Claudius Gros

List of Publications by Year in descending order

149 papers	3,653 citations	147566 31 h-index	155451 55 g-index
155 all docs	155 docs citations	155 times ranked	2365 citing authors

#	Article	IF	Citations
1	Superconductivity in correlated wave functions. Physical Review B, 1988, 38, 931-934.	1.1	277
2	Physics of projected wavefunctions. Annals of Physics, 1989, 189, 53-88.	1.0	237
3	NaV2O5as a Quarter-Filled Ladder Compound. Physical Review Letters, 1998, 80, 5164-5167.	2.9	233
4	Power laws and self-organized criticality in theory and nature. Physics Reports, 2014, 536, 41-74.	10.3	203
5	Gutzwillerâ€“RVB theory of high-temperature superconductivity: Results from renormalized mean-field theory and variational Monte Carlo calculations. Advances in Physics, 2007, 56, 927-1033.	35.9	153
6	Cluster expansion for the self-energy: A simple many-body method for interpreting the photoemission spectra of correlated Fermi systems. Physical Review B, 1993, 48, 418-425.	1.1	94
7	Low-Temperature Transport in Heisenberg Chains. Physical Review Letters, 2002, 88, 077203.	2.9	82
8	Evidence for an Unconventional Magnetic Instability in the Spin-Tetrahedra SystemCu2Te2O5Br2. Physical Review Letters, 2001, 87, 227201.	2.9	79
9	Intrinsic Adaptation in Autonomous Recurrent Neural Networks. Neural Computation, 2012, 24, 523-540.	1.3	74
10	Spin-liquid versus spiral-order phases in the anisotropic triangular lattice. Physical Review B, 2013, 87, .	1.1	65
11	Luttinger liquid instability of the 2Dt-Jmodel: A variational study. Physical Review Letters, 1992, 68, 2402-2405.	2.9	64
12	Spin-liquid and magnetic phases in the anisotropic triangular lattice: The case of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>Îº</mml:mi><mml:mtext>â^’</mml:mtext><mml:msub><mml:mrow><mml:mrow><mml:mo>(</mml:mo> Physical Review B, 2009, 80, .	1.1	64
13	Complex and Adaptive Dynamical Systems. , 2008, , .		62
14	Cognitive Computation with Autonomously Active Neural Networks: An Emerging Field. Cognitive Computation, 2009, 1, 77-90.	3.6	61
15	Dynamics of the Peierls-active phonon modes inCuGeO3. Physical Review B, 1998, 58, R14677-R14680.	1.1	55
16	Anomalous Thermal Conductivity of Frustrated Heisenberg Spin Chains and Ladders. Physical Review Letters, 2002, 89, 156603.	2.9	55
17	The boundary condition integration technique: results for the Hubbard model in 1D and 2D. European Physical Journal B, 1992, 86, 359-365.	0.6	52
18	Magnon Splitting Induced by Charge Ordering in NaV2O5. Physical Review Letters, 1999, 82, 976-979.	2.9	52

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19	Backflow correlations in the Hubbard model: An efficient tool for the study of the metal-insulator transition and the large-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>U</mml:mi></mml:mrow></mml:math>limit. Physical Review B, 2011, 83, .	1.1	51
20	Frustration-induced Raman scattering in CuGeO3. Physical Review B, 1996, 54, R9635-R9638.	1.1	50
21	Spontaneous breaking of the Fermi-surface symmetry in thetâ^Jmodel: A numerical study. Physical Review B, 2006, 74, .	1.1	49
22	Microscopic spin-phonon coupling constants inCuGeO3. Physical Review B, 1999, 59, 14356-14366.	1.1	48
23	TiOCl, an orbital-ordered system?. Europhysics Letters, 2004, 67, 63-69.	0.7	44
24	Wickâ€™s theorem for charged spin systems. Physical Review B, 1989, 40, 9423-9426.	1.1	42
25	Halogen-mediated exchange in the coupled-tetrahedra quantum spin systemsCu2Te2O5X2(X=Br,Cl). Physical Review B, 2003, 67, .	1.1	42
26	Modeling the Electronic Behavior ofÎ³â^'LiV2O5: A Microscopic Study. Physical Review Letters, 2001, 86, 5381-5384.	2.9	41
27	Complex and Adaptive Dynamical Systems. , 2015, , .		41
28	Control of the finite-size corrections in exact diagonalization studies. Physical Review B, 1996, 53, 6865-6868.	1.1	39
29	Chaos in time delay systems, an educational review. Physics Reports, 2019, 824, 1-40.	10.3	35
30	Determining the underlying Fermi surface of strongly correlated superconductors. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 14298-14301.	3.3	33
31	Microscopic Model of Nonreciprocal Optical Effects inCr2O3. Physical Review Letters, 1995, 75, 2766-2769.	2.9	32
32	Theory of nonreciprocal optical effects in antiferromagnets: The case ofCr2O3. Physical Review B, 1996, 54, 433-440.	1.1	32
33	Cognition and Emotion: Perspectives of a Closing Gap. Cognitive Computation, 2010, 2, 78-85.	3.6	32
34	Neural networks with transient state dynamics. New Journal of Physics, 2007, 9, 109-109.	1.2	31
35	Nature of the spin-singlet ground state inCaCuGe2O6. Physical Review B, 2002, 66, .	1.1	30
36	Conductivity of quantum spin chains: A quantum Monte Carlo approach. Physical Review B, 2002, 66, .	1.1	29

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37	One-dimensional spin liquid, collinear, and spiral phases from uncoupled chains to the triangular lattice. Physical Review B, 2014, 89, .	1.1	29
38	Equation-of-motion approach to the Hubbard model in infinite dimensions. Physical Review B, 1994, 50, 7295-7303.	1.1	28
39	Learning and Animal Movement. Frontiers in Ecology and Evolution, 2021, 9, .	1.1	28
40	Conjecture concerning the fractional Hall hierarchy. Physical Review B, 1990, 42, 9514-9521.	1.1	27
41	Electronic Structure of Strongly Correlatedd-Wave Superconductors. Physical Review Letters, 2006, 96, 207002.	2.9	27
42	Phase Diagram of the Triangular Extended Hubbard Model. Physical Review Letters, 2014, 113, 246405.	2.9	27
43	Na2V3O7: A Frustrated Nanotubular System with Spin-1/2Diamond Ring Geometry. Physical Review Letters, 2005, 95, 107201.	2.9	25
44	Containment efficiency and control strategies for the corona pandemic costs. Scientific Reports, 2021, 11, 6848.	1.6	25
45	Self-Organized Chaos through Polyhomeostatic Optimization. Physical Review Letters, 2010, 105, 068702.	2.9	23
46	Generating functionals for autonomous latching dynamics in attractor relict networks. Scientific Reports, 2013, 3, 2042.	1.6	23
47	The phase diagram of the square lattice bilayer Hubbard model: a variational Monte Carlo study. New Journal of Physics, 2014, 16, 033010.	1.2	23
48	How to test for partially predictable chaos. Scientific Reports, 2017, 7, 1087.	1.6	22
49	Particle number renormalization in nearly half-filled Mott Hubbard superconductors. Physical Review B, 2005, 72, .	1.1	20
50	Mott correlated states in the underdoped two-dimensional Hubbard model: Variational Monte Carlo versus a dynamical cluster approximation. Physical Review B, 2013, 87, .	1.1	20
51	Fermi surface renormalization in Hubbard ladders. Physical Review B, 2001, 64, .	1.1	19
52	Proposed low-energy model Hamiltonian for the spin-gapped systemCuTe2O5. Physical Review B, 2008, 77, .	1.1	19
53	Strong renormalization of the Fermi-surface topology close to the Mott transition. Physical Review B, 2012, 86, .	1.1	19
54	Neuropsychological constraints to human data production on a global scale. European Physical Journal B, 2012, 85, 1.	0.6	18

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55	Chiral ordering in a frustrated quantum spin system. Physical Review B, 1991, 44, 906-909.	1.1	17
56	Interaction-Induced Collapse of a Section of the Fermi Sea in the Zigzag Hubbard Ladder. Physical Review Letters, 2002, 88, 217203.	2.9	17
57	Complex and Adaptive Dynamical Systems. , 2013, , .		17
58	A self-consistent cluster study of the Emery model. Annalen Der Physik, 1994, 506, 460-466.	0.9	16
59	Quantum Monte Carlo simulation for the conductance of one-dimensional quantum spin systems. Physical Review B, 2003, 68, .	1.1	16
60	Criterion for a good variational wave function. Physical Review B, 1990, 42, 6835-6838.	1.1	15
61	The Sensorimotor Loop as a Dynamical System: How Regular Motion Primitives May Emerge from Self-Organized Limit Cycles. Frontiers in Robotics and AI, 2015, 2, .	2.0	15
62	Closed-loop Robots Driven by Short-Term Synaptic Plasticity: Emergent Explorative vs. Limit-Cycle Locomotion. Frontiers in Neurorobotics, 2016, 10, 12.	1.6	15
63	Geometry-controlled conserving approximations for thet-Jmodel. Physical Review B, 1991, 43, 11207-11239.	1.1	13
64	J1-J2model revisited: Phenomenology ofCuGeO3. Physical Review B, 1997, 55, 5944-5952.	1.1	13
65	A versatile class of prototype dynamical systems for complex bifurcation cascades of limit cycles. Scientific Reports, 2015, 5, 12316.	1.6	13
66	Rigorous bounds for ground-state properties of correlated Fermi systems. Physical Review B, 1991, 44, 13203-13212.	1.1	12
67	The spin- Heisenberg star with frustration: II. The influence of the embedding medium. Journal of Physics A, 1996, 29, 825-836.	1.6	12
68	Low energy singlets in the excitation spectrum of the spin tetrahedra system Cu2Te2O5Br2. Journal of Physics and Chemistry of Solids, 2002, 63, 1115-1117.	1.9	12
69	Evaluation of matrix elements in partially projected wave functions. Physical Review B, 2005, 72, .	1.1	12
70	Generating Functionals for Computational Intelligence: The Fisher Information as an Objective Function for Self-Limiting Hebbian Learning Rules. Frontiers in Robotics and AI, 2014, 1, .	2.0	12
71	Exploration in free word association networks: models and experiment. Cognitive Processing, 2014, 15, 195-200.	0.7	12
72	Molecular-field approach to the spin-Peierls transition inCuGeO3. Physical Review B, 1998, 57, 2897-2903.	1.1	11

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73	Magnon-magnon interactions in the spin-Peierls compoundCuGeO3. Physical Review B, 1997, 55, 15048-15052.	1.1	10
74	Suppression of topological Mott-Hubbard phases by multiple charge orders in the honeycomb extended Hubbard model. Physical Review B, 2018, 97, .	1.1	10
75	A devilâ€™s advocate view on â€˜self-organizedâ€™ brain criticality. Journal of Physics Complexity, 2021, 2, 031001.	0.9	10
76	Variational theorem for vector-mean-field theories of statistical transmutation. Physical Review B, 1991, 43, 5883-5907.	1.1	9
77	LUTTINGER-LIQUID BEHAVIOUR IN 2D: THE VARIATIONAL APPROACH. Modern Physics Letters B, 1993, 07, 119-141.	1.0	9
78	On the evaluation of the specific heat and general off-diagonal n-point correlation functions within the loop algorithm. European Physical Journal B, 2000, 15, 641-648.	0.6	9
79	Test of the frustrated spin-cluster model to describe the low-temperature physics ofNaV2O5. Physical Review B, 2000, 62, R14617-R14620.	1.1	9
80	Minimal charge gap in the ionic Hubbard model. Physical Review B, 2003, 68, .	1.1	9
81	Simultaneous charge ordering and spin dimerization in quasi-two-dimensional quarter-filled ladders. Physical Review B, 2004, 69, .	1.1	9
82	Universal scaling relation for magnetic sails: momentum braking in the limit of dilute interstellar media. Journal of Physics Communications, 2017, 1, 045007.	0.5	9
83	E-I balance emerges naturally from continuous Hebbian learning in autonomous neural networks. Scientific Reports, 2018, 8, 8939.	1.6	9
84	Pushing the Complexity Barrier: Diminishing Returns in the Sciences. Complex Systems, 2012, 21, 183-192.	0.9	9
85	Gros and Alvarez Reply:. Physical Review Letters, 2004, 92, .	2.9	8
86	Interaction-induced Fermi-surface renormalization in thet1â^'t2Hubbard model close to the Mott-Hubbard transition. Physical Review B, 2010, 81, .	1.1	8
87	Generating Functionals for Guided Self-Organization. Emergence, Complexity and Computation, 2014, , 53-66.	0.2	8
88	Developing ecospheres on transiently habitable planets: the genesis project. Astrophysics and Space Science, 2016, 361, 1.	0.5	8
89	Spontaneous symmetry breaking in correlated wave functions. Physical Review B, 2016, 93, .	1.1	8
90	Five decades of US, UK, German and Dutch music charts show that cultural processes are accelerating. Royal Society Open Science, 2019, 6, 190944.	1.1	8

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91	Emergent lattices with geometrical frustration in doped extended Hubbard models. Physical Review B, 2016, 94, .	1.1	7
92	Entrenched time delays versus accelerating opinion dynamics: are advanced democracies inherently unstable?. European Physical Journal B, 2017, 90, 1.	0.6	7
93	Perovskites in high dimensions. European Physical Journal B, 1993, 90, 161-166.	0.6	6
94	Dzyaloshinskii-Moriya interaction inNaV2O5:A microscopic study. Physical Review B, 2000, 62, 14164-14170.	1.1	6
95	On the stacking charge order in NaV2O5. Journal of Physics Condensed Matter, 2004, 16, L415-L420.	0.7	6
96	The Fisher Information as a Neural Guiding Principle for Independent Component Analysis. Entropy, 2015, 17, 3838-3856.	1.1	6
97	Two-Trace Model for Spike-Timing-Dependent Synaptic Plasticity. Neural Computation, 2015, 27, 672-698.	1.3	6
98	Self-organized stochastic tipping in slow-fast dynamical systems. Mathematics and Mechanics of Complex Systems, 2013, 1, 129-147.	0.5	6
99	Criticality in conserved dynamical systems: Experimental observation vs. exact properties. Chaos, 2013, 23, 013106.	1.0	5
100	Attractor metadynamics in terms of target points in slow-fast systems: adiabatic versus symmetry protected flow in a recurrent neural network. Journal of Physics Communications, 2018, 2, 095008.	0.5	5
101	An empirical study of the per capita yield of science Nobel prizes: is the US era coming to an end?. Royal Society Open Science, 2018, 5, 180167.	1.1	5
102	Local Homeostatic Regulation of the Spectral Radius of Echo-State Networks. Frontiers in Computational Neuroscience, 2021, 15, 587721.	1.2	5
103	Emotional Controlâ€“Conditio Sine Qua Non for Advanced Artificial Intelligences?. Studies in Applied Philosophy, Epistemology and Rational Ethics, 2013, , 187-198.	0.2	5
104	An exact mapping of the t-J model to the unrestricted Hilbert space. Physica B: Condensed Matter, 1990, 165-166, 985-986.	1.3	4
105	Spin-charge separation at small length scales in the two-dimensionalt-Jmodel. Physical Review B, 1994, 50, 11313-11317.	1.1	4
106	Quantum Monte Carlo simulation for the spin-drag conductance of the Hubbard model. New Journal of Physics, 2004, 6, 187-187.	1.2	4
107	A Self-Organized Neural Comparator. Neural Computation, 2013, 25, 1006-1028.	1.3	4
108	Kick Control: Using the Attracting States Arising Within the Sensorimotor Loop of Self-Organized Robots as Motor Primitives. Frontiers in Neurorobotics, 2018, 12, 40.	1.6	4

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109	Embodied robots driven by self-organized environmental feedback. Adaptive Behavior, 2019, 27, 285-294.	1.1	4
110	Why planetary and exoplanetary protection differ: The case of long duration genesis missions to habitable but sterile M-dwarf oxygen planets. Acta Astronautica, 2019, 157, 263-267.	1.7	4
111	Predicting the cumulative medical load of COVID-19 outbreaks after the peak in daily fatalities. PLoS ONE, 2021, 16, e0247272.	1.1	4
112	Luttinger Liquid Instability of the 2Dtâ^'JModel: A Variational Study. Physical Review Letters, 1992, 69, 996-996.	2.9	3
113	Drifting States and Synchronization Induced Chaos in Autonomous Networks of Excitable Neurons. Frontiers in Computational Neuroscience, 2016, 10, 98.	1.2	3
114	Collective Strategy Condensation: When Envy Splits Societies. Entropy, 2021, 23, 157.	1.1	3
115	Reply to â€˜â€˜Comment on â€˜Chiral ordering in a frustrated quantum spin systemâ€™ â€™â€™. Physical Review B, 1992, 45, 10113-10114.	1.1	2
116	Evolving complex networks with conserved clique distributions. Physical Review E, 2008, 78, 016107.	0.8	2
117	A large-scale study of the world wide web: network correlation functions with scale-invariant boundaries. European Physical Journal B, 2013, 86, 1.	0.6	2
118	Self-induced class stratification in competitive societies of agents: Nash stability in the presence of envy. Royal Society Open Science, 2020, 7, 200411.	1.1	2
119	Absorbing phase transitions in a non-conserving sandpile model. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 035003.	0.7	2
120	Charting closed-loop collective cultural decisions: from book best sellers and music downloads to Twitter hashtags and Reddit comments. European Physical Journal B, 2021, 94, 1.	0.6	2
121	Self-sustained Thought Processes in a Dense Associative Network. Lecture Notes in Computer Science, 2005, , 366-379.	1.0	2
122	The economics of stop-and-go epidemic control. Socio-Economic Planning Sciences, 2021, , 101196.	2.5	2
123	Renormalization of the nodal quasiparticle current in the Resonating Valence Bond (RVB) theory. Physica C: Superconductivity and Its Applications, 2007, 460-462, 1151-1152.	0.6	1
124	Bifurcations and Chaos in Dynamical Systems. , 2015, , 43-77.		1
125	When to end a lock down? How fast must vaccination campaigns proceed in order to keep health costs in check?. Royal Society Open Science, 2022, 9, 211055.	1.1	1
126	Exact lower bounds for the ground state energy of correlated Fermi systems. Physica C: Superconductivity and Its Applications, 1991, 185-189, 1685-1686.	0.6	0

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127	Variational wavefunctions for the t â€" J model. Physica C: Superconductivity and Its Applications, 1994, 235-240, 2329-2330.	0.6	0
128	Spin-charge separation at small length scales in the 2D t-J Model. Journal of Low Temperature Physics, 1995, 99, 509-511.	0.6	0
129	Equation of motion approach to the Hubbard model in infinite dimensions. Journal of Low Temperature Physics, 1995, 99, 603-605.	0.6	0
130	Novel nonreciprocal acoustic effects in antiferromagnets. Europhysics Letters, 1999, 45, 242-248.	0.7	0
131	Can We Personally Influence the Future with Our Present Resources?. , 2006, , 165-178.		0
132	Autonomous dynamics in neural networks: the dHAN concept and associative thought processes. AIP Conference Proceedings, 2007, , .	0.3	0
133	Self-generated neural activity: models and perspective. BMC Neuroscience, 2009, 10, .	0.8	0
134	Tunneling matrix elements with antiferromagnetic Gutzwiller wave functions. Physical Review B, 2011, 83, .	1.1	0
135	Pushing the Complexity Barrier: Diminishing Returns in the Sciences. SSRN Electronic Journal, 0, , .	0.4	0
136	Elements of Cognitive Systems Theory. , 2013, , 257-297.		0
137	A simple effective model for STDP: from spike pairs and triplets to rate-encoding plasticity. BMC Neuroscience, 2015, 16, .	0.8	0
138	Slow points and adiabatic fixed points in recurrent neural networks. BMC Neuroscience, 2015, 16, .	0.8	0
139	Limit cycles with transient state dynamics in cyclic networks. BMC Neuroscience, 2015, 16, .	0.8	0
140	Should Hebbian learning be selective for negative excess kurtosis?. BMC Neuroscience, 2015, 16, .	0.8	0
141	Entrenched Time Delays Versus Accelerating Opinion Dynamics - Are Advanced Democracies Inherently Unstable?. SSRN Electronic Journal, 2017, , .	0.4	0
142	When the goal is to generate a series of activities: A self-organized simulated robot arm. PLoS ONE, 2019, 14, e0217004.	1.1	0
143	A Generic Framework for Task Selection Driven by Synthetic Emotions. , 2019, , .		0
144	Nonlinear Dendritic Coincidence Detection for Supervised Learning. Frontiers in Computational Neuroscience, 2021, 15, 718020.	1.2	0

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145	Stimulus processing in autonomously active cognitive systems. , 2009, , .		0
146	Elements of Cognitive Systems Theory. , 2011, , 243-282.		0
147	Luttinger-Liquid Behaviour in 2D: The Variational Approach. NATO ASI Series Series B: Physics, 1995, , 277-281.	0.2	0
148	Emotions as Abstract Evaluation Criteria in Biological and Artificial Intelligences. Frontiers in Computational Neuroscience, 2021, 15, 726247.	1.2	0
149	Collective strategy condensation towards class-separated societies. European Physical Journal B, 2022, 95, .	0.6	0