

Ulrich SchollwÄ¼ck

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/3610969/publications.pdf>

Version: 2024-02-01

131
papers

15,119
citations

47006

47
h-index

17105

122
g-index

132
all docs

132
docs citations

132
times ranked

6563
citing authors

#	ARTICLE	IF	CITATIONS
1	The density-matrix renormalization group in the age of matrix product states. <i>Annals of Physics</i> , 2011, 326, 96-192.	2.8	2,987
2	The density-matrix renormalization group. <i>Reviews of Modern Physics</i> , 2005, 77, 259-315.	45.6	2,480
3	Time-dependent density-matrix renormalization-group using adaptive effective Hilbert spaces. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2004, 2004, P04005.	2.3	839
4	Probing the relaxation towards equilibrium in an isolated strongly correlated one-dimensional Bose gas. <i>Nature Physics</i> , 2012, 8, 325-330.	16.7	762
5	The ALPS project release 1.3: Open-source software for strongly correlated systems. <i>Journal of Magnetism and Magnetic Materials</i> , 2007, 310, 1187-1193.	2.3	623
6	The ALPS project release 2.0: open source software for strongly correlated systems. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2011, 2011, P05001.	2.3	528
7	Nature of the Spin-Liquid Ground State of the $S=1$ Kagome Lattice. <i>Physical Review Letters</i> , 2012, 109, 067201.	7.8	487
8	Quantum dynamics of a mobile spin impurity. <i>Nature Physics</i> , 2013, 9, 235-241.	16.7	418
9	Time-evolution methods for matrix-product states. <i>Annals of Physics</i> , 2019, 411, 167998.	2.8	366
10	Dephasing and the Steady State in Quantum Many-Particle Systems. <i>Physical Review Letters</i> , 2008, 100, 100601.	7.8	332
11	Real-time dynamics in spin-1 chains with adaptive time-dependent density matrix renormalization group. <i>Physical Review E</i> , 2005, 71, 036102.	2.1	226
12	Spectral functions in one-dimensional quantum systems at finite temperature using the density matrix renormalization group. <i>Physical Review B</i> , 2009, 79, .	3.2	145
13	Entanglement scaling in critical two-dimensional fermionic and bosonic systems. <i>Physical Review A</i> , 2006, 74, .	2.5	138
14	Onset of incommensurability at the valence-bond-solid point in the $S=1$ quantum spin chain. <i>Physical Review B</i> , 1996, 53, 3304-3311.	3.2	137
15	Absence of Superconductivity in the Pure Two-Dimensional Hubbard Model. <i>Physical Review X</i> , 2020, 10, .	8.9	123
16	Haldane Gap and Hidden Order in the $S=2$ Antiferromagnetic Quantum Spin Chain. <i>Europhysics Letters</i> , 1995, 30, 493-498.	2.0	122
17	Multispinon Continua at Zero and Finite Temperature in a Near-Ideal Heisenberg Chain. <i>Physical Review Letters</i> , 2013, 111, 137205.	7.8	122
18	Density matrix renormalization group for disordered bosons in one dimension. <i>Europhysics Letters</i> , 1999, 46, 559-564.	2.0	121

#	ARTICLE	IF	CITATIONS
19	Vortex and Meissner phases of strongly interacting bosons on a two-leg ladder. Physical Review B, 2015, 91, .	3.2	117
20	Exploring Local Quantum Many-Body Relaxation by Atoms in Optical Superlattices. Physical Review Letters, 2008, 101, 063001.	7.8	114
21	Dynamical Mean-Field Theory for Pairing and Spin Gap in the Attractive Hubbard Model. Physical Review Letters, 2001, 86, 4612-4615.	7.8	112
22	Spin-Charge Separation in Cold Fermi Gases: A Real Time Analysis. Physical Review Letters, 2005, 95, 176401.	7.8	106
23	Real-time study of diffusive and ballistic transport in spin- $\frac{1}{2}$ chains using the adaptive time-dependent density matrix renormalization group method. Physical Review B, 2009, 79, .	3.2	104
24	The ALPS Project: Open Source Software for Strongly Correlated Systems. Journal of the Physical Society of Japan, 2005, 74, 30-35.	1.6	103
25	Variational matrix-product-state approach to quantum impurity models. Physical Review B, 2009, 80, .	3.2	101
26	Spectroscopy of Ultracold Atoms by Periodic Lattice Modulations. Physical Review Letters, 2006, 97, 050402.	7.8	100
27	Strictly single-site DMRG algorithm with subspace expansion. Physical Review B, 2015, 91, .	3.2	98
28	Chebyshev matrix product state approach for spectral functions. Physical Review B, 2011, 83, .	3.2	96
29	Density matrix renormalization group and reaction-diffusion processes. European Physical Journal B, 1999, 12, 99-114.	1.5	91
30	Solving nonequilibrium dynamical mean-field theory using matrix product states. Physical Review B, 2014, 90, .	3.2	91
31	d-Wave Resonating Valence Bond States of Fermionic Atoms in Optical Lattices. Physical Review Letters, 2006, 96, 250402.	7.8	83
32	Critical properties of the reaction-diffusion model $2A \rightarrow 3A, 2A \rightarrow 0$. Physical Review E, 2001, 63, 036101.	2.1	81
33	Spontaneous Increase of Magnetic Flux and Chiral-Current Reversal in Bosonic Ladders: Swimming against the Tide. Physical Review Letters, 2015, 115, 190402.	7.8	76
34	First Order Transition in the Frustrated Antiferromagnetic Heisenberg $S=1$ Quantum Spin Chain. Physical Review Letters, 1996, 77, 5142-5145.	7.8	75
35	Thermodynamics of the (1,12) ferrimagnet in finite magnetic fields. Physical Review B, 1998, 58, R5908-R5911.	3.2	75
36	Prethermalization and persistent order in the absence of a thermal phase transition. Physical Review B, 2017, 95, .	3.2	75

#	ARTICLE	IF	CITATIONS
37	Generic construction of efficient matrix product operators. Physical Review B, 2017, 95, .	3.2	73
38	S=2 antiferromagnetic quantum spin chain. Physical Review B, 1996, 54, 4038-4051.	3.2	72
39	Spinon confinement in a quasi-one-dimensional anisotropic Heisenberg magnet. Physical Review B, 2017, 96, .	3.2	69
40	Chebyshev matrix product state impurity solver for dynamical mean-field theory. Physical Review B, 2014, 90, .	3.2	65
41	Symmetry-broken states in a system of interacting bosons on a two-leg ladder with a uniform Abelian gauge field. Physical Review A, 2016, 94, .	2.5	65
42	Broken Time-Reversal Symmetry in Strongly Correlated Ladder Structures. Physical Review Letters, 2003, 90, 186401.	7.8	63
43	Kondo screening cloud in the single-impurity Anderson model: A density matrix renormalization group study. Physical Review B, 2009, 80, .	3.2	58
44	Sudden expansion of Mott insulators in one dimension. Physical Review B, 2013, 88, .	3.2	58
45	Phase diagram of the J_1 - J_2 spin-1 chain model on the kagome lattice. Physical Review B, 2015, 91, .	3.2	58
46	Combination of ferromagnetic and antiferromagnetic features in Heisenberg ferrimagnets. Journal of Physics Condensed Matter, 1998, 10, 11033-11048.	1.8	49
47	Vector chiral order in frustrated spin chains. Physical Review B, 2008, 77, .	3.2	49
48	Imaginary-Time Matrix Product State Impurity Solver for Dynamical Mean-Field Theory. Physical Review X, 2015, 5, .	8.9	45
49	Time-dependent density matrix renormalization group quantum dynamics for realistic chemical systems. Journal of Chemical Physics, 2019, 151, 224101.	3.0	45
50	Bound states and entanglement in the excited states of quantum spin chains. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P10029.	2.3	44
51	Spectral functions and time evolution from the Chebyshev recursion. Physical Review B, 2015, 91, .	3.2	44
52	Plaquette versus ordinary d -wave pairing in the t - J -Hubbard model on a width-4 cylinder. Physical Review B, 2020, 102, .	3.2	43
53	Variational and density-matrix renormalization-group studies of the frustrated antiferromagnetic Heisenberg S=1 quantum spin chain. Physical Review B, 1997, 55, 8928-8939.	3.2	42
54	Lanczos algorithm with matrix product states for dynamical correlation functions. Physical Review B, 2012, 85, .	3.2	42

#	ARTICLE	IF	CITATIONS
55	Persistent currents in mesoscopic rings: A numerical and renormalization group study. Physical Review B, 2003, 67, .	3.2	41
56	Conductance of interacting nanowires. Physical Review B, 2003, 67, .	3.2	40
57	Thermodynamics of Frustrated Quantum Spin Chains. Physical Review Letters, 1998, 81, 445-448.	7.8	39
58	Specific heat of an $S=1/2$ Heisenberg ladder compound $\text{Cu}_2(\text{C}_5\text{H}_{12}\text{N}_2)_2\text{Cl}_4$ under magnetic fields. Physical Review B, 2000, 62, 1051-1057.	3.2	39
59	Hybrid NRG-DMRG approach to real-time dynamics of quantum impurity systems. Physical Review B, 2013, 87, .	3.2	37
60	Entanglement spectroscopy of $SU(2)$ -broken phases in two dimensions. Physical Review B, 2013, 88, .	3.2	37
61	Spin ladders with nonmagnetic impurities. Physical Review B, 1997, 55, 2955-2963.	3.2	36
62	A Single Impurity in a Luttinger Liquid: How It "Cuts" the Chain. Journal of Low Temperature Physics, 2002, 126, 1147-1163.	1.4	35
63	The density-matrix renormalization group: a short introduction. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 2643-2661.	3.4	35
64	Ground states and excitations of a one-dimensional kagomé-like antiferromagnet. Physical Review B, 2000, 62, 9472-9483.	3.2	34
65	Thermodynamics of a superconductor with strongly bound Cooper pairs. Physical Review B, 1999, 60, 3499-3507.	3.2	32
66	Non-Hermitian Luttinger liquids and flux line pinning in planar superconductors. Journal of Statistical Mechanics: Theory and Experiment, 2004, 2004, P10003.	2.3	32
67	Time-dependent Density-Matrix Renormalization-Group Methods. Journal of the Physical Society of Japan, 2005, 74, 246-255.	1.6	32
68	Concept of Orbital Entanglement and Correlation in Quantum Chemistry. Journal of Chemical Theory and Computation, 2021, 17, 79-95.	5.3	32
69	BCS-BEC crossover and the disappearance of Fulde-Ferrell-Larkin-Ovchinnikov correlations in a spin-imbalanced one-dimensional Fermi gas. Physical Review A, 2010, 81, .	2.5	31
70	Expansion velocity of a one-dimensional, two-component Fermi gas during the sudden expansion in the ballistic regime. Physical Review A, 2012, 85, .	2.5	31
71	Error estimates for extrapolations with matrix-product states. Physical Review B, 2018, 97, .	3.2	31
72	Frustrated quantum Heisenberg ferrimagnetic chains. Physical Review B, 1998, 58, 14456-14461.	3.2	30

#	ARTICLE	IF	CITATIONS
73	Universal finite-size scaling amplitudes in anisotropic scaling. Journal of Physics A, 2001, 34, 3333-3350.	1.6	30
74	Landau-Zener Sweeps and Sudden Quenches in Coupled Bose-Hubbard Chains. Physical Review Letters, 2011, 106, 155302.	7.8	30
75	Strongly interacting bosons on a three-leg ladder in the presence of a homogeneous flux. New Journal of Physics, 2015, 17, 092001.	2.9	30
76	Identifying a Bath-Induced Bose Liquid in Interacting Spin-Boson Models. Physical Review Letters, 2014, 113, 260403.	7.8	29
77	Dimer, trimer, and Fulde-Ferrell-Larkin-Ovchinnikov liquids in mass- and spin-imbalanced trapped binary mixtures in one dimension. Physical Review A, 2012, 85, .	2.5	28
78	Dynamical Simulations of Polaron Transport in Conjugated Polymers with the Inclusion of Electronâ€™Electron Interactions. Journal of Physical Chemistry A, 2009, 113, 1360-1367.	2.5	26
79	Magnetism, coherent many-particle dynamics, and relaxation with ultracold bosons in optical superlattices. Physical Review A, 2009, 79, .	2.5	26
80	Imaginary-time matrix product state impurity solver in a real material calculation: Spin-orbit coupling in $\langle \text{mml:math} \text{xmlns:mml=} \text{"http://www.w3.org/1998/Math/MathML"} \rangle \langle \text{mml:mi} \rangle \text{Sr} \langle \text{mml:mi} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 2 \langle \text{mml:mn} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mi} \rangle \text{RuO} \langle \text{mml:mi} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 4 \langle \text{mml:mn} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:math} \rangle$. Physical Review B, 2020, 101, .	3.2	26
81	Frustrated antiferromagnetic quantum spin chains for spin length $S > 1$. Physical Review B, 1998, 58, 9264-9268.	3.2	25
82	Absence of string order in the anisotropic $S=2$ Heisenberg antiferromagnet. Physical Review B, 1998, 58, 359-365.	3.2	25
83	Competing Regimes of Motion of 1D Mobile Impurities. Physical Review Letters, 2014, 113, 070601.	7.8	25
84	Dynamical Topological Quantum Phase Transitions in Nonintegrable Models. Physical Review Letters, 2019, 122, 250601.	7.8	25
85	$\langle \text{mml:math} \text{xmlns:mml=} \text{"http://www.w3.org/1998/Math/MathML"} \text{display=} \text{"inline"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{Sr} \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 2 \langle \text{mml:mn} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mi} \rangle \text{RuO} \langle \text{mml:mi} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 4 \langle \text{mml:mn} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:math} \rangle$ and $\langle \text{mml:math} \text{xmlns:mml=} \text{"http://www.w3.org/1998/Math/MathML"} \text{display=} \text{"inline"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{Sr} \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 2 \langle \text{mml:mn} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mi} \rangle \text{RuO} \langle \text{mml:mi} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mn} \rangle 4 \langle \text{mml:mn} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:math} \rangle$. Physical Review Letters, 2020, 125, 166401.	7.8	24
86	Scaling of the conductance in a quantum wire. Europhysics Letters, 2003, 64, 769-775.	2.0	23
87	Spinon signatures in the critical phase of the (1,12) ferrimagnet in a magnetic field. Physical Review B, 1999, 59, 13565-13568.	3.2	22
88	Density-Matrix Embedding Theory Study of the One-Dimensional Hubbardâ€™Holstein Model. Journal of Chemical Theory and Computation, 2019, 15, 2221-2232.	5.3	22
89	Variational ansatz for the superfluid Mott-insulator transition in optical lattices. Optics Express, 2004, 12, 42.	3.4	21
90	Cold Fermi gases: a new perspective on spin-charge separation. New Journal of Physics, 2006, 8, 220-220.	2.9	21

#	ARTICLE	IF	CITATIONS
91	Quantum phases and topological properties of interacting fermions in one-dimensional superlattices. <i>Physical Review A</i> , 2019, 99, .	2.5	21
92	Dynamical Mean-Field Theory for the Normal Phase of the Attractive Hubbard Model. <i>Journal of Low Temperature Physics</i> , 2002, 126, 961-977.	1.4	19
93	Non-Hermitian Luttinger liquids and vortex physics. <i>Europhysics Letters</i> , 2004, 66, 178-184.	2.0	19
94	Confinement and Mott Transitions of Dynamical Charges in One-Dimensional Lattice Gauge Theories. <i>Physical Review Letters</i> , 2021, 127, 167203.	7.8	19
95	Quasiparticles in the Kondo lattice model at partial fillings of the conduction band using the density matrix renormalization group. <i>Physical Review B</i> , 2009, 79, .	3.2	18
96	Stable-unstable transition for a Bose-Hubbard chain coupled to an environment. <i>Physical Review A</i> , 2018, 97, .	2.5	16
97	Interacting bosonic flux ladders with a synthetic dimension: Ground-state phases and quantum quench dynamics. <i>Physical Review A</i> , 2020, 102, .	2.5	16
98	Quantum dynamics simulation of intramolecular singlet fission in covalently linked tetracene dimer. <i>Journal of Chemical Physics</i> , 2021, 155, 194101.	3.0	15
99	Boundary effects on one-particle spectra of Luttinger liquids. <i>Physical Review B</i> , 2000, 61, 4393-4396.	3.2	14
100	Marshall's sign rule and density-matrix renormalization-group acceleration. <i>Physical Review B</i> , 1998, 58, 8194-8197.	3.2	13
101	Orbital currents and charge density waves in a generalized Hubbard ladder. <i>Annals of Physics</i> , 2006, 321, 894-933.	2.8	13
102	Dynamical simulations of charged soliton transport in conjugated polymers with the inclusion of electron-electron interactions. <i>Journal of Chemical Physics</i> , 2008, 129, 244705.	3.0	13
103	Effect of Electron-Electron Interactions on the Charge Carrier Transitions in <i>trans</i> -Polyacetylene. <i>Journal of Physical Chemistry A</i> , 2010, 114, 5439-5444.	2.5	13
104	Domain-wall melting in ultracold-boson systems with hole and spin-flip defects. <i>Physical Review A</i> , 2014, 89, .	2.5	13
105	Lattice-Assisted Spectroscopy: A Generalized Scanning Tunneling Microscope for Ultracold Atoms. <i>Physical Review Letters</i> , 2015, 115, 165301.	7.8	13
106	Doped Kondo chain, a heavy Luttinger liquid. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, 5140-5144.	7.1	12
107	Comment on "Quantum Monte Carlo Approach to Elementary Excitations of Antiferromagnetic Heisenberg Chains": <i>Physical Review Letters</i> , 1996, 77, 2844-2844.	7.8	11
108	Finite-temperature properties of interacting bosons on a two-leg flux ladder. <i>Physical Review A</i> , 2019, 99, .	2.5	11

#	ARTICLE	IF	CITATIONS
127	Topological phases in the Fermi-Hofstadter-Hubbard model on hybrid-space ladders. Physical Review A, 2020, 102, .	2.5	3
128	DMRG Studies of Impurities in Luttinger Liquids. Progress of Theoretical Physics Supplement, 2002, 145, 312-319.	0.1	2
129	Why Does Time Have a Future?: The Physical Origins of the Arrow of Time. Configurations, 2015, 23, 177-196.	0.3	2
130	Excitations and Dynamics of Spin-Orbital Chains. Progress of Theoretical Physics Supplement, 2002, 145, 259-265.	0.1	0
131	Simulations with matrix product states. , 2012, , .		0