1.1	3
138	Thermodynamics of d-wave superconductors in a magnetic field. Physical Review B, 2001, 64, .	1.1	52
139	Details of Disorder Matter in 2D d-Wave Superconductors. Physical Review Letters, 2000, 85, 3926-3929.	2.9	62
140	Gap Inhomogeneities and the Density of States in Disordered d-Wave Superconductors. Physical Review Letters, 2000, 85, 3922-3925.	2.9	69
141	Quasiparticle properties of d-wave superconductors in the vortex state. , 1999, , .		0
142	Effects of Fermi Surface Anisotropy on Unconventional Superconductivity in UPT3. Journal of Low Temperature Physics, 1998, 111, 73-98.	0.6	1
143	Comment on "Temperature Dependence of the Magnetic Penetration Depth in Unconventional Superconductors at Low Temperatures: Can It Be Linear?". Physical Review Letters, 1998, 81, 4024-4024.	2.9	13
144	Ziegler, Hettler, and Hirschfeld Reply:. Physical Review Letters, 1997, 78, 3982-3982.	2.9	6

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145	Conserving slave boson approximations for the anderson model beyond NCA. European Physical Journal D, 1996, 46, 1897-1898.	0.4	0
146	Nonzero Fermi Level Density of States for a Disordered d-Wave Superconductor in Two Dimensions. Physical Review Letters, 1996, 77, 3013-3016.	2.9	40
147	Theory of Thermal Conductivity in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ . Physical Review Letters, 1996, 77, 3909-3912.	2.9	77
148	Penetration Depth Measurements of 3D XY Critical Behavior in $\text{YBa}_2\text{Cu}_3\text{O}_{6.95}$ Crystals. Physical Review Letters, 1994, 73, 1845-1848.	2.9	198