

# Peter Hirschfeld

## List of Publications by Year in descending order

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148  
papers

8,261  
citations

47006

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48315

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g-index

148  
all docs

148  
docs citations

148  
times ranked

4432  
citing authors

#	ARTICLE	IF	CITATIONS
1	Gap symmetry and structure of Fe-based superconductors. Reports on Progress in Physics, 2011, 74, 124508.	20.1	1,001
2	Near-degeneracy of several pairing channels in multiorbital models for the Fe pnictides. New Journal of Physics, 2009, 11, 025016.	2.9	703
3	Defects in correlated metals and superconductors. Reviews of Modern Physics, 2009, 81, 45-108.	45.6	393
4	Discovery of orbital-selective Cooper pairing in FeSe. Science, 2017, 357, 75-80.	12.6	283
5	Effect of magnetic frustration on nematicity and superconductivity in iron chalcogenides. Nature Physics, 2015, 11, 953-958.	16.7	255
6	Proximity of antiferromagnetism and superconductivity in $\text{LaFeAsO}_{1-x}\text{F}_x$ . Effective Hamiltonian from <i>ab initio</i> studies. Physical Review B, 2008, 77, .	3.2	245
7	Penetration Depth Measurements of 3DXY Critical Behavior in $\text{YBa}_2\text{Cu}_3\text{O}_{6.95}$ Crystals. Physical Review Letters, 1994, 73, 1845-1848.	7.8	198
8	Spin fluctuations and superconductivity in a three-dimensional tight-binding model for $\text{BaFe}_2\text{As}_2$ . Physical Review B, 2010, 81, .	3.2	190
9	$d$ -wave pairing from spin fluctuations in the $\text{K}_x\text{Fe}_2\text{As}_2$ . Physical Review B, 2011, 84, .	3.2	173
10	Evolution of the electronic excitation spectrum with strongly diminishing hole density in superconducting $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8+\delta$ . Nature Physics, 2008, 4, 319-326.	16.7	143
11	Using gap symmetry and structure to reveal the pairing mechanism in Fe-based superconductors. Comptes Rendus Physique, 2016, 17, 197-231.	0.9	141
12	Sensitivity of the superconducting state and magnetic susceptibility to key aspects of electronic structure in ferropnictides. New Journal of Physics, 2010, 12, 073030.	2.9	134
13	Disorder-induced transition between $s$ - and $d$ -state superconductors. Physical Review B, 2011, 84, .	3.2	130
14	Origin of gap anisotropy in spin fluctuation models of the iron pnictides. Physical Review B, 2009, 79, .	3.2	123
15	Evolution of the Superconducting State of Fe-Based Compounds with Doping. Physical Review Letters, 2011, 107, 147002.	7.8	123
16	Lifting of nodes by disorder in extended- $s$ -state superconductors: Application to ferropnictides. Physical Review B, 2009, 79, .	3.2	120
17	Iron-based superconductors, seven years later. Physics Today, 2015, 68, 46-52.	0.3	113
18	Orbital selective pairing and gap structures of iron-based superconductors. Physical Review B, 2017, 95, .	3.2	105

#	ARTICLE	IF	CITATIONS
19	How grain boundaries limit supercurrents in high-temperature superconductors. Nature Physics, 2010, 6, 609-614.	16.7	100
20	Iron pnictides and chalcogenides: a new paradigm for superconductivity. Nature, 2022, 601, 35-44.	27.8	98
21	On the Remarkable Superconductivity of FeSe and Its Close Cousins. Symmetry, 2020, 12, 1402.	2.2	91
22	Disorder-induced topological change of the superconducting gap structure in iron pnictides. Nature Communications, 2014, 5, 5657.	12.8	86
23	Imaging orbital-selective quasiparticles in the Hund's metal state of FeSe. Nature Materials, 2018, 17, 869-874.	27.5	86
24	Evolution of symmetry and structure of the gap in iron-based superconductors with doping and interactions. Physical Review B, 2011, 84, .	3.2	81
25	Using controlled disorder to probe the interplay between charge order and superconductivity in NbSe <sub>2</sub> . Nature Communications, 2018, 9, 2796.	12.8	81
26	Electron pairing in the presence of incipient bands in iron-based superconductors. Physical Review B, 2015, 92, .	3.2	79
27	The 2021 room-temperature superconductivity roadmap. Journal of Physics Condensed Matter, 2022, 34, 183002.	1.8	79
28	Theory of Thermal Conductivity in YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7-<math>\delta</math></sub> . Physical Review Letters, 1996, 77, 3909-3912.	7.8	77
29	Using controlled disorder to distinguish $s_{\pm}$ and $d$ gap structure in Fe-based superconductors. Physical Review Letters, 2019, 123, 247001.	3.2	77
30	Gap Inhomogeneities and the Density of States in Disordered d-Wave Superconductors. Physical Review Letters, 2000, 85, 3922-3925.	7.8	69
31	Knight Shift and Leading Superconducting Instability from Spin Fluctuations in $Sr_{2-x}Fe_xO_{7-y}$ . Physical Review Letters, 2019, 123, 247001.	7.8	69
32	Robust determination of the superconducting gap sign structure via quasiparticle interference. Physical Review B, 2015, 92, .	3.2	64
33	Model of Electronic Structure and Superconductivity in Orbitally Ordered FeSe. Physical Review Letters, 2015, 115, 026402.	7.8	63
34	Details of Disorder Matter in 2D d-Wave Superconductors. Physical Review Letters, 2000, 85, 3926-3929.	7.8	62
35	Anisotropic spin fluctuations in detwinned FeSe. Nature Materials, 2019, 18, 709-716.	27.5	60
36	Sign reversal of the order parameter in (Li <sub>1-x</sub> Fe <sub>x</sub> )OHFe <sub>1-y</sub> Zn <sub>y</sub> Se. Nature Physics, 2018, 14, 134-139.	16.7	58

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37	Unified picture of the doping dependence of superconducting transition temperatures in alkali metal/ammonia intercalated FeSe. <i>Physical Review B</i> , 2015, 91, .	3.2	55
38	Interpretation of Scanning Tunneling Quasiparticle Interference and Impurity States in Cuprates. <i>Physical Review Letters</i> , 2015, 114, 217002.	7.8	54
39	Energy gap evolution across the superconductivity dome in single crystals of $(\text{Ba}_{1-x}\text{Tl}_x)\text{FeAs}$ . <i>Physical Review B</i> , 2015, 91, 074504.	10.3	54
40	Power spectrum of many impurities in ad-wave superconductor. <i>Physical Review B</i> , 2004, 69, .	3.2	53
41	Thermodynamics of d-wave superconductors in a magnetic field. <i>Physical Review B</i> , 2001, 64, .	3.2	52
42	Superconducting gap in LiFeAs from three-dimensional spin-fluctuation pairing calculations. <i>Physical Review B</i> , 2013, 88, .	3.2	51
43	Pairing symmetry of the one-band Hubbard model in the paramagnetic weak-coupling limit: A numerical RPA study. <i>Physical Review B</i> , 2015, 92, .	3.2	50
44	Enhancement of superconducting transition temperature by pointlike disorder and anisotropic energy gap in FeSe single crystals. <i>Physical Review B</i> , 2016, 94, .	3.2	50
45	Antiferromagnetic correlations and impurity broadening of NMR linewidths in cuprate superconductors. <i>Physical Review B</i> , 2007, 75, .	3.2	49
46	High- $T_c$ Spin Fluctuations from Incipient Bands: Application to Monolayers and Intercalates of FeSe. <i>Physical Review Letters</i> , 2016, 117, 077003.	7.8	49
47	Elastic forward scattering in the cuprate superconducting state. <i>Physical Review B</i> , 2004, 70, .	3.2	48
48	Determining gap nodal structures in Fe-based superconductors: Theory of the angle dependence of the low-temperature specific heat in an applied magnetic field. <i>Physical Review B</i> , 2008, 77, .	3.2	47
49	Thermodynamic transitions in inhomogeneous d-wave superconductors. <i>Physical Review B</i> , 2006, 74, .	3.2	44
50	Bound states at the interface between antiferromagnets and superconductors. <i>Physical Review B</i> , 2005, 72, .	3.2	41
51	Nodal quasiparticle lifetimes in cuprate superconductors. <i>Physical Review B</i> , 2005, 72, .	3.2	41
52	Nonzero Fermi Level Density of States for a Disordered d-Wave Superconductor in Two Dimensions. <i>Physical Review Letters</i> , 1996, 77, 3013-3016.	7.8	40
53	Specific heat versus field in the 30 K superconductor $\text{BaFe}_2\text{As}_2$ . <i>Physical Review B</i> , 2010, 81, .	3.2	40
54	Spin excitations in a model of FeSe with orbital ordering. <i>Physical Review B</i> , 2015, 92, .	3.2	40

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55	Emergent Defect States as a Source of Resistivity Anisotropy in the Nematic Phase of Iron Pnictides. Physical Review Letters, 2014, 113, 127001.	7.8	38
56	Optical conductivity of overdoped cuprate superconductors: Application to $\text{La}_{1-x}\text{Sr}_x\text{CuO}_2$ . Physical Review B, 2018, 98, .	3.2	38
57	Theory of thermal conductivity in extended- $s$ state superconductors: Application to ferropnictides. Physical Review B, 2009, 80, .	3.2	37
58	Impurity states and cooperative magnetic order in Fe-based superconductors. Physical Review B, 2013, 88, .	3.2	37
59	Visualization of atomic-scale phenomena in superconductors: Application to FeSe. Physical Review B, 2014, 90, .	3.2	37
60	Two impurities in $d$ -wave superconductor: Local density of states. Physical Review B, 2003, 67, .	3.2	36
61	Doping effects of Se vacancies in monolayer FeSe. Physical Review B, 2014, 89, .	3.2	36
62	Functional form of the superconducting critical temperature from machine learning. Physical Review B, 2019, 100, .	3.2	35
63	Impurities and superconductivity in $\text{KFe}_2\text{Se}_2$ . Physical Review B, 2019, 100, .	3.2	34
64	Superconducting state of $\text{Sr}_2\text{RuO}_4$ in the presence of longer-range Coulomb interactions. Physical Review B, 2021, 104, .	3.2	34
65	Collective modes in superconductors with competing- and $d$ -wave interactions. Physical Review B, 2015, 92, .	3.2	32
66	Pairing in the two-dimensional Hubbard model from weak to strong coupling. Physical Review Research, 2020, 2, .	3.6	32
67	Topological ultranodal pair states in iron-based superconductors. Nature Communications, 2020, 11, 523.	12.8	30
68	Origin of electronic dimers in the spin-density wave phase of Fe-based superconductors. Physical Review B, 2014, 89, .	3.2	28
69	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.	7.1	28
70	Quantum interference in nested- $d$ -wave superconductors: A real-space perspective. Physical Review B, 2003, 68, .	3.2	27
71	Probing the pairing symmetry of the iron pnictides with electronic Raman scattering. Physical Review B, 2009, 79, .	3.2	27
72	Machine learning of superconducting critical temperature from Eliashberg theory. Npj Computational Materials, 2022, 8, .	8.7	27

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73	Two routes to magnetic order by disorder in underdoped cuprates. Physical Review B, 2011, 84, .	3.2	25
74	Theory of quasiparticle vortex bound states in iron-based superconductors: Application to scanning tunneling spectroscopy of LiFeAs. Physical Review B, 2012, 85, .	3.2	25
75	Low energy phenomenology of the overdoped cuprates: Viability of the Landau-BCS paradigm. Physical Review Research, 2020, 2, .	3.6	24
76	Probing the Pairing Interaction and Multiple Bardasis-Schrieffer Modes Using Raman Spectroscopy. Physical Review Letters, 2016, 117, 257001.	7.8	23
77	Itinerant approach to magnetic neutron scattering of FeSe: Effect of orbital selectivity. Physical Review B, 2018, 98, .	3.2	23
78	Extinction of quasiparticle interference in underdoped cuprates with coexisting order. Physical Review B, 2009, 79, .	3.2	22
79	Effects of Lifshitz Transition on Charge Transport in Magnetic Phases of Fe-Based Superconductors. Physical Review Letters, 2015, 114, 097003.	7.8	22
80	Theory of strain-induced magnetic order and splitting of $T$ and $TRSB$ in $Bi_{2-x}Sr_x$	3.2	22
81	$Bi_{2-x}Sr_x$ in $Ca_{2-x}Fe_x$	3.2	21
82	Impact of iron-site defects on superconductivity in LiFeAs. Physical Review B, 2016, 94, .	3.2	21
83	Nonlocal correlations in iron pnictides and chalcogenides. Physical Review B, 2020, 102, .	3.2	21
84	Conservation laws, vertex corrections, and screening in Raman spectroscopy. Physical Review B, 2017, 96, .	3.2	20
85	Josephson effects in $d$ -wave superconductor junctions with magnetic interlayers. Physical Review B, 2008, 77, .	3.2	19
86	Theory of resistivity upturns in metallic cuprates. Physical Review B, 2009, 80, .	3.2	19
87	Spin excitations in layered antiferromagnetic metals and superconductors. Physical Review B, 2012, 86, .	3.2	19
88	Insensitivity of $d$ -wave pairing to disorder in the high-temperature cuprate superconductors. Physical Review B, 2009, 79, .	3.2	18
89	Transport properties of three-dimensional extended $s$ -wave states in Fe-based superconductors. Physical Review B, 2011, 84, .	3.2	17
90	Local modulations of the spin-fluctuation-mediated pairing interaction by impurities in $d$ -wave superconductors. Physical Review B, 2012, 86, .	3.2	17

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91	Glide-Plane Symmetry and Superconducting Gap Structure of Iron-Based Superconductors. Physical Review Letters, 2015, 114, 107002.	7.8	17
92	Microscopic origin of Cooper pairing in the iron-based superconductor Ba <sub>1-x</sub> K <sub>x</sub> Fe <sub>2</sub> As <sub>2</sub> . Npj Quantum Materials, 2018, 3, . <a href="#">Iron resonances in</a>	5.2	17
93	<a href="#">Iron resonances in</a> $\text{Fe}_{1-x}\text{Co}_x\text{As}_2$ <a href="#">Specific heat of</a>	3.2	16
94	Evidence for nodes or deep minima in the superconducting gap of underdoped and overdoped		

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109	Universality of scanning tunneling microscopy in cuprate superconductors. Physical Review B, 2017, 96, .	3.2	13
110	Spin-triplet superconductivity driven by finite-momentum spin fluctuations. Physical Review B, 2022, 105, .	3.2	13
111	Interface-induced d-wave pairing. Physical Review B, 2011, 84, .	3.2	12
112	Nematicity and superconductivity: Competition versus cooperation. Physical Review B, 2020, 102, .	3.2	12
113	Effect of disorder on the competition between nematic and superconducting order in FeSe. New Journal of Physics, 2016, 18, 103001.	2.9	10
114	Superconducting Phase Diagram of the Paramagnetic One-Band Hubbard Model. Journal of Superconductivity and Novel Magnetism, 2017, 30, 85-89.	1.8	10
115	Detecting sign-changing superconducting gap in LiFeAs using quasiparticle interference. Physical Review B, 2018, 97, .	3.2	10
116	Quasi-particle interference of the van Hove singularity in Sr <sub>2</sub> RuO <sub>4</sub> . Npj Quantum Materials, 2021, 6, .	5.2	10
117	Interorbital nematicity and the origin of a single electron Fermi pocket in FeSe. Physical Review B, 2021, 103, .	3.2	9
118	Supercurrents and spontaneous time-reversal symmetry breaking by nonmagnetic disorder in unconventional superconductors. Physical Review B, 2022, 105, .	3.2	9
119	Electronic structure of d-wave superconducting quantum wires. Physical Review B, 2004, 70, .	3.2	8
120	Field-induced local moments around nonmagnetic impurities in metallic cuprates. Physical Review B, 2008, 77, .	3.2	7
121	Extinction of impurity resonances in large-gap regions of inhomogeneous $d$ -wave superconductors. Physical Review B, 2008, 78, .	3.2	7
122	Effects of momentum-dependent quasiparticle renormalization on the gap structure of iron-based superconductors. Physical Review B, 2020, 101, .	3.2	7
123	Ziegler, Hettler, and Hirschfeld Reply:. Physical Review Letters, 1997, 78, 3982-3982.	7.8	6
124	Anomaly at $T^*$ in the angle-resolved photoemission spectrum of dirty superconductors. Physical Review B, 2005, 71, .	3.2	6
125	Magnetic correlations on the full chains of ortho-II $YBa_2Cu_3O_{6-x}$ . Physical Review B, 2009, 79, .	3.2	6
126	Effect of disorder on the electronic Raman scattering in the superconducting state of iron pnictides. Physical Review B, 2010, 82, .	3.2	6



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127	Disorder and critical current variability in Josephson junctions. Journal of Applied Physics, 2020, 127, .	2.5	6
128	Quasiparticle interference and symmetry of superconducting order parameter in strongly electron-doped iron-based superconductors. New Journal of Physics, 2019, 21, 083021.	2.9	5
129	Phase-sensitive determination of nodal $d$ -wave order parameter in single-band and multiband superconductors. Physical Review B, 2020, 101, .	3.2	5
130	Multi-atom quasiparticle scattering interference for superconductor energy-gap symmetry determination. Npj Quantum Materials, 2021, 6, .	5.2	5
131	Disorder Effects on the Intrinsic Nonlinear Current Density in $YBa_2Cu_3O_{7-\delta}$ . IEEE Transactions on Applied Superconductivity, 2007, 17, 906-909.	1.7	4
132	First-principles study of superconductivity in $d$ and $i^2$ gallium. Physical Review B, 2021, 104, .	3.2	4
133	Scattering interference signature of a pair density wave state in the cuprate pseudogap phase. Nature Communications, 2021, 12, 6087.	12.8	4
134	Orbital-Selective High-Temperature Cooper Pairing Developed in the Two-Dimensional Limit. Nano Letters, 2022, , .	9.1	4
135	Density of states width-parity effect in $d$ -wave superconducting quantum wires. Physical Review B, 2001, 64, .	3.2	3
136	Low-energy bound states at interfaces between superconducting and block antiferromagnetic regions in $KxFe_2Se_2$ . Physical Review B, 2013, 88, .	3.2	3
137	Theory of Spin-Excitation Anisotropy in the Nematic Phase of FeSe Obtained From RIXS Measurements. Frontiers in Physics, 2022, 10, .	2.1	3
138	Modulations of the Local Pairing Interaction Near Magnetic Impurities in $d$ -Wave Superconductors. Journal of Superconductivity and Novel Magnetism, 2013, 26, 1729-1732.	1.8	2
139	Magnetic anisotropy from linear defect structures in correlated electron systems. Physical Review B, 2021, 103, .	3.2	2
140	High-pressure study of the low- $Z$ rich superconductor $Be_{22}Re$ . Physical Review B, 2021, 104, .	3.2	2
141	Effects of Fermi Surface Anisotropy on Unconventional Superconductivity in UPt3. Journal of Low Temperature Physics, 1998, 111, 73-98.	1.4	1
142	Remarkable low-energy properties of the pseudogapped semimetal $Be_5Pt$ . Physical Review B, 2020, 102, .	3.2	1
143	Conserving slave boson approximations for the anderson model beyond NCA. European Physical Journal D, 1996, 46, 1897-1898.	0.4	0
144	Quasiparticle properties of $d$ -wave superconductors in the vortex state. , 1999, , .		0

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145	Superconducting Junctions with Ferromagnetic, Antiferromagnetic or Charge-Density-Wave Interlayers. AIP Conference Proceedings, 2006, , .	0.4	0
146	Reply to "Comment on "Thermodynamic transitions in inhomogeneous $d$ -wave superconductors". Physical Review B, 2009, 79, .	3.2	0
147	A15 Nb3Si: a high $T_c$ superconductor synthesized at a pressure of one megabar and metastable at ambient conditions. Journal of Physics Condensed Matter, 2021, 33, 285705.	1.8	0
148	Correlations among STM observables in disordered unconventional superconductors. Physical Review B, 2021, 104, .	3.2	0