

Federico Becca

List of Publications by Year in descending order

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123
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2965
citing authors

#	ARTICLE	IF	CITATIONS
1	Solutions of the Two-Dimensional Hubbard Model: Benchmarks and Results from a Wide Range of Numerical Algorithms. <i>Physical Review X</i> , 2015, 5, .	2.8	398
2	Magnetic Superstructure in the Two-Dimensional Quantum Antiferromagnet SrCu ₂ (BO ₃) ₂ . <i>Science</i> , 2002, 298, 395-399.	6.0	288
3	Gapless spin-liquid phase in the kagome spin- $\frac{1}{2}$ Heisenberg antiferromagnet. <i>Physical Review B</i> , 2013, 87, .	1.1	249
4	Superconductivity in the Two-Dimensional t-J Model. <i>Physical Review Letters</i> , 2002, 88, 117002.	2.9	194
5	Resonating Valence Bond Wave Functions for Strongly Frustrated Spin Systems. <i>Physical Review Letters</i> , 2001, 87, 097201.	2.9	185
6	Spin liquid nature in the Heisenberg J_1 - J_2 antiferromagnet. <i>Physical Review B</i> , 2016, 93, .	1.1	168
7	Variational Description of Mott Insulators. <i>Physical Review Letters</i> , 2005, 94, 026406.	2.9	155
8	Localization and Glassy Dynamics Of Many-Body Quantum Systems. <i>Scientific Reports</i> , 2012, 2, 243.	1.6	145
9	Direct evidence for a gapless spin liquid by frustrating Néel antiferromagnetism. <i>Physical Review B</i> , 2013, 88, .	1.1	137
10	Projected wave function study of Z_2 spin liquids on the kagome lattice for the spin- $\frac{1}{2}$ Heisenberg quantum antiferromagnet. <i>Physical Review B</i> , 2011, 84, .	1.1	132
11	Quantum compass model on the square lattice. <i>Physical Review B</i> , 2005, 72, .	1.1	105
12	Vanishing spin gap in a competing spin-liquid phase in the kagome Heisenberg antiferromagnet. <i>Physical Review B</i> , 2014, 89, .	1.1	96
13	Light-cone effect and supersonic correlations in one- and two-dimensional bosonic superfluids. <i>Physical Review A</i> , 2014, 89, .	1.0	90
14	Spin- $\frac{1}{2}$ Heisenberg model on the anisotropic triangular lattice: From magnetism to a one-dimensional spin liquid. <i>Physical Review B</i> , 2009, 80, .	1.1	88
15	Ising Transition Driven by Frustration in a 2D Classical Model with Continuous Symmetry. <i>Physical Review Letters</i> , 2003, 91, 177202.	2.9	87
16	Charge-density waves and superconductivity as an alternative to phase separation in the infinite-U Hubbard-Holstein model. <i>Physical Review B</i> , 1996, 54, 12443-12457.	1.1	84
17	Dynamical behavior across the Mott transition of two bands with different bandwidths. <i>Physical Review B</i> , 2005, 72, .	1.1	82
18	Role of backflow correlations for the nonmagnetic phase of the t - J model. <i>Physical Review B</i> , 2008, 78, .	1.1	81

#	ARTICLE	IF	CITATIONS
19	Valence-bond crystal in the extended kagome spin- $\frac{1}{2}$ Heisenberg antiferromagnet: A variational Monte Carlo approach. Physical Review B, 2011, 83, .	1.1	70
20	Spin- $\frac{1}{2}$ Heisenberg antiferromagnet on the kagome lattice. Physical Review B, 2015, 91, .		
21	Zero-temperature properties of the quantum dimer model on the triangular lattice. Physical Review B, 2005, 71, .	1.1	68
22	Spin-liquid versus spiral-order phases in the anisotropic triangular lattice. Physical Review B, 2013, 87, .	1.1	65
23	Spin-liquid and magnetic phases in the anisotropic triangular lattice: The case of $\frac{1}{2}$ Heisenberg antiferromagnet. Physical Review B, 2009, 80, .	1.1	64
24	Dynamical Structure Factor of the $\frac{1}{2}$ Heisenberg Model on the Triangular Lattice: Magnons, Spinons, and Gauge Fields. Physical Review X, 2019, 9, .	2.8	60
25	Peierls-Like Transition Induced by Frustration in a Two-Dimensional Antiferromagnet. Physical Review Letters, 2002, 89, 037204.	2.9	59
26	Charge Fluctuations Close to Phase Separation in the Two-Dimensional $\frac{1}{2}$ Model. Physical Review Letters, 1998, 81, 5185-5188.	2.9	58
27	Gapped spin-liquid phase in the $\frac{1}{2}$ model by a bosonic resonating valence-bond ansatz. Physical Review B, 2012, 86, .	2.8	64
28	Spatially homogeneous ground state of the two-dimensional Hubbard model. Physical Review B, 2000, 62, 12700-12706.	1.1	52
29	Backflow correlations in the Hubbard model: An efficient tool for the study of the metal-insulator transition and the large- U limit. Physical Review B, 2011, 83, .	1.1	51
30	Magnetism and superconductivity in the $\frac{1}{2}$ model. Physical Review B, 2008, 77, .	1.1	50
31	Spectral signatures of fractionalization in the frustrated Heisenberg model on the square lattice. Physical Review B, 2018, 98, .	1.1	49
32	Neural Gutzwiller-projected variational wave functions. Physical Review B, 2019, 100, .	1.1	48
33	Mott metal-insulator transition in the half-filled Hubbard model on the triangular lattice. Physical Review B, 2001, 63, .	1.1	47
34	Variational Monte Carlo study of a chiral spin liquid in the extended Heisenberg model on the kagome lattice. Physical Review B, 2015, 91, .	1.1	47
35	Unconventional metal-insulator transition in two dimensions. Physical Review B, 2006, 73, .	1.1	46
36	Superfluid to Mott-Insulator Transition in Bose-Hubbard Models. Physical Review Letters, 2007, 99, 056402.	2.9	46

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37	Theory of spin-density profile and lattice distortion in the magnetization plateaus of SrCu ₂ (BO ₃) ₂ . Physical Review B, 2003, 68, .	1.1	40
38	Hidden Mott transition and large- U superconductivity in the two-dimensional Hubbard model. Physical Review B, 2016, 94, .	1.1	40
39	Superconductivity, charge-density waves, antiferromagnetism, and phase separation in the Hubbard-Holstein model. Physical Review B, 2017, 96, .	1.1	38
40	Nagaoka Ferromagnetism in the Two-Dimensional Infinite-U Hubbard Model. Physical Review Letters, 2001, 86, 3396-3399.	2.9	37
41	Suppression of dimer correlations in the two-dimensional J^2 Heisenberg model: An exact diagonalization study. Physical Review B, 2003, 67, .	1.1	37
42	Dynamical structure factor of the Heisenberg model in one dimension: The variational Monte Carlo approach. Physical Review B, 2018, 97, .	1.1	37
43	Absence of static stripes in the two-dimensional t - J model determined using an accurate and systematic quantum Monte Carlo approach. Physical Review B, 2012, 85, .	1.1	36
44	Variational Monte Carlo approach to the two-dimensional Kondo lattice model. Physical Review B, 2013, 87, .	1.1	36
45	Gapless spin liquid and valence bond solid in the two-dimensional J_1 - J_2 Heisenberg model on the square lattice: Insights from singlet and triplet excitations. Physical Review B, 2020, 102, .	1.1	36
46	Time-dependent Gutzwiller theory of magnetic excitations in the Hubbard model. Physical Review B, 2004, 69, .	1.1	35
47	Finite compressibility in the low-doping region of the two-dimensional t - J model. Physical Review B, 2006, 74, .	1.1	35
48	Competition between spin liquids and valence-bond order in the frustrated spin-1/2 Heisenberg model on the honeycomb lattice. Physical Review B, 2017, 96, .	1.1	34
49	Identification of an RVB liquid phase in a quantum dimer model with competing kinetic terms. Physical Review B, 2006, 74, .	1.1	32
50	Valence-bond crystals in the kagomé spin-1/2 Heisenberg antiferromagnet: a symmetry classification and projected wave function study. New Journal of Physics, 2012, 14, 115031.	1.2	31
51	Dynamics of the quantum dimer model on the triangular lattice: Soft modes and local resonating valence-bond correlations. Physical Review B, 2006, 74, .	1.1	30
52	Inhomogeneous Gutzwiller approximation with random phase fluctuations for the Hubbard model. Physical Review B, 2003, 67, .	1.1	29
53	Theory of Antibound States in Partially Filled Narrow Band Systems. Physical Review Letters, 2008, 100, 016405.	2.9	29
54	One-dimensional spin liquid, collinear, and spiral phases from uncoupled chains to the triangular lattice. Physical Review B, 2014, 89, .	1.1	29

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55	Investigation of the Néel phase of the frustrated Heisenberg antiferromagnet by differentiable symmetric tensor networks. SciPost Physics, 2021, 10, .	1.5	29
56	Stripes and Spin Incommensurabilities Are Favored by Lattice Anisotropies. Physical Review Letters, 2001, 87, 167005.	2.9	28
57	Variational wave functions for the $S=1$ model on the anisotropic triangular lattice: Spin liquids and spiral orders. Physical Review B, 2016, 93, .	1.1	28
58	Ground-state properties of the Hubbard model by Lanczos diagonalizations. Physical Review B, 2000, 61, R16287-R16290.	1.1	26
59	Itinerant ferromagnetic phase of the Hubbard model. Physical Review B, 2011, 83, .	1.1	26
60	Spiral antiferromagnets beyond the spin-wave approximation: Frustrated XY and Heisenberg models on the honeycomb lattice. Physical Review B, 2014, 89, .	1.1	25
61	Persistence of the gapless spin liquid in the breathing kagome Heisenberg antiferromagnet. Physical Review B, 2018, 97, .	1.1	24
62	Finite-temperature properties of frustrated classical spins coupled to the lattice. Physical Review B, 2005, 72, .	1.1	22
63	Metallic charge density waves and surface Mott insulators for adlayer structures on semiconductors: extended Hubbard modeling. Surface Science, 1998, 402-404, 802-807.	0.8	21
64	Mott transition in bosonic systems: Insights from the variational approach. Physical Review B, 2008, 77, .	1.1	21
65	Ground-state properties of the disordered Hubbard model in two dimensions. Physical Review B, 2010, 81, .	1.1	21
66	Tetramerization of a Frustrated Spin-1/2 Chain. Physical Review Letters, 2003, 91, 067202.	2.9	20
67	Crystallization of the resonating valence bond liquid as vortex condensation. Physical Review B, 2007, 76, .	1.1	20
68	Nature of the phases in the frustrated XY model on the honeycomb lattice. Physical Review B, 2013, 88, .	1.1	20
69	Metallic and insulating stripes and their relation with superconductivity in the doped Hubbard model. SciPost Physics, 2019, 7, .	1.5	20
70	The $\frac{1}{2}$ -magnetization plateau state in the 2D quantum antiferromagnet $\text{SrCu}_2(\text{BO}_3)_2$: spin superstructure, phase transition, and spin dynamics studied by high-field NMR. Physica B: Condensed Matter, 2004, 346-347, 27-33.	1.3	19
71	Doping quantum dimer models on the square lattice. Physical Review B, 2006, 74, .	1.1	19
72	Strong renormalization of the Fermi-surface topology close to the Mott transition. Physical Review B, 2012, 86, .	1.1	19

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73	Chiral Spin Liquid Wave Function and the Lieb-Schultz-Mattis Theorem. <i>Physical Review Letters</i> , 2003, 91, 257005.	2.9	17
74	From Luttinger liquid to Mott insulator: The correct low-energy description of the one-dimensional Hubbard model by an unbiased variational approach. <i>Physical Review B</i> , 2005, 72, .	1.1	16
75	Quantum quenches in one-dimensional gapless systems. <i>European Physical Journal B</i> , 2013, 86, 1.	0.6	15
76	Metal-insulator transitions, superconductivity, and magnetism in the two-band Hubbard model. <i>Physical Review B</i> , 2018, 98, .	1.1	15
77	Characterization of the Bose-glass phase in low-dimensional lattices. <i>Physical Review B</i> , 2010, 81, .	1.1	14
78	Bose-glass, superfluid, and rung-Mott phases of hard-core bosons in disordered two-leg ladders. <i>Physical Review B</i> , 2011, 83, .	1.1	14
79	Charge orders in organic charge-transfer salts. <i>New Journal of Physics</i> , 2017, 19, 103033.	1.2	14
80	Magnetic and spin-liquid phases in the frustrated t - J Hubbard model on the triangular lattice. <i>Physical Review B</i> , 2020, 102, .	1.1	14
81	Dynamical properties of Néel and valence-bond phases in the J_1 - J_2 model on the honeycomb lattice. <i>Journal of Physics Condensed Matter</i> , 2020, 32, 274003.	0.7	14
82	Freezing and large time scales induced by geometrical frustration. <i>Physical Review B</i> , 2003, 68, .	1.1	13
83	d-wave pairing in lightly doped Mott insulators. <i>Physical Review B</i> , 2005, 71, .	1.1	13
84	The emergence of resonating valence bond physics in spin-orbital models. <i>Journal of Physics Condensed Matter</i> , 2007, 19, 145201.	0.7	13
85	Time-dependent Gutzwiller theory of pairing fluctuations in the Hubbard model. <i>Physical Review B</i> , 2008, 78, .	1.1	13
86	Reptation quantum Monte Carlo algorithm for lattice Hamiltonians with a directed-update scheme. <i>Physical Review E</i> , 2010, 82, 046710.	0.8	13
87	Superconductivity from spoiling magnetism in the Kondo lattice model. <i>Physical Review B</i> , 2014, 90, .	1.1	13
88	Gutzwiller projected states for the J_1 - J_2 Heisenberg model on the Kagome lattice: Achievements and pitfalls. <i>Physical Review B</i> , 2021, 104, .	1.1	13
89	Sorella et al. Reply. <i>Physical Review Letters</i> , 2002, 89, .	2.9	12
90	Quantum phase transition in coupled spin ladders. <i>Physical Review B</i> , 2002, 65, .	1.1	12

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91	Theoretical constraints for the magnetic-dimer transition in two-dimensional spin models. <i>Physical Review B</i> , 2006, 73, .	1.1	12
92	Assessing the orbital selective Mott transition with variational wave functions. <i>Journal of Physics Condensed Matter</i> , 2016, 28, 105602.	0.7	12
93	Local moments and magnetic order in the two-dimensional Anderson-Mott transition. <i>Physical Review B</i> , 2009, 79, .	1.1	10
94	Metal-insulator transition and strong-coupling spin liquid in the $t\text{-}t'$ Hubbard model. <i>Journal of Physics: Conference Series</i> , 2009, 145, 012016.	0.3	10
95	Nonlocal Parity Order in the Two-Dimensional Mott Insulator. <i>Physical Review Letters</i> , 2017, 118, 157602.	2.9	10
96	Ground state of a Heisenberg chain with next-nearest-neighbor bond alternation. <i>Physical Review B</i> , 2003, 67, .	1.1	9
97	Magnetic Field Induced Transition in a Quantum Magnet Described by the Quantum Dimer Model. <i>Physical Review Letters</i> , 2008, 101, 117204.	2.9	9
98	Gapless spin liquids in disguise. <i>Physical Review B</i> , 2021, 103, .	1.1	9
99	Incommensurate charge-density-wave instability in the extended three-band Hubbard model. <i>Physical Review B</i> , 1998, 57, 4382-4396.	1.1	8
100	Interaction-induced Fermi-surface renormalization in the $t_1\text{-}t_2$ Hubbard model close to the Mott-Hubbard transition. <i>Physical Review B</i> , 2010, 81, .	1.1	8
101	Lanczos steps to improve variational wave functions. <i>Journal of Physics: Conference Series</i> , 2015, 640, 012039.	0.3	8
102	Spontaneous symmetry breaking in correlated wave functions. <i>Physical Review B</i> , 2016, 93, .	1.1	8
103	Variational Wave Functions for Frustrated Magnetic Models. <i>Springer Series in Solid-state Sciences</i> , 2011, , 379-406.	0.3	8
104	Comment on "Phase Diagram of an Asymmetric Spin Ladder". <i>Physical Review Letters</i> , 2002, 89, 149701; author reply 149702.	2.9	7
105	Exotic gapless spectrum induced by frustration in quantum antiferromagnets. <i>Physical Review B</i> , 2007, 76, .	1.1	7
106	Variational wave functions for the spin-Peierls transition in the Su-Schrieffer-Heeger model with quantum phonons. <i>Physical Review B</i> , 2020, 102, .	1.1	7
107	Superconductivity in the Hubbard model: a hidden-order diagnostics from the Luther-Emery phase on ladders. , 2019, 6, .		7
108	Accuracy of restricted Boltzmann machines for the one-dimensional $S=1/2$ Heisenberg model. <i>SciPost Physics</i> , 2022, 12, .	1.5	7

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109	COMMENSURATE VERSUS INCOMMENSURATE SPIN-ORDERING IN THE TRIANGULAR HUBBARD MODEL. International Journal of Modern Physics B, 2000, 14, 3386-3391.	1.0	6
110	Stripes in the extended $t\text{-}t'$ Hubbard model: A Variational Monte Carlo analysis. SciPost Physics, 2022, 12, .	1.5	6
111	Exact bounds on the ground-state energy of the infinite-U Hubbard model. Physical Review B, 2000, 62, 15277-15278.	1.1	5
112	Phase diagram of hard-core bosons on a zigzag ladder. Physical Review B, 2011, 83, .	1.1	5
113	Variational Monte Carlo study of a gapless spin liquid in the spin- $1/2$ antiferromagnetic model on the kagome lattice. Physical Review B, 2015, 92, .	1.4	5
114	Hubbard model on triangular N -leg cylinders: Chiral and nonchiral spin liquids. Physical Review Research, 2021, 3, .	1.3	5
115	Optimization of infinite projected entangled pair states: The role of multiplets and their breaking. Physical Review B, 2019, 100, .	1.1	4
116	Effects of spin-phonon coupling in frustrated Heisenberg models. Physical Review B, 2021, 104, .	1.1	4
117	Magnetoelastic effects and magnetization plateaus in two-dimensional systems. Physical Review B, 2007, 75, .	1.1	3
118	Extracting the Mott gap from energy measurements in trapped atomic gases. Physical Review A, 2010, 82, .	1.0	3
119	Projected-BCS wave functions for resonating valence bond spin liquids. Journal of Magnetism and Magnetic Materials, 2004, 272-276, 138-139.	1.0	2
120	Break it up. Nature Physics, 2015, 11, 8-9.	6.5	1
121	Ground state of coupled spin-half ladders. Journal of Magnetism and Magnetic Materials, 2004, 272-276, 261-262.	1.0	0
122	Variational approach for the superfluid-insulator transition in the bosonic Hubbard model. Physica B: Condensed Matter, 2008, 403, 1293-1294.	1.3	0