Ulrich Schollwÿck

List of Publications by Year
in descending order

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	Stochastic Adaptive Single-Site Time-Dependent Variational Principle. Jacs Au, 2022, 2, 335-340.	7.9	11
2	Snapshot-based characterization of particle currents and the Hall response in synthetic flux lattices. Physical Review A, 2022, 105, .	2.5	10
3	Concept of Orbital Entanglement and Correlation in Quantum Chemistry. Journal of Chemical Theory and Computation, 2021, 17, 79-95.	5.3	32
4	Bosonic Pfaffian state in the Hofstadter-Bose-Hubbard model. Physical Review B, 2021, 103, .	3.2	8
5	$BaOsO_3$: A Hund's metal in the presence of strong spin-orbit coupling. Physical Review B, 2021, 103, .	3.2	7
6	Probing the Hall Voltage in Synthetic Quantum Systems. Physical Review Letters, 2021, 126, 030501.	7.8	11
7	Confinement and Mott Transitions of Dynamical Charges in One-Dimensional Lattice Gauge Theories. Physical Review Letters, 2021, 127, 167203.	7.8	19
8	Quantum dynamics simulation of intramolecular singlet fission in covalently linked tetracene dimer. Journal of Chemical Physics, 2021, 155, 194101.	3.0	15
9	Sr_2 and Sr_2 Physical Review Letters, 2020, 125, 166401.	7.8	24
10	Absence of Superconductivity in the Pure Two-Dimensional Hubbard Model. Physical Review X, 2020, 10, .	8.9	123
11	Topological phases in the Fermi-Hofstadter-Hubbard model on hybrid-space ladders. Physical Review A, 2020, 102, .	2.5	3
12	Plaquette versus ordinary d -wave pairing in the t^2 -Hubbard model on a width-4 cylinder. Physical Review B, 2020, 102, .	3.2	43
13	Thermal Control of Spin Excitations in the Coupled Ising-Chain Material $RbCoCl_3$ Physical Review Letters, 2020, 124, 257201.	7.8	11
14	Imaginary-time matrix product state impurity solver in a real material calculation: Spin-orbit coupling in Sr_2RuO_4. Physical Review B, 2020, 101, .	3.2	26
15	Interacting bosonic flux ladders with a synthetic dimension: Ground-state phases and quantum quench dynamics. Physical Review A, 2020, 102, .	2.5	16
16	Time-evolution methods for matrix-product states. Annals of Physics, 2019, 411, 167998.	2.8	366
17	Dynamical Topological Quantum Phase Transitions in Nonintegrable Models. Physical Review Letters, 2019, 122, 250601.	7.8	25
18	Quantum phases and topological properties of interacting fermions in one-dimensional superlattices. Physical Review A, 2019, 99, .	2.5	21

#	ARTICLE	IF	CITATIONS
19	Finite-temperature properties of interacting bosons on a two-leg flux ladder. Physical Review A, 2019, 99, .	2.5	11
20	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
21	Interaction quench and thermalization in a one-dimensional topological Kondo insulator. Physical Review B, 2019, 99, .	3.2	4
22	Time-dependent density matrix renormalization group quantum dynamics for realistic chemical systems. Journal of Chemical Physics, 2019, 151, 224101.	3.0	45
23	Error estimates for extrapolations with matrix-product states. Physical Review B, 2018, 97, .	3.2	31
24	Stable-unstable transition for a Bose-Hubbard chain coupled to an environment. Physical Review A, 2018, 97, .	2.5	16
25	Doped Kondo chain, a heavy Luttinger liquid. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 5140-5144.	7.1	12
26	Generic construction of efficient matrix product operators. Physical Review B, 2017, 95, .	3.2	73
27	Prethermalization and persistent order in the absence of a thermal phase transition. Physical Review B, 2017, 95, .	3.2	75
28	Spinon confinement in a quasi-one-dimensional anisotropic Heisenberg magnet. Physical Review B, 2017, 96, .	3.2	69
29	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
30	Vortex and Meissner phases of strongly interacting bosons on a two-leg ladder. Physical Review B, 2015, 91, .	3.2	117
31	Strictly single-site DMRG algorithm with subspace expansion. Physical Review B, 2015, 91, .	3.2	98
32	Lattice-Assisted Spectroscopy: A Generalized Scanning Tunneling Microscope for Ultracold Atoms. Physical Review Letters, 2015, 115, 165301.	7.8	13
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	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
35	Imaginary-Time Matrix Product State Impurity Solver for Dynamical Mean-Field Theory. Physical Review X, 2015, 5, .	8.9	45
36	Spectral functions and time evolution from the Chebyshev recursion. Physical Review B, 2015, 91, .	3.2	44

#	Article	IF	Citations
37	Phase diagram of the `<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>J</mml:mi><mml:mn>1</mml:mn></mml:msub></mml:mrow>` model on the kagome lattice. Physical Review B, 2015, 91, .	3.2	58
38	Why Does Time Have a Future?: The Physical Origins of the Arrow of Time. Configurations, 2015, 23, 177-196.	0.3	2
39	Identifying a Bath-Induced Bose Liquid in Interacting Spin-Boson Models. Physical Review Letters, 2014, 113, 260403.	7.8	29
40	Domain-wall melting in ultracold-boson systems with hole and spin-flip defects. Physical Review A, 2014, 89, .	2.5	13
41	Chebyshev matrix product state impurity solver for dynamical mean-field theory. Physical Review B, 2014, 90, .	3.2	65
42	Solving nonequilibrium dynamical mean-field theory using matrix product states. Physical Review B, 2014, 90, .	3.2	91
43	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
44	Competing Regimes of Motion of 1D Mobile Impurities. Physical Review Letters, 2014, 113, 070601.	7.8	25
45	Hybrid NRG-DMRG approach to real-time dynamics of quantum impurity systems. Physical Review B, 2013, 87, .	3.2	37
46	Quantum dynamics of a mobile spin impurity. Nature Physics, 2013, 9, 235-241.	16.7	418
47	Matrix Product State Algorithms: DMRG, TEBD and Relatives. Springer Series in Solid-state Sciences, 2013, , 67-98.	0.3	4
48	Sudden expansion of Mott insulators in one dimension. Physical Review B, 2013, 88, .	3.2	58
49	Entanglement spectroscopy of SU(2)-broken phases in two dimensions. Physical Review B, 2013, 88, .	3.2	37
50	Multispinon Continua at Zero and Finite Temperature in a Near-Ideal Heisenberg Chain. Physical Review Letters, 2013, 111, 137205.	7.8	122
51	Lanczos algorithm with matrix product states for dynamical correlation functions. Physical Review B, 2012, 85, .	3.2	42
52	Confinement: A real-time visualization. Physical Review B, 2012, 85, .	3.2	8
53	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
54	Fractional excitations in cold atomic gases. Physical Review A, 2012, 86, .	2.5	6

#	Article	IF	Citations
55	Nature of the Spin-Liquid Ground State of the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>S</mml:mi><mml:mo>=</mml:mo><mml:mn>1</mml:mn><mml:mo>/</mml:mo><mml:mn>2</mml:mn><m Model on the Kagome Lattice. Physical Review Letters, 2012, 109, 067201.	7.8	487
56	Dipolar dynamics for interacting ultracold fermions in a trapped optical lattice. Physical Review A, 2012, 86, .	2.5	3
57	Simulations with matrix product states. , 2012, , .		0
58	Probing the relaxation towards equilibrium in an isolated strongly correlated one-dimensional BoseÂgas. Nature Physics, 2012, 8, 325-330.	16.7	762
59	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
60	The ALPS project release 2.0: open source software for strongly correlated systems. Journal of Statistical Mechanics: Theory and Experiment, 2011, 2011, P05001.	2.3	528
61	Landau-Zener Sweeps and Sudden Quenches in Coupled Bose-Hubbard Chains. Physical Review Letters, 2011, 106, 155302.	7.8	30
62	The density-matrix renormalization group in the age of matrix product states. Annals of Physics, 2011, 326, 96-192.	2.8	2,987
63	Trapped ultracold bosons in periodically modulated lattices. Physical Review A, 2011, 84, .	2.5	8
64	Coulomb interaction effects and electron spin relaxation in the one-dimensional Kondo lattice model. Physical Review B, 2011, 83, .	3.2	6
65	Quantum spinon oscillations in a finite one-dimensional transverse Ising model. Physical Review B, 2011, 83, .	3.2	6
66	Chebyshev matrix product state approach for spectral functions. Physical Review B, 2011, 83, .	3.2	96
67	The density-matrix renormalization group: a short introduction. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 2643-2661.	3.4	35
68	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
69	Effect of Electronâ^'Electron Interactions on the Charge Carrier Transitions in<i>trans</i>-Polyacetylene. Journal of Physical Chemistry A, 2010, 114, 5439-5444.	2.5	13
70	Variational matrix-product-state approach to quantum impurity models. Physical Review B, 2009, 80, .	3.2	101
71	Quasiparticles in the Kondo lattice model at partial fillings of the conduction band using the density matrix renormalization group. Physical Review B, 2009, 79, .	3.2	18
72	Spectral functions in one-dimensional quantum systems at finite temperature using the density matrix renormalization group. Physical Review B, 2009, 79, .	3.2	145

#	ARTICLE	IF	CITATIONS
73	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
74	Magnetism, coherent many-particle dynamics, and relaxation with ultracold bosons in optical superlattices. Physical Review A, 2009, 79, .	2.5	26
75	Kondo screening cloud in the single-impurity Anderson model: A density matrix renormalization group study. Physical Review B, 2009, 80, .	3.2	58
76	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
77	Dynamical simulations of charged soliton transport in conjugated polymers with the inclusion of electron-electron interactions. Journal of Chemical Physics, 2008, 129, 244705.	3.0	13
78	Exploring Local Quantum Many-Body Relaxation by Atoms in Optical Superlattices. Physical Review Letters, 2008, 101, 063001.	7.8	114
79	Vector chiral order in frustrated spin chains. Physical Review B, 2008, 77, .	3.2	49
80	Dephasing and the Steady State in Quantum Many-Particle Systems. Physical Review Letters, 2008, 100, 100601.	7.8	332
81	RECENT PROGRESS IN THE DENSITY-MATRIX RENORMALIZATION GROUP. International Journal of Modern Physics B, 2007, 21, 2564-2575.	2.0	5
82	The ALPS project release 1.3: Open-source software for strongly correlated systems. Journal of Magnetism and Magnetic Materials, 2007, 310, 1187-1193.	2.3	623
83	Progress in density matrix renormalization: What quantum information is teaching us. Journal of Magnetism and Magnetic Materials, 2007, 310, 1394-1400.	2.3	4
84	Entanglement scaling in critical two-dimensional fermionic and bosonic systems. Physical Review A, 2006, 74, .	2.5	138
85	Orbital currents and charge density waves in a generalized Hubbard ladder. Annals of Physics, 2006, 321, 894-933.	2.8	13
86	Cold Fermi gases: a new perspective on spin-charge separation. New Journal of Physics, 2006, 8, 220-220.	2.9	21
87	d-Wave Resonating Valence Bond States of Fermionic Atoms in Optical Lattices. Physical Review Letters, 2006, 96, 250402.	7.8	83
88	Spectroscopy of Ultracold Atoms by Periodic Lattice Modulations. Physical Review Letters, 2006, 97, 050402.	7.8	100
89	The density-matrix renormalization group. Reviews of Modern Physics, 2005, 77, 259-315.	45.6	2,480
90	The ALPS Project: Open Source Software for Strongly Correlated Systems. Journal of the Physical Society of Japan, 2005, 74, 30-35.	1.6	103

#	Article	IF	Citations
91	Real-time dynamics in spin-12chains with adaptive time-dependent density matrix renormalization group. Physical Review E, 2005, 71, 036102.	2.1	226
92	Time-dependent Density-Matrix Renormalization-Group Methods. Journal of the Physical Society of Japan, 2005, 74, 246-255.	1.6	32
93	Spin-Charge Separation in Cold Fermi Gases: A Real Time Analysis. Physical Review Letters, 2005, 95, 176401.	7.8	106
94	Non-Hermitian Luttinger liquids and flux line pinning in planar superconductors. Journal of Statistical Mechanics: Theory and Experiment, 2004, 2004, P10003.	2.3	32
95	Well-Defined Quasiparticles in Interacting Metallic Grains. Physical Review Letters, 2004, 93, 186402.	7.8	3
96	Variational ansatz for the superfluid Mott-insulator transition in optical lattices. Optics Express, 2004, 12, 42.	3.4	21
97	Time-dependent density-matrix renormalization-group using adaptive effective Hilbert spaces. Journal of Statistical Mechanics: Theory and Experiment, 2004, 2004, P04005.	2.3	839
98	Non-Hermitian Luttinger liquids and vortex physics. Europhysics Letters, 2004, 66, 178-184.	2.0	19
99	Persistent currents in mesoscopic rings: A numerical and renormalization group study. Physical Review B, 2003, 67, .	3.2	41
100	Conductance of interacting nanowires. Physical Review B, 2003, 67, .	3.2	40
101	Broken Time-Reversal Symmetry in Strongly Correlated Ladder Structures. Physical Review Letters, 2003, 90, 186401.	7.8	63
102	Scaling of the conductance in a quantum wire. Europhysics Letters, 2003, 64, 769-775.	2.0	23
103	Excitations and Dynamics of Spin-Orbital Chains. Progress of Theoretical Physics Supplement, 2002, 145, 259-265.	0.1	0
104	DMRG Studies of Impurities in Luttinger Liquids. Progress of Theoretical Physics Supplement, 2002, 145, 312-319.	0.1	2
105	A Single Impurity in a Luttinger Liquid: How It â€œCutsâ€•the Chain. Journal of Low Temperature Physics, 2002, 126, 1147-1163.	1.4	35
106	Dynamical Mean-Field Theory for the Normal Phase of the Attractive Hubbard Model. Journal of Low Temperature Physics, 2002, 126, 961-977.	1.4	19
107	Universal finite-size scaling amplitudes in anisotropic scaling. Journal of Physics A, 2001, 34, 3333-3350.	1.6	30
108	Critical properties of the reaction-diffusion model2Aâ†’3A,2Aâ†’0. Physical Review E, 2001, 63, 036101.	2.1	81

#	Article	IF	Citations
109	Dynamical Mean-Field Theory for Pairing and Spin Gap in the Attractive Hubbard Model. Physical Review Letters, 2001, 86, 4612-4615.	7.8	112
110	Ground states and excitations of a one-dimensionalkagomÃ©-like antiferromagnet. Physical Review B, 2000, 62, 9472-9483.	3.2	34
111	Boundary effects on one-particle spectra of Luttinger liquids. Physical Review B, 2000, 61, 4393-4396.	3.2	14
112	Specific heat of anS=12Heisenberg ladder compoundCu2(C5H12N2)2Cl4under magnetic fields. Physical Review B, 2000, 62, 1051-1057.	3.2	39
113	Density matrix renormalization group for disordered bosons in one dimension. Europhysics Letters, 1999, 46, 559-564.	2.0	121
114	Thermodynamics of a superconductor with strongly bound Cooper pairs. Physical Review B, 1999, 60, 3499-3507.	3.2	32
115	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
116	Density matrix renormalization group and reaction-diffusion processes. European Physical Journal B, 1999, 12, 99-114.	1.5	91
117	Thermodynamics of Frustrated Quantum Spin Chains. Physical Review Letters, 1998, 81, 445-448.	7.8	39
118	Combination of ferromagnetic and antiferromagnetic features in Heisenberg ferrimagnets. Journal of Physics Condensed Matter, 1998, 10, 11033-11048.	1.8	49
119	Frustrated antiferromagnetic quantum spin chains for spin lengthS>1. Physical Review B, 1998, 58, 9264-9268.	3.2	25
120	Marshallâ€™s sign rule and density-matrix renormalization-group acceleration. Physical Review B, 1998, 58, 8194-8197.	3.2	13
121	Frustrated quantum Heisenberg ferrimagnetic chains. Physical Review B, 1998, 58, 14456-14461.	3.2	30
122	Absence of string order in the anisotropicS=2Heisenberg antiferromagnet. Physical Review B, 1998, 58, 359-365.	3.2	25
123	Thermodynamics of the(1,12)ferrimagnet in finite magnetic fields. Physical Review B, 1998, 58, R5908-R5911.	3.2	75
124	Spin ladders with nonmagnetic impurities. Physical Review B, 1997, 55, 2955-2963.	3.2	36
125	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
126	S=2 antiferromagnetic quantum spin chain. Physical Review B, 1996, 54, 4038-4051.	3.2	72

#	Article	IF	Citations
127	Onset of incommensurability at the valence-bond-solid point in theS=1 quantum spin chain. Physical Review B, 1996, 53, 3304-3311.	3.2	137
128	Comment on â€œQuantum Monte Carlo Approach to Elementary Excitations of Antiferromagnetic Heisenberg Chainsâ€. Physical Review Letters, 1996, 77, 2844-2844.	7.8	11
129	Real-space renormalization-group study of the phase diagram of two coupled quantum spin-1/2 chains. Physical Review B, 1996, 53, 240-250.	3.2	7
130	First Order Transition in the Frustrated Antiferromagnetic HeisenbergS=1Quantum Spin Chain. Physical Review Letters, 1996, 77, 5142-5145.	7.8	75
131	Haldane Gap and Hidden Order in the <i>S</i> = 2 Antiferromagnetic Quantum Spin Chain. Europhysics Letters, 1995, 30, 493-498.	2.0	122