Stefan Heinze

List of Publications by Year in descending order

124 papers	10,010 citations	61945 43 h-index	33869 99 g-index
126 all docs	126 docs citations	126 times ranked	7620 citing authors

#	Article	IF	Citations
1	Spontaneous atomic-scale magnetic skyrmion lattice in two dimensions. Nature Physics, 2011, 7, 713-718.	6.5	1,521
2	Carbon Nanotubes as Schottky Barrier Transistors. Physical Review Letters, 2002, 89, 106801.	2.9	1,111
3	Electrically Induced Optical Emission from a Carbon Nanotube FET. Science, 2003, 300, 783-786.	6.0	874
4	Chiral magnetic order at surfaces driven by inversion asymmetry. Nature, 2007, 447, 190-193.	13.7	823
5	Real-Space Imaging of Two-Dimensional Antiferromagnetism on the Atomic Scale. Science, 2000, 288, 1805-1808.	6.0	334
6	Electrically Tunable Quantum Anomalous Hall Effect in Graphene Decorated by<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mn>5</mml:mn><mml:mi>d</mml:mi></mml:math>Transition-Metal Adatoms. Physical Review Letters, 2012, 108, 056802.	2.9	286
7	Atomic-Scale Spin Spiral with a Unique Rotational Sense: Mn Monolayer on W(001). Physical Review Letters, 2008, 101, 027201.	2.9	238
8	Tailoring magnetic skyrmions in ultra-thin transition metal films. Nature Communications, 2014, 5, 4030.	5.8	227
9	Resolving Complex Atomic-Scale Spin Structures by Spin-Polarized Scanning Tunneling Microscopy. Physical Review Letters, 2001, 86, 4132-4135.	2.9	204
10	Drain voltage scaling in carbon nanotube transistors. Applied Physics Letters, 2003, 83, 2435-2437.	1.5	188
11	Electrical detection of magnetic skyrmions by tunnelling non-collinear magnetoresistance. Nature Nanotechnology, 2015, 10, 1039-1042.	15.6	179
12	Information Transfer by Vector Spin Chirality in Finite Magnetic Chains. Physical Review Letters, 2012, 108, 197204.	2.9	151
13	Maximally localized Wannier functions within the FLAPW formalism. Physical Review B, 2008, 78, .	1.1	135
14	Atomic spin structure of antiferromagnetic domain walls. Nature Materials, 2006, 5, 477-481.	13.3	134
15	Revealing Antiferromagnetic Order of the Fe Monolayer on W(001): Spin-Polarized Scanning Tunneling Microscopy and First-Principles Calculations. Physical Review Letters, 2005, 94, 087204.	2.9	133
16	Imaging and manipulating the spin direction of individual atoms. Nature Nanotechnology, 2010, 5, 350-353.	15.6	126
17	Spin-Resolved Electronic Structure of Nanoscale Cobalt Islands on Cu(111). Physical Review Letters, 2006, 96, 237203.	2.9	124
18	Unexpected scaling of the performance of carbon nanotube Schottky-barrier transistors. Physical Review B, 2003, 68, .	1.1	122

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19	Magnetization-Direction-Dependent Local Electronic Structure Probed by Scanning Tunneling Spectroscopy. Physical Review Letters, 2002, 89, 237205.	2.9	116
20	Engineering skyrmions in transition-metal multilayers for spintronics. Nature Communications, 2016, 7, 11779.	5.8	109
21	Observation of a Complex Nanoscale Magnetic Structure in a Hexagonal Fe Monolayer. Physical Review Letters, 2006, 96, 167203.	2.9	100
22	Giant Magnetocrystalline Anisotropies of4dTransition-Metal Monowires. Physical Review Letters, 2006, 96, 147201.	2.9	99
23	Prediction of bias-voltage-dependent corrugation reversal for STM images of bcc (110) surfaces: W(110), Ta(110), and Fe(110). Physical Review B, 1998, 58, 16432-16445.	1.1	96
24	Electrostatic engineering of nanotube transistors for improved performance. Applied Physics Letters, 2003, 83, 5038-5040.	1.5	90
25	Isolated zero field sub-10â€‰nm skyrmions in ultrathin Co films. Nature Communications, 2019, 10, 3823.	5.8	84
26	Simulation of spin-polarized scanning tunneling microscopy images of nanoscale non-collinear magnetic structures. Applied Physics A: Materials Science and Processing, 2006, 85, 407-414.	1.1	82
27	Enhanced skyrmion stability due to exchange frustration. Scientific Reports, 2017, 7, 12299.	1.6	81
28	Trochoidal motion and pair generation in skyrmion and antiskyrmion dynamics under spinâ€“orbit torques. Nature Electronics, 2018, 1, 451-457.	13.1	66
29	Conical Spin-Spiral State in an Ultrathin Film Driven by Higher-Order Spin Interactions. Physical Review Letters, 2012, 108, 087205.	2.9	64
30	Magnetic order and exchange interactions in monoatomic3dtransition-metal chains. Physical Review B, 2007, 75, .	1.1	61
31	On the preparation and electronic properties of clean W(110) surfaces. Surface Science, 2007, 601, 3308-3314.	0.8	61
32	Complex magnetism of iron monolayers on hexagonal transition metal surfaces from first principles. Physical Review B, 2009, 79, .	1.1	59
33	Role of higher-order exchange interactions for skyrmion stability. Nature Communications, 2020, 11, 4756.	5.8	59
34	Unoccupied surface state on Pt(111) revealed by scanning tunneling spectroscopy. Physical Review B, 2005, 72, .	1.1	51
35	Magnetic exchange splitting of the Gd(0001) surface state studied by variable-temperature scanning tunneling spectroscopy. Applied Physics A: Materials Science and Processing, 1998, 66, S121-S124.	1.1	50
36	Unexpected trend of magnetic order of3dtransition-metal monolayers on W(001). Physical Review B, 2005, 72, .	1.1	50

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37	Bâ€“T phase diagram of Pd/Fe/Ir(111) computed with parallel tempering Monte Carlo. New Journal of Physics, 2018, 20, 103014.	1.2	50
38	Skyrmion lifetime in ultrathin films. Physical Review B, 2019, 99, .	1.1	50
39	The interplay of structure and spinâ€“orbit strength in the magnetism of metalâ€“benzene sandwiches: from single molecules to infinite wires. Nanotechnology, 2007, 18, 495402.	1.3	49
40	Spin-dependent electronic and magnetic properties of Co nanostructures onPt(111)studied by spin-resolved scanning tunneling spectroscopy. Physical Review B, 2006, 74, .	1.1	48
41	Probing the Magnetic Exchange Forces of Iron on the Atomic Scale. Nano Letters, 2009, 9, 200-204.	4.5	48
42	Structural, electronic, and magnetic properties of a Mn monolayer on W(110). Physical Review B, 2002, 66, .	1.1	45
43	Quantitative Measurement of the Magnetic Exchange Interaction across a Vacuum Gap. Physical Review Letters, 2011, 106, 257202.	2.9	45
44	Temperature-dependent exchange splitting of the magnetic Gd(0001) surface state. Journal of Magnetism and Magnetic Materials, 1998, 184, 155-165.	1.0	44
45	Competition of Dzyaloshinskii-Moriya and Higher-Order Exchange Interactions in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>Rh</mml:mi><mml:mo>/</mml:mo><mml:mi>Fe</mml:mi></mml:mrow></mml:math> Atomic Bilayers on Ir(111). Physical Review Letters, 2018, 120, 207201.	2.9	44
46	Topological orbital magnetization and emergent Hall effect of an atomic-scale spin lattice at a surface. Physical Review B, 2015, 92, .	1.1	41
47	Tunneling anisotropic magnetoresistance on the atomic scale. Physical Review B, 2012, 86, .	1.1	39
48	Comparison of first-principles methods to extract magnetic parameters in ultrathin films: Co/Pt(111). Physical Review B, 2019, 99, .	1.1	39
49	Experimental Evidence for Intra-Atomic Noncollinear Magnetism at Thin Film Probe Tips. Physical Review Letters, 2001, 86, 2142-2145.	2.9	38
50	Electromigration Forces on Ions in Carbon Nanotubes. Physical Review Letters, 2005, 95, 186802.	2.9	37
51	Magnetic Phase Control in Monolayer Films by Substrate Tuning. Physical Review Letters, 2007, 99, 187203.	2.9	35
52	Discovery of Magnetic Single- and Triple- <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi mathvariant="bold">q</mml:mi></mml:mrow></mml:math> States in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>Mn</mml:mi><mml:mrow><mml:mo>/</mml:mo><mml:mi>Re</mml:mi><mml:mo stretchy="false">(</mml:mo><mml:mn>0001</mml:mn><mml:mo) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 117 Td (stretchy="false">)</m	2.9	35
53	Complex magnetism of the Fe monolayer on Ir(111). New Journal of Physics, 2007, 9, 396-396.	1.2	33
54	Origin of the spin polarization of magnetic scanning tunneling microscopy tips. Physical Review B, 2010, 82, .	1.1	32

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55	Experimental identification of two distinct skyrmion collapse mechanisms. Nature Physics, 2021, 17, 395-402.	6.5	32
56	Preparation and electronic properties of clean superconducting Nb(110) surfaces. Physical Review B, 2019, 99, .	1.1	31
57	Random-Telegraph-Signal Noise and Device Variability in Ballistic Nanotube Transistors. Nano Letters, 2007, 7, 910-913.	4.5	30
58	Tunneling Anisotropic Magnetoresistance at the Single-Atom Limit. Physical Review Letters, 2013, 110, 037202.	2.9	30
59	Atomic-scale inversion of spin polarization at an organic-antiferromagnetic interface. Physical Review B, 2013, 88, .	1.1	30
60	Scanning tunneling spectra of impurities in the Fe(001) surface. Physical Review B, 2000, 62, 11118-11125.	1.1	29
61	Dzyaloshinskii-Moriya interaction at an antiferromagnetic interface: First-principles study of Fe/Ir bilayers on Rh(001). Physical Review B, 2017, 96, .	1.1	29
62	First-principles theory of ultrathin magnetic films. Journal of Physics Condensed Matter, 1999, 11, 9347-9363.	0.7	28
63	Chemical identification of atoms at multicomponent surfaces on an atomic scale:CoSi2(100). Physical Review B, 1997, 55, R13444-R13447.	1.1	27
64	Role of tip size, orientation, and structural relaxations in first-principles studies of magnetic exchange force microscopy and spin-polarized scanning tunneling microscopy. Physical Review B, 2008, 78, .	1.1	27
65	Single Electron Charge Sensitivity of Liquid-Gated Carbon Nanotube Transistors. Nano Letters, 2014, 14, 4925-4930.	4.5	27
66	Complex Magnetic Exchange Coupling between Co Nanostructures and Ni(111) across Epitaxial Graphene. ACS Nano, 2016, 10, 1101-1107.	7.3	27
67	Scanning Tunneling Microscopy Images of Transition-Metal Structures Buried Below Noble-Metal Surfaces. Physical Review Letters, 1999, 83, 4808-4811.	2.9	26
68	Complex magnetism in ultra-thin films: atomic-scale spin structures and resolution by the spin-polarized scanning tunneling microscope. Applied Physics A: Materials Science and Processing, 2002, 75, 25-36.	1.1	26
69	Domain walls and Dzyaloshinskii-Moriya interaction in epitaxial Co/Ir(111) and Pt/Co/Ir(111). Physical Review B, 2018, 97, .	1.1	26
70	Scanning tunneling spectroscopy on Co(0001): Spectroscopic signature of stacking faults and dislocation lines. Physical Review B, 2004, 70, .	1.1	25
71	Theory and Application of Chain Formation in Break Junctions. Nano Letters, 2008, 8, 2144-2149.	4.5	23
72	Noncollinear magnetism in freestanding and supported monatomic Mn chains. Physical Review B, 2011, 83, .	1.1	23

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73	How to reveal metastable skyrmionic spin structures by spin-polarized scanning tunneling microscopy. New Journal of Physics, 2016, 18, 055015.	1.2	23
74	Real space observation of spin frustration in Cr on a triangular lattice. Physical Review B, 2010, 82, .	1.1	22
75	First-principles prediction of sub-10-nm skyrmions in Pd/Fe bilayers on Rh(111). Physical Review B, 2018, 98, .	1.1	22
76	Electric-field-induced changes in scanning tunneling microscopy images of metal surfaces. Chemical Physics Letters, 1999, 315, 167-172.	1.2	20
77	Spin valve effect in single-atom contacts. New Journal of Physics, 2011, 13, 085011.	1.2	20
78	Interpreting STM images of the MnCu/Cu(100) surface alloy. Physical Review B, 2000, 62, 2862-2868.	1.1	19
79	Giant magnetization canting due to symmetry breaking in zigzag Co chains on Ir(001). New Journal of Physics, 2015, 17, 023014.	1.2	19
80	Magnetically Hindered Chain Formation in Transition-Metal Break Junctions. Physical Review Letters, 2009, 103, 217201.	2.9	18
81	Competing magnetic anisotropies in atomic-scale junctions. Physical Review B, 2010, 81, .	1.1	17
82	First-principles study of magnetic exchange force microscopy with ferromagnetic and antiferromagnetic tips. Physical Review B, 2011, 84, .	1.1	17
83	Graphene-mediated exchange coupling between a molecular spin and magnetic substrates. Physical Review B, 2013, 88, .	1.1	17
84	Electrical Detection of Domain Walls and Skyrmions in Co Films Using Noncollinear Magnetoresistance. Physical Review Letters, 2019, 123, 237205.	2.9	16
85	Toward room-temperature nanoscale skyrmions in ultrathin films. Npj Computational Materials, 2020, 6, .	3.5	16
86	SpinÂorbit induced local band structure variations revealed by scanning tunnelling spectroscopy. Journal of Physics Condensed Matter, 2003, 15, S679-S692.	0.7	14
87	Structurally driven magnetic state transition of biatomic Fe chains on Ir(001). Physical Review B, 2009, 80, .	1.1	14
88	Anisotropic vortices on superconducting Nb(110). Physical Review B, 2020, 102, .	1.1	12
89	Resolving noncollinear magnetism by spin-polarized scanning tunneling microscopy. Journal of Magnetism and Magnetic Materials, 2002, 240, 57-63.	1.0	10
90	Carbon Nanotube Electronics and Optoelectronics. , 2006, , 381-409.		10

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91	Energy-resolved spin-polarized tunneling and exchange coupling of Co and Cr atoms on Fe islands on W(110). Physical Review B, 2012, 85, .	1.1	10
92	Ballistic Anisotropic Magnetoresistance of Single-Atom Contacts. Nano Letters, 2016, 16, 1450-1454.	4.5	10
93	Trends of higher-order exchange interactions in transition metal trilayers. Physical Review B, 2021, 104, .	1.1	10
94	Interplay between size and stability of magnetic skyrmions. Nanosystems: Physics, Chemistry, Mathematics, 2018, , 356-363.	0.2	10
95	Tunneling magnetoresistance and exchange interaction in single-atom contacts. Physical Review B, 2012, 86, .	1.1	9
96	One-dimensional ballistic transport with FLAPW Wannier functions. Physical Review B, 2012, 85, .	1.1	9
97	Competing Forces during Contact Formation between a Tip and a Single Molecule. Nano Letters, 2015, 15, 5156-5160.	4.5	9
98	Stacking-Dependent Spin Interactions in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>Pd</mml:mi><mml:mo>/</mml:mo><mml:mi>Fe</mml:mi></mml:math> Bilayers on Re(0001). Physical Review Letters, 2020, 125, 227205.	2.9	9
99	Tunneling anisotropic magnetoresistance effect of single adatoms on a noncollinear magnetic surface. Journal of Physics Condensed Matter, 2014, 26, 394010.	0.7	7
100	Quantifying exchange forces of a spin spiral on the atomic scale. Nature Communications, 2020, 11, 1197.	5.8	7
101	Conductance fingerprints of noncollinear magnetic states in single-atom contacts: A first-principles Wannier-functions study. Physical Review B, 2012, 86, .	1.1	6
102	Complex trend of magnetic order in Fe clusters on4dtransition-metal surfaces. II. First-principles calculations. Physical Review B, 2014, 89, .	1.1	6
103	Molecular Chains: Arranging and Programming Logic Gates. Nano Letters, 2021, 21, 550-555.	4.5	6
104	Distorted <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mn>3</mml:mn><mml:mi>Q</mml:mi></mml:mrow></mml:math> state driven by topological-chiral magnetic interactions. Physical Review B, 2021, 104, .	1.1	5
105	Electric-field driven stability control of skyrmions in an ultrathin transition-metal film. Npj Computational Materials, 2022, 8, .	3.5	5
106	Atomistic spin simulations of electric-field-assisted nucleation and annihilation of magnetic skyrmions in Pd/Fe/Ir(111). Physical Review B, 2022, 105, .	1.1	5
107	Complex trend of magnetic order in Fe clusters on<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mn>4</mml:mn><mml:mi>d</mml:mi></mml:math>transition-metal surfaces. I. Experimental evidence and Monte Carlo simulations. Physical Review B, 2014, 89, .	1.1	4
108	Designing a molecular magnetic button based on 4d and 5d transition-metal phthalocyanines. Scientific Reports, 2017, 7, 3647.	1.6	4

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109	Tunneling anisotropic magnetoresistance via molecular Ï€ orbitals of Pb dimers. Physical Review B, 2018, 97, .	1.1	4
110	Noncollinear spin density of an adatom on a magnetic surface. Physical Review B, 2018, 98, .	1.1	4
111	Tailoring magnetic interactions in atomic bilayers of Rh and Fe on Re(0001). Physical Review B, 2020, 101, .	1.1	4
112	First-Principles Interpretation of Scanning Tunneling Microscopy Applied to Transition-Metal Surfaces: Buried CuIr/Cu(001) Surface Alloys. Physica Status Solidi A, 2001, 187, 215-226.	1.7	3
113	Molecular anisotropic magnetoresistance. Physical Review B, 2015, 92, .	1.1	3
114	Stability and magnetic properties of Fe double layers on Ir (111). Physical Review B, 2018, 98, .	1.1	3
115	Tunneling anisotropic magnetoresistance of Pb and Bi adatoms and dimers on Mn/W(110): A first-principles study. Physical Review B, 2019, 100, .	1.1	3
116	Tuning exchange interactions in antiferromagnetic Fe/W(001) by 4d transition-metal overlayers. Physical Review B, 2021, 104, .	1.1	3
117	Distance- and spin-resolved spectroscopy of iridium atoms on an iron bilayer. Physical Review B, 2016, 94, .	1.1	2
118	Dead magnetic layers at the interface: Moment quenching through hybridization and frustration. Physical Review Research, 2020, 2, .	1.3	2
119	Effects of interlayer exchange on collapse mechanisms and stability of magnetic skyrmions. Physical Review B, 2022, 105, .	1.1	2
120	Comparing the local density of states of three- and two-dimensional electron systems by low-temperature scanning tunneling spectroscopy. Physica E: Low-Dimensional Systems and Nanostructures, 2003, 16, 121-128.	1.3	1
121	Gitter aus magnetischen Wirbeln. Physik in Unserer Zeit, 2012, 43, 6-7.	0.0	1
122	Electronic and magnetic properties of 3d transition-metal adatoms on Mn/W(110). Physical Review B, 2020, 101, .	1.1	1
123	Skyrmions Ã la carte (Conference Presentation). , 2016, , .		0
124	First-Principles Simulation of Magnetic Exchange Force Microscopy on Fe/W(001). Nanoscience and Technology, 2009, , 287-301.	1.5	0