Claudius Gros

List of Publications by Year
in descending order

149 papers	3,653 citations	147801 31 h-index	155660 55 g-index
155 all docs	155 docs citations	155 times ranked	2365 citing authors

#	Article	IF	Citations
1	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.	2.4	1
2	Collective strategy condensation towards class-separated societies. European Physical Journal B, 2022, 95, .	1.5	0
3	Collective Strategy Condensation: When Envy Splits Societies. Entropy, 2021, 23, 157.	2.2	3
4	Local Homeostatic Regulation of the Spectral Radius of Echo-State Networks. Frontiers in Computational Neuroscience, 2021, 15, 587721.	2.1	5
5	Containment efficiency and control strategies for the corona pandemic costs. Scientific Reports, 2021, 11, 6848.	3.3	25
6	Predicting the cumulative medical load of COVID-19 outbreaks after the peak in daily fatalities. PLoS ONE, 2021, 16, e0247272.	2.5	4
7	A devil's advocate view on 'self-organized' brain criticality. Journal of Physics Complexity, 2021, 2, 031001.	2.2	10
8	Learning and Animal Movement. Frontiers in Ecology and Evolution, 2021, 9, .	2.2	28
9	Nonlinear Dendritic Coincidence Detection for Supervised Learning. Frontiers in Computational Neuroscience, 2021, 15, 718020.	2.1	0
10	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.	1.5	2
11	The economics of stop-and-go epidemic control. Socio-Economic Planning Sciences, 2021, , 101196.	5.0	2
12	Emotions as Abstract Evaluation Criteria in Biological and Artificial Intelligences. Frontiers in Computational Neuroscience, 2021, 15, 726247.	2.1	0
13	Self-induced class stratification in competitive societies of agents: Nash stability in the presence of envy. Royal Society Open Science, 2020, 7, 200411.	2.4	2
14	Absorbing phase transitions in a non-conserving sandpile model. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 035003.	2.1	2
15	Embodied robots driven by self-organized environmental feedback. Adaptive Behavior, 2019, 27, 285-294.	1.9	4
16	Five decades of US, UK, German and Dutch music charts show that cultural processes are accelerating. Royal Society Open Science, 2019, 6, 190944.	2.4	8
17	Chaos in time delay systems, an educational review. Physics Reports, 2019, 824, 1-40.	25.6	35
18	When the goal is to generate a series of activities: A self-organized simulated robot arm. PLoS ONE, 2019, 14, e0217004.	2.5	0

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19	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.	3.2	4
20	A Generic Framework for Task Selection Driven by Synthetic Emotions. , 2019, , .		0
21	Suppression of topological Mott-Hubbard phases by multiple charge orders in the honeycomb extended Hubbard model. Physical Review B, 2018, 97, .	3.2	10
22	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.	1.2	5
23	Kick Control: Using the Attracting States Arising Within the Sensorimotor Loop of Self-Organized Robots as Motor Primitives. Frontiers in Neurorobotics, 2018, 12, 40.	2.8	4
24	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.	2.4	5
25	E-I balance emerges naturally from continuous Hebbian learning in autonomous neural networks. Scientific Reports, 2018, 8, 8939.	3.3	9
26	How to test for partially predictable chaos. Scientific Reports, 2017, 7, 1087.	3.3	22
27	Entrenched time delays versus accelerating opinion dynamics: are advanced democracies inherently unstable?. European Physical Journal B, 2017, 90, 1.	1.5	7
28	Universal scaling relation for magnetic sails: momentum braking in the limit of dilute interstellar media. Journal of Physics Communications, 2017, 1, 045007.	1.2	9
29	Entrenched Time Delays Versus Accelerating Opinion Dynamics - Are Advanced Democracies Inherently Unstable?. SSRN Electronic Journal, 2017, , .	0.4	0
30	Closed-loop Robots Driven by Short-Term Synaptic Plasticity: Emergent Explorative vs. Limit-Cycle Locomotion. Frontiers in Neurorobotics, 2016, 10, 12.	2.8	15
31	Drifting States and Synchronization Induced Chaos in Autonomous Networks of Excitable Neurons. Frontiers in Computational Neuroscience, 2016, 10, 98.	2.1	3
32	Developing ecospheres on transiently habitable planets: the genesis project. Astrophysics and Space Science, 2016, 361, 1.	1.4	8
33	Spontaneous symmetry breaking in correlated wave functions. Physical Review B, 2016, 93, .	3.2	8
34	Emergent lattices with geometrical frustration in doped extended Hubbard models. Physical Review B, 2016, 94, .	3.2	7
35	A simple effective model for STDP: from spike pairs and triplets to rate-encoding plasticity. BMC Neuroscience, 2015, 16, .	1.9	0
36	Slow points and adiabatic fixed points in recurrent neural networks. BMC Neuroscience, 2015, 16, .	1.9	0

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37	Limit cycles with transient state dynamics in cyclic networks. BMC Neuroscience, 2015, 16, .	1.9	0
38	A versatile class of prototype dynamical systems for complex bifurcation cascades of limit cycles. Scientific Reports, 2015, 5, 12316.	3.3	13
39	The Fisher Information as a Neural Guiding Principle for Independent Component Analysis. Entropy, 2015, 17, 3838-3856.	2.2	6
40	Should Hebbian learning be selective for negative excess kurtosis?. BMC Neuroscience, 2015, 16, .	1.9	0
41	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, .	3.2	15
42	Two-Trace Model for Spike-Timing-Dependent Synaptic Plasticity. Neural Computation, 2015, 27, 672-698.	2.2	6
43	Complex and Adaptive Dynamical Systems. , 2015, , .		41
44	Bifurcations and Chaos in Dynamical Systems. , 2015, , 43-77.		1
45	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, .	3.2	12
46	The phase diagram of the square lattice bilayer Hubbard model: a variational Monte Carlo study. New Journal of Physics, 2014, 16, 033010.	2.9	23
47	Phase Diagram of the Triangular Extended Hubbard Model. Physical Review Letters, 2014, 113, 246405.	7.8	27
48	Generating Functionals for Guided Self-Organization. Emergence, Complexity and Computation, 2014, , 53-66.	0.3	8
49	Exploration in free word association networks: models and experiment. Cognitive Processing, 2014, 15, 195-200.	1.4	12
50	Power laws and self-organized criticality in theory and nature. Physics Reports, 2014, 536, 41-74.	25.6	203
51	One-dimensional spin liquid, collinear, and spiral phases from uncoupled chains to the triangular lattice. Physical Review B, 2014, 89, .	3.2	29
52	Criticality in conserved dynamical systems: Experimental observation vs. exact properties. Chaos, 2013, 23, 013106.	2.5	5
53	A Self-Organized Neural Comparator. Neural Computation, 2013, 25, 1006-1028.	2.2	4
54	Spin-liquid versus spiral-order phases in the anisotropic triangular lattice. Physical Review B, 2013, 87, .	3.2	65

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55	Elements of Cognitive Systems Theory. , 2013, , 257-297.		0
56	A large-scale study of the world wide web: network correlation functions with scale-invariant boundaries. European Physical Journal B, 2013, 86, 1.	1.5	2
57	Mott correlated states in the underdoped two-dimensional Hubbard model: Variational Monte Carlo versus a dynamical cluster approximation. Physical Review B, 2013, 87, .	3.2	20
58	Generating functionals for autonomous latching dynamics in attractor relict networks. Scientific Reports, 2013, 3, 2042.	3.3	23
59	Emotional Control—Conditio Sine Qua Non for Advanced Artificial Intelligences?. Studies in Applied Philosophy, Epistemology and Rational Ethics, 2013, , 187-198.	0.3	5
60	Complex and Adaptive Dynamical Systems. , 2013, , .		17
61	Self-organized stochastic tipping in slow-fast dynamical systems. Mathematics and Mechanics of Complex Systems, 2013, 1, 129-147.	0.9	6
62	Strong renormalization of the Fermi-surface topology close to the Mott transition. Physical Review B, 2012, 86, .	3.2	19
63	Intrinsic Adaptation in Autonomous Recurrent Neural Networks. Neural Computation, 2012, 24, 523-540.	2.2	74
64	Neuropsychological constraints to human data production on a global scale. European Physical Journal B, 2012, 85, 1.	1.5	18
65	Pushing the Complexity Barrier: Diminishing Returns in the Sciences. Complex Systems, 2012, 21, 183-192.	0.3	9
66	Tunneling matrix elements with antiferromagnetic Gutzwiller wave functions. Physical Review B, 2011, 83, .	3.2	0
67	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, .	3.2	51
68	Elements of Cognitive Systems Theory. , 2011, , 243-282.		0
69	Cognition and Emotion: Perspectives of a Closing Gap. Cognitive Computation, 2010, 2, 78-85.	5.2	32
70	Self-Organized Chaos through Polyhomeostatic Optimization. Physical Review Letters, 2010, 105, 068702.	7.8	23
71	Interaction-induced Fermi-surface renormalization in the t_1–t_2 Hubbard model close to the Mott-Hubbard transition. Physical Review B, 2010, 81, .	3.2	8
72	Spin-liquid and magnetic phases in the anisotropic triangular lattice: The case of $\kappa-(\ $ Physical Review B, 2009, 80, .	3.2	64

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73	Self-generated neural activity: models and perspective. BMC Neuroscience, 2009, 10, .	1.9	0
74	Cognitive Computation with Autonomously Active Neural Networks: An Emerging Field. Cognitive Computation, 2009, 1, 77-90.	5.2	61
75	Stimulus processing in autonomously active cognitive systems. , 2009, , .		0
76	Proposed low-energy model Hamiltonian for the spin-gapped systemCuTe2O5. Physical Review B, 2008, 77, .	3.2	19
77	Complex and Adaptive Dynamical Systems. , 2008, , .		62
78	Evolving complex networks with conserved clique distributions. Physical Review E, 2008, 78, 016107.	2.1	2
79	Neural networks with transient state dynamics. New Journal of Physics, 2007, 9, 109-109.	2.9	31
80	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.	14.4	153
81	Autonomous dynamics in neural networks: the dHAN concept and associative thought processes. AIP Conference Proceedings, 2007, , .	0.4	0
82	Renormalization of the nodal quasiparticle current in the Resonating Valence Bond (RVB) theory. Physica C: Superconductivity and Its Applications, 2007, 460-462, 1151-1152.	1.2	1
83	Electronic Structure of Strongly Correlatedd-Wave Superconductors. Physical Review Letters, 2006, 96, 207002.	7.8	27
84	Can We Personally Influence the Future with Our Present Resources?. , 2006, , 165-178.		0
85	Spontaneous breaking of the Fermi-surface symmetry in thetâˆ'Jmodel: A numerical study. Physical Review B, 2006, 74, .	3.2	49
86	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.	7.1	33
87	Na2V3O7: A Frustrated Nanotubular System with Spin-1/2Diamond Ring Geometry. Physical Review Letters, 2005, 95, 107201.	7.8	25
88	Evaluation of matrix elements in partially projected wave functions. Physical Review B, 2005, 72, .	3.2	12
89	Particle number renormalization in nearly half-filled Mott Hubbard superconductors. Physical Review B, 2005, 72, .	3.2	20
90	Self-sustained Thought Processes in a Dense Associative Network. Lecture Notes in Computer Science, 2005, , 366-379.	1.3	2

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91	TiOCl, an orbital-ordered system?. Europhysics Letters, 2004, 67, 63-69.	2.0	44
92	Simultaneous charge ordering and spin dimerization in quasi-two-dimensional quarter-filled ladders. Physical Review B, 2004, 69, .	3.2	9
93	Gros and Alvarez Reply:. Physical Review Letters, 2004, 92, .	7.8	8
94	On the stacking charge order in NaV2O5. Journal of Physics Condensed Matter, 2004, 16, L415-L420.	1.8	6
95	Quantum Monte Carlo simulation for the spin-drag conductance of the Hubbard model. New Journal of Physics, 2004, 6, 187-187.	2.9	4
96	Minimal charge gap in the ionic Hubbard model. Physical Review B, 2003, 68, .	3.2	9
97	Halogen-mediated exchange in the coupled-tetrahedra quantum spin systemsCu2Te2O5X2(X=Br,Cl). Physical Review B, 2003, 67, .	3.2	42
98	Quantum Monte Carlo simulation for the conductance of one-dimensional quantum spin systems. Physical Review B, 2003, 68, .	3.2	16
99	Anomalous Thermal Conductivity of Frustrated Heisenberg Spin Chains and Ladders. Physical Review Letters, 2002, 89, 156603.	7.8	55
100	Interaction-Induced Collapse of a Section of the Fermi Sea in the Zigzag Hubbard Ladder. Physical Review Letters, 2002, 88, 217203.	7.8	17
101	Nature of the spin-singlet ground state inCaCuGe2O6. Physical Review B, 2002, 66, .	3.2	30
102	Conductivity of quantum spin chains: A quantum Monte Carlo approach. Physical Review B, 2002, 66, .	3.2	29
103	Low-Temperature Transport in Heisenberg Chains. Physical Review Letters, 2002, 88, 077203.	7.8	82
104	Low energy singlets in the excitation spectrum of the spin tetrahedra system Cu2Te2O5Br2. Journal of Physics and Chemistry of Solids, 2002, 63, 1115-1117.	4.0	12
105	Evidence for an Unconventional Magnetic Instability in the Spin-Tetrahedra SystemCu2Te2O5Br2. Physical Review Letters, 2001, 87, 227201.	7.8	79
106	Fermi surface renormalization in Hubbard ladders. Physical Review B, 2001, 64, .	3.2	19
107	Modeling the Electronic Behavior ofÎ³â'¨LiV2O5: A Microscopic Study. Physical Review Letters, 2001, 86, 5381-5384.	7.8	41
108	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.	1.5	9

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109	Dzyaloshinskii-Moriya interaction inNaV2O5:A microscopic study. Physical Review B, 2000, 62, 14164-14170.	3.2	6
110	Test of the frustrated spin-cluster model to describe the low-temperature physics ofNaV2O5. Physical Review B, 2000, 62, R14617-R14620.	3.2	9
111	Novel nonreciprocal acoustic effects in antiferromagnets. Europhysics Letters, 1999, 45, 242-248.	2.0	0
112	Microscopic spin-phonon coupling constants inCuGeO3. Physical Review B, 1999, 59, 14356-14366.	3.2	48
113	Magnon Splitting Induced by Charge Ordering in NaV2O5. Physical Review Letters, 1999, 82, 976-979.	7.8	52
114	Molecular-field approach to the spin-Peierls transition inCuGeO3. Physical Review B, 1998, 57, 2897-2903.	3.2	11
115	Dynamics of the Peierls-active phonon modes inCuGeO3. Physical Review B, 1998, 58, R14677-R14680.	3.2	55
116	NaV2O5as a Quarter-Filled Ladder Compound. Physical Review Letters, 1998, 80, 5164-5167.	7.8	233
117	Magnon-magnon interactions in the spin-Peierls compoundCuGeO3. Physical Review B, 1997, 55, 15048-15052.	3.2	10
118	J1-J2model revisited: Phenomenology ofCuGeO3. Physical Review B, 1997, 55, 5944-5952.	3.2	13
119	Control of the finite-size corrections in exact diagonalization studies. Physical Review B, 1996, 53, 6865-6868.	3.2	39
120	Theory of nonreciprocal optical effects in antiferromagnets: The case ofCr2O3. Physical Review B, 1996, 54, 433-440.	3.2	32
121	Frustration-induced Raman scattering in CuGeO3. Physical Review B, 1996, 54, R9635-R9638.	3.2	50
122	The spin- Heisenberg star with frustration: II. The influence of the embedding medium. Journal of Physics A, 1996, 29, 825-836.	1.6	12
123	Spin-charge separation at small length scales in the 2D t-J Model. Journal of Low Temperature Physics, 1995, 99, 509-511.	1.4	0
124	Equation of motion approach to the Hubbard model in infinite dimensions. Journal of Low Temperature Physics, 1995, 99, 603-605.	1.4	0
125	Microscopic Model of Nonreciprocal Optical Effects inCr2O3. Physical Review Letters, 1995, 75, 2766-2769.	7.8	32
126	Luttinger-Liquid Behaviour in 2D: The Variational Approach. NATO ASI Series Series B: Physics, 1995, , 277-281.	0.2	0

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127	Equation-of-motion approach to the Hubbard model in infinite dimensions. Physical Review B, 1994, 50, 7295-7303.	3.2	28
128	Spin-charge separation at small length scales in the two-dimensionalt-Jmodel. Physical Review B, 1994, 50, 11313-11317.	3.2	4
129	A self-consistent cluster study of the Emery model. Annalen Der Physik, 1994, 506, 460-466.	2.4	16
130	Variational wavefunctions for the t â€" J model. Physica C: Superconductivity and Its Applications, 1994, 235-240, 2329-2330.	1.2	0
131	Perovskites in high dimensions. European Physical Journal B, 1993, 90, 161-166.	1.5	6
132	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.	3.2	94
133	LUTTINGER-LIQUID BEHAVIOUR IN 2D: THE VARIATIONAL APPROACH. Modern Physics Letters B, 1993, 07, 119-141.	1.9	9
134	Luttinger liquid instability of the 2Dt-Jmodel: A variational study. Physical Review Letters, 1992, 68, 2402-2405.	7.8	64
135	Luttinger Liquid Instability of the 2Dtâ^̃JModel: A Variational Study. Physical Review Letters, 1992, 69, 996-996.	7.8	3
136	Reply to â€˜â€˜Comment on â€˜Chiral ordering in a frustrated quantum spin systemâ€™ â€™â€™. Physical Review B, 1992, 45, 10113-10114.	3.2	2
137	The boundary condition integration technique: results for the Hubbard model in 1D and 2D. European Physical Journal B, 1992, 86, 359-365.	1.5	52
138	Rigorous bounds for ground-state properties of correlated Fermi systems. Physical Review B, 1991, 44, 13203-13212.	3.2	12
139	Exact lower bounds for the ground state energy of correlated Fermi systems. Physica C: Superconductivity and Its Applications, 1991, 185-189, 1685-1686.	1.2	0
140	Variational theorem for vector-mean-field theories of statistical transmutation. Physical Review B, 1991, 43, 5883-5907.	3.2	9
141	Geometry-controlled conserving approximations for thet-Jmodel. Physical Review B, 1991, 43, 11207-11239.	3.2	13
142	Chiral ordering in a frustrated quantum spin system. Physical Review B, 1991, 44, 906-909.	3.2	17
143	An exact mapping of the t-J model to the unrestricted Hilbert space. Physica B: Condensed Matter, 1990, 165-166, 985-986.	2.7	4
144	Criterion for a good variational wave function. Physical Review B, 1990, 42, 6835-6838.	3.2	15

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145	Conjecture concerning the fractional Hall hierarchy. Physical Review B, 1990, 42, 9514-9521.	3.2	27
146	Wick's theorem for charged spin systems. Physical Review B, 1989, 40, 9423-9426.	3.2	42
147	Physics of projected wavefunctions. Annals of Physics, 1989, 189, 53-88.	2.8	237
148	Superconductivity in correlated wave functions. Physical Review B, 1988, 38, 931-934.	3.2	277
149	Pushing the Complexity Barrier: Diminishing Returns in the Sciences. SSRN Electronic Journal, 0, , .	0.4	0