

Rafael Fernandes

List of Publications by Year in descending order

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162
papers

8,826
citations

41344

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46799

89
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164
all docs

164
docs citations

164
times ranked

5013
citing authors

#	ARTICLE	IF	CITATIONS
1	What drives nematic order in iron-based superconductors?. Nature Physics, 2014, 10, 97-104.	16.7	916
2	Anomalous Suppression of the Orthorhombic Lattice Distortion in Superconducting BaFe_2As_2 . Physical Review Letters, 2010, 104, 057006.	16.7	382
3	Preemptive nematic order, pseudogap, and orbital order in the iron pnictides. Physical Review B, 2012, 85, .	3.2	330
4	Effects of Nematic Fluctuations on the Elastic Properties of Iron Arsenide Superconductors. Physical Review Letters, 2010, 105, 157003.	7.8	318
5	Effect of magnetic frustration on nematicity and superconductivity in iron chalcogenides. Nature Physics, 2015, 11, 953-958.	16.7	255
6	Evidence for a Lifshitz transition in electron-doped iron arsenic superconductors at the onset of superconductivity. Nature Physics, 2010, 6, 419-423.	16.7	237
7	Nematicity and competing orders in superconducting magic-angle graphene. Science, 2021, 372, 264-271.	12.6	223
8	Competing order and nature of the pairing state in the iron pnictides. Physical Review B, 2010, 82, .	3.2	198
9	Unconventional pairing in the iron arsenide superconductors. Physical Review B, 2010, 81, .	3.2	191
10	Observation of Incipient Charge Nematicity in BaFe_2As_2 . Physical Review Letters, 2010, 105, 157003.	16.7	166
11	Visualization of electron nematicity and unidirectional antiferroic fluctuations at high temperatures in NaFeAs. Nature Physics, 2014, 10, 225-232.	16.7	158
12	Manifestations of nematic degrees of freedom in the magnetic, elastic, and superconducting properties of the iron pnictides. Superconductor Science and Technology, 2012, 25, 084005.	3.5	146
13	Visualizing the charge density wave transition in HfNb_2Se_5 . Physical Review B, 2014, 89, 080501.	3.2	136
14	Character of the structural and magnetic phase transitions in the parent and electron-doped BaFe_2As_2 . Physical Review B, 2014, 89, 080501.	3.2	132
15	Correlations and electronic order in a two-orbital honeycomb lattice model for twisted bilayer graphene. Physical Review B, 2018, 98, .	3.2	132
16	Intertwined Vestigial Order in Quantum Materials: Nematicity and Beyond. Annual Review of Condensed Matter Physics, 2019, 10, 133-154.	14.5	126
17	Anisotropic In-Plane Resistivity in the Nematic Phase of the Iron Pnictides. Physical Review Letters, 2011, 107, 217002.	7.8	119
18	Importance of the Fermi-surface topology to the superconducting state of the electron-doped pnictide $\text{Ba}(\text{Fe},\text{Ni})_2\text{As}_2$. Physical Review Letters, 2010, 105, 157003.	3.2	115

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19	Low-energy microscopic models for iron-based superconductors: a review. Reports on Progress in Physics, 2017, 80, 014503.	20.1	114
20	Magnetism, Superconductivity, and Spontaneous Orbital Order in Iron-Based Superconductors: Which Comes First and Why?. Physical Review X, 2016, 6, .	8.9	113
21	Nematicity as a Probe of Superconducting Pairing in Iron-Based Superconductors. Physical Review Letters, 2013, 111, 127001.	7.8	108
22	Origin of nematic order in FeSe. Physical Review B, 2015, 91, .	3.2	106
23	Double-Q spin-density wave in iron arsenide superconductors. Nature Physics, 2016, 12, 493-498.	16.7	101
24	Sign-reversal of the in-plane resistivity anisotropy in hole-doped iron pnictides. Nature Communications, 2013, 4, 1914.	12.8	100
25	Iron pnictides and chalcogenides: a new paradigm for superconductivity. Nature, 2022, 601, 35-44.	27.8	98
26	Origin of the Resistivity Anisotropy in the Nematic Phase of FeSe. Physical Review Letters, 2016, 117, 127001.	7.8	93
27	Superconductivity in dilute SrTiO ₃ : A review. Annals of Physics, 2020, 417, 168107.	2.8	89
28	Theory of the charge density wave in Kagome metals. Physical Review B, 2021, 104, .	3.2	86
29	Hedgehog spin-vortex crystal stabilized in a hole-doped iron-based superconductor. Npj Quantum Materials, 2018, 3, .	5.2	85
30	Paramagnetic spin correlations in CaFeAs ₂ crystals. Physical Review B, 2010, 81, .	2.2	84
31	Doping evolution of the absolute value of the London penetration depth and superfluid density in single crystals of FeAs ₂		

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37	Nematicity with a twist: Rotational symmetry breaking in a moiré superlattice. Science Advances, 2020, 6, eaba8834.	10.3	65
38	Two-fold symmetric superconductivity in few-layer NbSe2. Nature Physics, 2021, 17, 949-954.	16.7	65
39	Ultrafast observation of critical nematic fluctuations and giant magnetoelastic coupling in iron pnictides. Nature Communications, 2014, 5, 3229.	12.8	64
40	Correlation-Induced Insulating Topological Phases at Charge Neutrality in Twisted Bilayer Graphene. Physical Review X, 2021, 11, .	8.9	64
41	Orbital coupling and superconductivity in the iron pnictides. Physical Review B, 2009, 79, .	3.2	63
42	What Controls the Phase Diagram and Superconductivity in Ru-Substituted BaFe2As2?. Physical Review Letters, 2011, 107, 267002.	7.8	62
43	Two-band superconductivity in doped SrTiO3 films and interfaces. Physical Review B, 2013, 87, .	3.2	55
44	Distinguishing spin-orbit coupling and nematic order in the electronic spectrum of iron-based superconductors. Physical Review B, 2014, 90, .	3.2	55
45	Anisotropic and quasipropagating spin excitations in superconducting BaFe2As2. Physical Review B, 2010, 82, .	3.2	54
46	Superconductivity in FeSe Thin Films Driven by the Interplay between Nematic Fluctuations and Spin-Orbit Coupling. Physical Review Letters, 2016, 117, 217003.	7.8	54
47	Suppression of Superconductivity by Néel-Type Magnetic Fluctuations in the Iron Pnictides. Physical Review Letters, 2013, 110, 117004.	7.8	52
48	Effect of tensile stress on the in-plane resistivity anisotropy in BaFe2As2. Physical Review B, 2012, 85, .	3.2	51
49	Revealing the competition between charge density wave and superconductivity in CsV3Sb5 through uniaxial strain. Physical Review B, 2021, 104, .	3.2	51
50	Moiré nematic phase in twisted double bilayer graphene. Nature Physics, 2022, 18, 196-202.	16.7	51
51	Spin reorientation driven by the interplay between spin-orbit coupling and Hund's rule coupling in iron pnictides. Physical Review B, 2015, 92, .	3.2	49
52	Vestigial chiral and charge orders from bidirectional spin-density waves: Application to the iron-based superconductors. Physical Review B, 2016, 93, .	3.2	49
53	Three-state nematicity in the triangular lattice antiferromagnet Fe1/3NbS2. Nature Materials, 2020, 19, 1062-1067.	27.5	47
54	Sixfold enhancement of superconductivity in a tunable electronic nematic system. Nature Physics, 2020, 16, 346-350.	16.7	45

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55	Superconductivity in FeSe: The Role of Nematic Order. Physical Review Letters, 2018, 120, 267001.	7.8	43
56	Uniaxial strain control of spin-polarization in multicomponent nematic order of BaFe ₂ As ₂ . Nature Communications, 2018, 9, 1058.	12.8	41
57	Enhanced superconductivity and ferroelectric quantum criticality in plastically deformed strontium titanate. Nature Materials, 2022, 21, 54-61.	27.5	41
58	Universality of Liquid-Gas Mott Transitions at Finite Temperatures. Physical Review Letters, 2008, 100, 026408.	7.8	40
59	Phonon dynamics in the Kitaev spin liquid. Physical Review Research, 2020, 2, .	3.6	39
60	Transfer of optical spectral weight in magnetically ordered superconductors. Physical Review B, 2010, 82, .	3.2	38
61	Unconventional Multiband Superconductivity in Bulk $SrTiO_3$ and $LaAlO_3$. Physical Review Letters, 2018, 121, 127002.	7.8	38
62	Gap nodes induced by coexistence with antiferromagnetism in iron-based superconductors. Physical Review B, 2012, 85, .	3.2	37
63	How Many Quantum Phase Transitions Exist Inside the Superconducting Dome of the Iron Pnictides?. Physical Review Letters, 2013, 111, 057001.	7.8	37
64	Interplay between tetragonal magnetic order, stripe magnetism, and superconductivity in iron-based materials. Physical Review B, 2015, 91, .	3.2	36
65	Magnetic order without tetragonal-symmetry-breaking in iron arsenides: Microscopic mechanism and spin-wave spectrum. Physical Review B, 2015, 91, .	3.2	36
66	Direct evidence for a pressure-induced nodal superconducting gap in the Ba _{0.65} Rb _{0.35} Fe ₂ As ₂ superconductor. Nature Communications, 2015, 6, 8863.	12.8	36
67	Inhomogeneous time-reversal symmetry breaking in $SrTiO_3$. Physical Review B, 2021, 104, .	3.2	36
68	Superconductivity mediated by quantum critical antiferromagnetic fluctuations: The rise and fall of hot spots. Physical Review B, 2017, 95, .	3.2	35
69	Crystalline nodal topological superconductivity and Bogolyubov Fermi surfaces in monolayer $NbSe_2$. Physical Review B, 2020, 101, .	3.2	35
70	Voltage-induced ferromagnetism in a diamagnet. Science Advances, 2020, 6, eabb7721.	10.3	34
71	Topological and nematic superconductivity mediated by ferro-SU(4) fluctuations in twisted bilayer graphene. Physical Review B, 2021, 103, .	3.2	34
72	Disorder-promoted C_4 magnetic order in iron-based superconductors. Physical Review B, 2016, 93, .	3.2	33

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73	NMR Evidence for Inhomogeneous Nematic Fluctuations in BaFe_2As_2		



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91	Electric-field-tunable electronic nematic order in twisted double-bilayer graphene. 2D Materials, 2021, 8, 034005.	4.4	23
92	Giant electrostatic modification of magnetism via electrolyte-gate-induced cluster percolation in L_a a 1 \hat{a}' x S Co Ca	2.4	23
93	prictide superconductors: A study of Co Ca 0.74 $($ 1		



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109	Scaling of nascent nodes in extended- s -wave superconductors. Physical Review B, 2011, 84, .	3.2	14
110	Possible unconventional superconductivity in substituted BaFe ₂ As ₂ revealed by magnetic pair-breaking studies. Scientific Reports, 2014, 4, 6252.	3.3	14
111	NMR study of nematic spin fluctuations in a detwinned single crystal of underdoped BaFe ₂ As ₂ . Physical Review B, 2016, 94, .	3.2	14
112	Competing magnetic orders in the superconducting state of heavy-fermion CeRhIn ₅ . Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 5384-5388.	7.1	14
113	Orbital transmutation and the electronic spectrum of FeSe in the nematic phase. Physical Review Research, 2020, 2, .	3.6	14
114	Local nematic susceptibility in stressed BaFe ₂ As ₂ from NMR electric field gradient measurements. Physical Review B, 2017, 96, .	3.2	13
115	Induced spin-triplet pairing in the coexistence state of antiferromagnetism and singlet superconductivity: Collective modes and microscopic properties. Physical Review B, 2017, 96, .	3.2	13
116	Magnetic phase diagram of the iron pnictides in the presence of spin-orbit coupling: Frustration between C ₂ and C ₄ magnetic phases. Physical Review B, 2018, 98, .	3.2	13
117	Magnetic tricritical point and nematicity in FeSe under pressure. Physical Review B, 2018, 97, .	3.2	13
118	Intertwined spin-orbital coupled orders in the iron-based superconductors. Physical Review B, 2019, 100, .	3.2	13
119	Enhanced nematic fluctuations near an antiferromagnetic Mott insulator and possible application to high-T _c cuprates. Npj Quantum Materials, 2019, 4, .	5.2	13
120	Nature of protected zero-energy states in Penrose quasicrystals. Physical Review B, 2020, 102, .	3.2	13
121	Quantum phase transition inside the superconducting dome of Ba(Fe _{1-x} Co _x) ₂ As ₂ from diamond-based optical magnetometry. New Journal of Physics, 2020, 22, 053037.	2.9	13
122	Origin of DC and AC conductivity anisotropy in iron-based superconductors: Scattering rate versus spectral weight effects. Physical Review B, 2016, 94, .	3.2	12
123	Controlling competing orders via nonequilibrium acoustic phonons: Emergence of anisotropic effective electronic temperature. Physical Review B, 2018, 97, .	3.2	12
124	Soft phonons reveal the nematic correlation length in BaFe ₂ As ₂ . Physical Review B, 2018, 98, .	3.2	12
125	Nematicity and superconductivity: Competition versus cooperation. Physical Review B, 2020, 102, .	3.2	12
126	Antiferromagnetism in Iron-Based Superconductors: Selection of Magnetic Order and Quasiparticle Interference. Journal of the Physical Society of Japan, 2014, 83, 061015.	1.6	11

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127	Impact of damping on the superconducting gap dynamics induced by intense terahertz pulses. Physical Review B, 2019, 100, .	3.2	11
128	Thermodynamic signatures of an antiferromagnetic quantum critical point inside a superconducting dome. Physical Review B, 2020, 102, .	3.2	11
129	Nematic Correlation Length in Iron-Based Superconductors Probed by Inelastic X-Ray Scattering. Physical Review Letters, 2020, 124, 157001.	7.8	11
130	Antagonistic In-Plane Resistivity Anisotropies from Competing Fluctuations in Underdoped Cuprates. Physical Review Letters, 2015, 115, 027005.	7.8	10
131	Impact of disorder on the superconducting transition temperature near a Lifshitz transition. Physical Review B, 2018, 98, .	3.2	10
132	Complex Critical Exponents for Percolation Transitions in Josephson-Junction Arrays, Antiferromagnets, and Interacting Bosons. Physical Review Letters, 2011, 106, 067004.	7.8	9
133	Fracton-elasticity duality in twisted moiré superlattices. Physical Review B, 2021, 104, .	3.2	9
134	Robustness of quantum critical pairing against disorder. Physical Review B, 2016, 93, .	3.2	8
135	Disentangling superconducting and magnetic orders in NaFeAsO using muon spin rotation. Physical Review B, 2018, 97, .		
136	Scanning tunnelling spectroscopy as a probe of multi-Q magnetic states of itinerant magnets. Nature Communications, 2017, 8, 14317.	12.8	7
137	Orbital loop currents in iron-based superconductors. Physical Review B, 2018, 97, .	3.2	7
138	Modeling Unconventional Superconductivity at the Crossover between Strong and Weak Electronic Interactions. Physical Review Letters, 2020, 125, 247001.	7.8	7
139	Contrasting ferromagnetism in pyrite FeS_2 induced by chemical doping versus electrostatic gating. Physical Review Materials, 2020, 4, .		
140	Field-tuned ferroquadrupolar quantum phase transition in the insulator TmVO_4 . Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	7.1	7
141	Conductivity of electronic liquid-crystalline mesophases. Physical Review B, 2008, 78, .	3.2	6
142	Smeared nematic quantum phase transitions due to rare-region effects in inhomogeneous systems. Physical Review B, 2018, 98, .	3.2	6
143	Strain-tunable metamagnetic critical endpoint in Mott insulating rare-earth titanates. Physical Review B, 2022, 105, .	3.2	6
144	Raman Scattering as a Probe of Charge Nematic Fluctuations in Iron Based Superconductors. , 2014, , .		5

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145	Robust gapless superconductivity in $\text{HfTe}_{1-x}\text{Sb}_x$. Physical Review B, 2021, 103, .	8.2	5
146	Prediction of double-Weyl points in the iron-based superconductor $\text{CaK}_4\text{Fe}_4\text{As}_4$. Physical Review B, 2021, 104, .	3.2	5
147	Laser-induced control of an electronic nematic quantum phase transition. Physical Review Research, 2020, 2, .	3.6	5
148	Uniaxial Strain Control of Bulk Ferromagnetism in Rare-Earth Titanates. Physical Review Letters, 2022, 128, 167201.	7.8	5
149	Phonon-induced rotation of the electronic nematic director in superconducting Bi_2Te_3 . Physical Review B, 2022, 105, .	3.2	5
150	Anomalous transport in high-mobility superconducting SrTiO_3 thin films. Science Advances, 2022, 8, .	10.3	5
151	Multiple magnetic orders in $\text{LaFeAs}_{1-x}\text{P}_x\text{O}$ uncover universality of iron-pnictide superconductors. Communications Physics, 2022, 5, .	5.3	5
152	Pressure effects on magnetic pair-breaking in Mn- and Eu-substituted BaFe_2As_2 . Journal of Applied Physics, 2014, 115, 17D702.	2.5	4
153	Superconductivity at an antiferromagnetic quantum critical point: Role of energy fluctuations. Physical Review B, 2018, 98, .	3.2	4
154	Nonlinear uniaxial pressure dependence of T_c in iron-based superconductors. Physical Review Research, 2019, 1, .	3.2	4
155	Fluctuation induced first-order phase transitions in a dipolar Ising ferromagnetic slab. Physical Review B, 2006, 74, .	3.2	3
156	Phenomenological theory of the superconducting state inside the hidden-order phase of URu_2Si_2 . Physical Review B, 2015, 92, .	3.2	3
157	Percolation via Combined Electrostatic and Chemical Doping in Complex Oxide Films. Physical Review Letters, 2017, 118, 106801.	7.8	3
158	Understanding magnetic phase coexistence in Heusler alloys: A neutron scattering, thermodynamic, and phenomenological analysis. Physical Review Materials, 2021, 5, .	2.4	3
159	Consistency of multi-band interacting models: Mapping onto the transverse field Ising model. Annals of Physics, 2021, 435, 168522.	2.8	2
160	Phenomenological model of the third-harmonic magnetic response due to superconducting fluctuations: Application to Sr_2RuO_4 . Physical Review B, 2021, 104, .	3.2	1
161	Motion of a particle with isospin in the presence of a monopole. Physics Letters, Section A: General, Atomic and Solid State Physics, 2005, 341, 22-32.	2.1	0
162	Nematic Order and Fluctuations in Iron-Based Superconductors. Springer Series in Solid-state Sciences, 2017, , 53-114.	0.3	0