Tim Oliver Wehling

List of Publications by Year
in descending order

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118 papers	9,274 citations	41344 49 h-index	38395 95 g-index
118 all docs	118 docs citations	118 times ranked	11301 citing authors

#	Article	IF	Citations
1	Doping fingerprints of spin and lattice fluctuations in moirÃ© superlattice systems. Physical Review B, 2022, 105, .	3.2	6
2	Efficient fluctuation-exchange approach to low-temperature spin fluctuations and superconductivity: From the Hubbard model to <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Na</mml:mi><mml:mi>x</mml:mi></mml:msub><mml:msub><mml:mi mathvariant="normal">H</mml:mi></mml:mrow><mml:mn>2</mml:mn></mml:msub><mml:mi mathvariant="normal">O</mml:mi></mml:mrow></mml:math>. Physical Review B, 2021, 103, .	3.2	11
3	Downfolding approaches to electron-ion coupling: Constrained density-functional perturbation theory for molecules. Physical Review B, 2021, 103, .	3.2	3
4	Random phase approximation for gapped systems: Role of vertex corrections and applicability of the constrained random phase approximation. Physical Review B, 2021, 104, .	3.2	15
5	Downfolding the Su-Schrieffer-Heeger model. SciPost Physics, 2021, 11, .	4.9	0
6	A full gap above the Fermi level: the charge density wave of monolayer VS2. Nature Communications, 2021, 12, 6837.	12.8	16
7	Deconfinement of Mott localized electrons into topological and spinâ€“orbit-coupled Dirac fermions. Npj Quantum Materials, 2020, 5, .	5.2	13
8	Local Probes of Graphene Lattice Dynamics. Small Methods, 2020, 4, 1900817.	8.6	6
9	Nonlocal exchange interactions in strongly correlated electron systems. Physical Review B, 2020, 101, .	3.2	0
10	Ab initio phonon self-energies and fluctuation diagnostics of phonon anomalies: Lattice instabilities from Dirac pseudospin physics in transition metal dichalcogenides. Physical Review B, 2020, 101, .	3.2	13
11	Manipulation of the two-site Kondo effect in linear CoCu_nCoCu_m clusters. Journal of Physics Condensed Matter, 2020, 32, 055303.	1.8	5
12	Bandwidth renormalization due to the intersite Coulomb interaction. Journal of Physics Condensed Matter, 2019, 31, 465603.	1.8	9
13	Rigid Band Shifts in Two-Dimensional Semiconductors through External Dielectric Screening. Physical Review Letters, 2019, 123, 206403.	7.8	65
14	Introducing strong correlation effects into graphene by gadolinium intercalation. Physical Review B, 2019, 100, .	3.2	55
15	Environmental Control of Charge Density Wave Order in Monolayer 2H-TaS₂. ACS Nano, 2019, 13, 10210-10220.	14.6	44
16	Internal screening and dielectric engineering in magic-angle twisted bilayer graphene. Physical Review B, 2019, 100, .	3.2	67
17	Quantum-Dot-Like States in Molybdenum Disulfide Nanostructures Due to the Interplay of Local Surface Wrinkling, Strain, and Dielectric Confinement. Nano Letters, 2019, 19, 3182-3186.	9.1	43
18	Pseudodoping of a metallic two-dimensional material by the supporting substrate. Nature Communications, 2019, 10, 180.	12.8	30

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19	Thermodynamics of the metal-insulator transition in the extended Hubbard model. SciPost Physics, 2019, 6, .	4.9	8
20	Electronic structure of Fe_{1.08}Te bulk crystals and epitaxial FeTe thin films on Bi₂Te₃. Journal of Physics Condensed Matter, 2018, 30, 065502.	1.8	7
21	First-order metal-insulator transitions in the extended Hubbard model due to self-consistent screening of the effective interaction. Physical Review B, 2018, 97, .	3.2	10
22	The Dielectric Impact of Layer Distances on Exciton and Trion Binding Energies in van der Waals Heterostructures. Nano Letters, 2018, 18, 2725-2732.	9.1	113
23	Atomic-scale quantification of charge densities in two-dimensional materials. Physical Review B, 2018, 98, .	3.2	36
24	Competing Coulomb and electronâ€“phonon interactions in NbS2. Npj Quantum Materials, 2018, 3, .	5.2	41
25	Electronic structure of single layer 1T-NbSe₂: interplay of lattice distortions, non-local exchange, and Mottâ€“Hubbard correlations. Journal of Physics Condensed Matter, 2018, 30, 325601.	1.8	25
26	Frequency-dependent substrate screening of excitons in atomically thin transition metal dichalcogenide semiconductors. Physical Review B, 2018, 98, .	3.2	20
27	Effects of the Fermi level energy on the adsorption of O ₂ to monolayer MoS ₂. 2D Materials, 2018, 5, 045025.	4.4	8
28	Observation of Exciton Redshiftâ€“Blueshift Crossover in Monolayer WS₂. Nano Letters, 2017, 17, 4210-4216.	9.1	107
29	Electric-Field Switchable Second-Harmonic Generation in Bilayer MoS₂ by Inversion Symmetry Breaking. Nano Letters, 2017, 17, 392-398.	9.1	71
30	Exciton fission in monolayer transition metal dichalcogenide semiconductors. Nature Communications, 2017, 8, 1166.	12.8	142
31	Optically and Electrically Controllable Adatom Spinâ€“orbital Dynamics in Transition Metal Dichalcogenides. Nano Letters, 2017, 17, 6721-6726.	9.1	4
32	Noninvasive control of excitons in two-dimensional materials. Physical Review B, 2017, 96, .	3.2	16
33	Inelastic electron tunneling into graphene nanostructures on a metal surface. Physical Review B, 2017, 95, .	3.2	18
34	Reducing orbital occupancy in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>VO</mml:mi><mml:mn>2</mml:mn></mml:msub></mml suppresses Mott physics while Peierls distortions persist. Physical Review B, 2017, 96, .	3.2	28
35	Realistic theory of electronic correlations in nanoscopic systems. European Physical Journal: Special Topics, 2017, 226, 2615-2640.	2.6	21
36	Analyzing ultrafast laser-induced demagnetization in Co/Cu(001) via the depth sensitivity of the time-resolved transversal magneto-optical Kerr effect. , 2016, , .		3

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37	Midgap states and band gap modification in defective graphene/h-BN heterostructures. Physical Review B, 2016, 94, .	3.2	23
38	Nonequilibrium carrier dynamics in transition metal dichalcogenide semiconductors. 2D Materials, 2016, 3, 031006.	4.4	30
39	Manifestation of nonlocal electron-electron interaction in graphene. Physical Review B, 2016, 94, .	3.2	14
40	Correlated electron behavior of metal-organic molecules: Insights from density functional theory combined with many-body effects using exact diagonalization. Physical Review B, 2016, 93, .	3.2	15
41	Many-body effects on Cr(001) surfaces: An LDA+DMFT study. Physical Review B, 2016, 93, .	3.2	6
42	Valley plasmonics in transition metal dichalcogenides. Physical Review B, 2016, 93, .	3.2	28
43	Nickel: The time-reversal symmetry conserving partner of iron on a chalcogenide topological insulator. Physical Review B, 2016, 94, .	3.2	11
44	Interplay of screening and superconductivity in low-dimensional materials. Physical Review B, 2016, 94, .	3.2	13
45	Capturing nonlocal interaction effects in the Hubbard model: Optimal mappings and limits of applicability. Physical Review B, 2016, 94, .	3.2	23
46	Two-Dimensional Heterojunctions from Nonlocal Manipulations of the Interactions. Nano Letters, 2016, 16, 2322-2327.	9.1	80
47	Wannier function approach to realistic Coulomb interactions in layered materials and heterostructures. Physical Review B, 2015, 92, .	3.2	55
48	Separation of ultrafast spin currents and spin-flip scattering in Co/Cu(001) driven by femtosecond laser excitation employing the complex magneto-optical Kerr effect. Physical Review B, 2015, 92, .	3.2	59
49	Tuning the van der Waals Interaction of Graphene with Molecules via Doping. Physical Review Letters, 2015, 115, 236101.	7.8	48
50	Electronic Structures and Optical Properties of Partially and Fully Fluorinated Graphene. Physical Review Letters, 2015, 114, 047403.	7.8	58
51	Probing of valley polarization in graphene via optical second-harmonic generation. Physical Review B, 2015, 91, .	3.2	41
52	Proximity enhanced quantum spin Hall state in graphene. Carbon, 2015, 87, 418-423.	10.3	29
53	Variational exact diagonalization method for Anderson impurity models. Physical Review B, 2015, 91, .	3.2	10
54	Long- versus Short-Range Scattering in Doped Epitaxial Graphene. Nano Letters, 2015, 15, 2825-2829.	9.1	19

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55	Phonon-Pump Extreme-Ultraviolet-Photoemission Probe in Graphene: Anomalous Heating of Dirac Carriers by Lattice Deformation. Physical Review Letters, 2015, 114, 125503.	7.8	29
56	Efficient Excitonic Photoluminescence in Direct and Indirect Band Gap Monolayer MoS₂. Nano Letters, 2015, 15, 6841-6847.	9.1	171
57	Tuning emergent magnetism in a Hund's impurity. Nature Nanotechnology, 2015, 10, 958-964.	31.5	62
58	Ultrafast Non-local Spin Dynamics in Metallic Bi-Layers by Linear and Non-linear Magneto-Optics. Springer Proceedings in Physics, 2015, , 34-36.	0.2	2
59	Europium underneath graphene on Ir(111): Intercalation mechanism, magnetism, and band structure. Physical Review B, 2014, 90, .	3.2	67
60	Phthalocyanine adsorption to graphene on Ir(111): Evidence for decoupling from vibrational spectroscopy. Journal of Chemical Physics, 2014, 141, 184308.	3.0	26
61	Charge-doping-induced phase transitions in hydrogenated and fluorinated graphene. Physical Review B, 2014, 90, .	3.2	4
62	Phase diagram of electron-doped dichalcogenides. Physical Review B, 2014, 90, .	3.2	59
63	Two-dimensional materials: Electronic structure and many-body effects. Annalen Der Physik, 2014, 526, A81-A82.	2.4	7
64	Electronic Transport in Graphene with Aggregated Hydrogen Adatoms. Physical Review Letters, 2014, 113, 246601.	7.8	29
65	TiO2 Nanowires as a Wide Bandgap Dirac Material: a numerical study of impurity scattering and Anderson disorder. Materials Research Society Symposia Proceedings, 2014, 1659, 187-191.	0.1	0
66	Dirac materials. Advances in Physics, 2014, 63, 1-76.	14.4	759
67	Polar EuO(111) on Ir(111): A two-dimensional oxide. Physical Review B, 2014, 89, .	3.2	6
68	Influence of Excited Carriers on the Optical and Electronic Properties of MoS₂. Nano Letters, 2014, 14, 3743-3748.	9.1	213
69	Electronic excitation spectra of the five-orbital Anderson impurity model: From the atomic limit to itinerant atomic magnetism. Physical Review B, 2014, 89, .	3.2	10
70	Optimal Hubbard Models for Materials with Nonlocal Coulomb Interactions: Graphene, Silicene, and Benzene. Physical Review Letters, 2013, 111, 036601.	7.8	209
71	The Backside of Graphene: Manipulating Adsorption by Intercalation. Nano Letters, 2013, 13, 5013-5019.	9.1	74
72	Graphene-Based Topological Insulator with an Intrinsic Bulk Band Gap above Room Temperature. Nano Letters, 2013, 13, 6251-6255.	9.1	116

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73	Doping mechanisms in graphene-MoS2 hybrids. Applied Physics Letters, 2013, 103, .	3.3	107
74	Excitation Spectra of Transition-Metal Atoms on the Ag (100) Surface Controlled by Hundâ€™s Exchange. Physical Review Letters, 2013, 110, 186404.	7.8	14
75	Current-Driven Spin Dynamics of Artificially Constructed Quantum Magnets. Science, 2013, 339, 55-59.	12.6	197
76	Controllable Magnetic Doping of the Surface State of a Topological Insulator. Physical Review Letters, 2013, 110, 126804.	7.8	98
77	Adatoms and Clusters of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mn>3</mml:mn><mml:mi>d</mml:mi></mml:math>Transition Metals on Graphene: Electronic and Magnetic Configurations. Physical Review Letters, 2013, 110, 136804.	7.8	159
78	Strain in Epitaxial Graphene Visualized by Intercalation. Physical Review Letters, 2013, 110, 086111.	7.8	50
79	Emergent properties and trends of a new class of carbon nanocomposites: graphene nanoribbons encapsulated in a carbon nanotube. Nanoscale, 2013, 5, 3306.	5.6	12
80	Ferromagnetic two-dimensional crystals: Single layers of K<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math>CuF<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>4</mml:mn></mml:msub></mml:math>. Physical Review B, 2013, 88, .	3.2	85
81	Possibility of a Field Effect Transistor Based on Dirac Particles in Semiconducting Anatase-TiO₂ Nanowires. Nano Letters, 2013, 13, 1073-1079.	9.1	10
82	Magnetic impurity affected by spin-orbit coupling: Behavior near a topological phase transition. Physical Review B, 2013, 88, .	3.2	10
83	Local Gating of an Ir(111) Surface Resonance by Graphene Islands. Physical Review Letters, 2012, 108, 206805.	7.8	43
84	Enhanced Screening in Chemically Functionalized Graphene. Physical Review Letters, 2012, 109, 156601.	7.8	25
85	Intact Dirac Cones at Broken Sublattice Symmetry: Photoemission Study of Graphene on Ni and Co. Physical Review X, 2012, 2, .	8.9	57
86	Phase coexistence of clusters and islands: europium on graphene. New Journal of Physics, 2012, 14, 023022.	2.9	42
87	Multiorbital Kondo physics of Co in Cu hosts. Physical Review B, 2012, 85, .	3.2	50
88	Orbital selective coupling between Ni adatoms and graphene Dirac electrons. Physical Review B, 2012, 85, .	3.2	27
89	In-Plane Magnetic Anisotropy of Fe Atoms on<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi>Bi</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi>Se</mml:mi> stretchy="false">(</mml:mo><mml:mn>111</mml:mn><mml:mo) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 87 Td (stretchy="fals	7.8	144
90	Ultrafast Transport of Laser-Excited Spin-Polarized Carriers in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>Au</mml:mi><mml:mo>/</mml:mo><mml:mi>Fe</mml:mi><mml:mo>/</mml:mo><mml:mi>MgO</mml:mi> stretchy="false">(</mml:mo><mml:mn>001</mml:mn><mml:mo) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 47 Td (stretchy="false">)</mml	7.8	224

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91	Transition-metal adatoms on graphene: Influence of local Coulomb interactions on chemical bonding and magnetic moments. Physical Review B, 2011, 84, .	3.2	149
92	General DFT + + method implemented with projector augmented waves: electronic structure of SrVO₃and the Mott transition in Ca_{2 â^'x}Sr_xRuO₄. Journal of Physics Condensed Matter, 2011, 23, 085601.	1.8	56
93	Adhesion and electronic structure of graphene on hexagonal boron nitride substrates. Physical Review B, 2011, 84, .	3.2	269
94	Strength of Effective Coulomb Interactions in Graphene and Graphite. Physical Review Letters, 2011, 106, 236805.	7.8	453
95	Multiscale magnetic study of Ni(111) and graphene on Ni(111). Physical Review B, 2011, 84, .	3.2	48
96	Two-Site Kondo Effect in Atomic Chains. Physical Review Letters, 2011, 107, 106804.	7.8	58
97	Spectral Functions of Isolated Ce Adatoms on Paramagnetic Surfaces. Physical Review Letters, 2011, 107, 026801.	7.8	10
98	Observation of Carrier-Density-Dependent Many-Body Effects in Graphene via Tunneling Spectroscopy. Physical Review Letters, 2010, 104, 036805.	7.8	106
99	Charge inhomogeneity in a single and bilayer graphene. Physica B: Condensed Matter, 2010, 405, 2241-2244.	2.7	15
100	Double counting in LDA+DMFTâ€"The example of NiO. Journal of Electron Spectroscopy and Related Phenomena, 2010, 181, 11-15.	1.7	108
101	Theory of Fano resonances in graphene: The influence of orbital and structural symmetries on STM spectra. Physical Review B, 2010, 81, .	3.2	79
102	Resonant Scattering by Realistic Impurities in Graphene. Physical Review Letters, 2010, 105, 056802.	7.8	300
103	Nature of the Mott Transition in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi>Ca</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi>RuO</mml:mi><mml:mn>4</mml:mn></mml:msub></mml:math>. Physical Review Letters, 2010, 104, 226401.	7.8	121
104	Importance of full Coulomb interactions for understanding the electronic structure ofÎ´-Pu. Physical Review B, 2010, 82, .	3.2	21
105	Orbitally controlled Kondo effect of Co adatoms on graphene. Physical Review B, 2010, 81, .	3.2	132
106	Relevance of the complete Coulomb interaction matrix for the Kondo problem: Co impurities in Cu hosts. Physical Review B, 2009, 80, .	3.2	31
107	Adsorbates on graphene: Impurity states and electron scattering. Chemical Physics Letters, 2009, 476, 125-134.	2.6	234
108	Impurities on graphene: Midgap states and migration barriers. Physical Review B, 2009, 80, .	3.2	217

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109	First-principles studies of water adsorption on graphene: The role of the substrate. Applied Physics Letters, 2008, 93, .	3.3	294
110	Molecular Doping of Graphene. Nano Letters, 2008, 8, 173-177.	9.1	1,025
111	Plane-wave based electronic structure calculations for correlated materials using dynamical mean-field theory and projected local orbitals. Physical Review B, 2008, 77, .	3.2	202
112	Phonon-Mediated Tunneling into Graphene. Physical Review Letters, 2008, 101, 216803.	7.8	76
113	Midgap states in corrugated graphene: Ab initio calculations and effective field theory. Europhysics Letters, 2008, 84, 17003.	2.0	113
114	Ultrafast dynamics at lanthanide surfaces: microscopic interaction of the charge, lattice and spin subsystems. Journal Physics D: Applied Physics, 2008, 41, 164004.	2.8	11
115	Local impurity effects in superconducting graphene. Physical Review B, 2008, 78, .	3.2	17
116	Controlling the Kondo Effect in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi>CoCu</mml:mi><mml:mi>n</mml:mi></mml:msub></mml:math>Clusters Atom by Atom. Physical Review Letters, 2008, 101, 266803.	7.8	77
117	Local electronic signatures of impurity states in graphene. Physical Review B, 2007, 75, .	3.2	216
118	Theory of Doping: Monovalent Adsorbates. , 0, , .		1