

Todd A Brun

List of Publications by Year in descending order

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126
papers

3,910
citations

117453

34
h-index

133063

59
g-index

128
all docs

128
docs citations

128
times ranked

1880
citing authors

#	ARTICLE	IF	CITATIONS
1	Correcting Quantum Errors with Entanglement. <i>Science</i> , 2006, 314, 436-439.	6.0	367
2	A simple model of quantum trajectories. <i>American Journal of Physics</i> , 2002, 70, 719-737.	0.3	250
3	Quantum to Classical Transition for Random Walks. <i>Physical Review Letters</i> , 2003, 91, 130602.	2.9	152
4	Weak Measurements Are Universal. <i>Physical Review Letters</i> , 2005, 95, 110409.	2.9	144
5	Optimal entanglement formulas for entanglement-assisted quantum coding. <i>Physical Review A</i> , 2008, 77, .	1.0	140
6	Quantum walks driven by many coins. <i>Physical Review A</i> , 2003, 67, .	1.0	129
7	Quantum random walks with decoherent coins. <i>Physical Review A</i> , 2003, 67, .	1.0	119
8	Quantum metrology for a general Hamiltonian parameter. <i>Physical Review A</i> , 2014, 90, .	1.0	111
9	General entanglement-assisted quantum error-correcting codes. <i>Physical Review A</i> , 2007, 76, .	1.0	104
10	Quantum Bayes rule. <i>Physical Review A</i> , 2001, 64, .	1.0	100
11	Hitting time for quantum walks on the hypercube. <i>Physical Review A</i> , 2006, 73, .	1.0	100
12	Continuous measurements, quantum trajectories, and decoherent histories. <i>Physical Review A</i> , 2000, 61, .	1.0	78
13	Improving the Precision of Weak Measurements by Postselection Measurement. <i>Physical Review Letters</i> , 2015, 115, 120401.	2.9	77
14	Entanglement-Assisted Weak Value Amplification. <i>Physical Review Letters</i> , 2014, 113, 030401.	2.9	72
15	Quantum chaos in open systems: a quantum state diffusion analysis. <i>Journal of Physics A</i> , 1996, 29, 2077-2090.	1.6	70
16	Entanglement-assisted quantum quasicyclic low-density parity-check codes. <i>Physical Review A</i> , 2009, 79, .	1.0	66
17	Duality in Entanglement-Assisted Quantum Error Correction. <i>IEEE Transactions on Information Theory</i> , 2013, 59, 4020-4024.	1.5	64
18	Quantum walks on quotient graphs. <i>Physical Review A</i> , 2007, 75, .	1.0	62

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19	Catalytic Quantum Error Correction. IEEE Transactions on Information Theory, 2014, 60, 3073-3089.	1.5	62
20	Fault-Tolerant Holonomic Quantum Computation. Physical Review Letters, 2009, 102, 070502.	2.9	61
21	Entanglement increases the error-correcting ability of quantum error-correcting codes. Physical Review A, 2013, 88, .	1.0	61
22	Quantum walks with infinite hitting times. Physical Review A, 2006, 74, .	1.0	60
23	A C++ library using quantum trajectories to solve quantum master equations. Computer Physics Communications, 1997, 102, 210-228.	3.0	59
24	Quantum steganography with noisy quantum channels. Physical Review A, 2011, 83, .	1.0	57
25	Quasiclassical equations of motion for nonlinear Brownian systems. Physical Review D, 1993, 47, 3383-3393.	1.6	52
26	Localized Closed Timelike Curves Can Perfectly Distinguish Quantum States. Physical Review Letters, 2009, 102, 210402.	2.9	46
27	Entanglement-assisted quantum error-correcting codes with imperfect ebits. Physical Review A, 2012, 86, .	1.0	46
28	Dualities and identities for entanglement-assisted quantum codes. Quantum Information Processing, 2014, 13, 957-990.	1.0	46
29	Generalized stochastic Schrödinger equations for state vector collapse. Journal of Physics A, 2001, 34, 4797-4809.	1.6	40
30	Hitting time for the continuous quantum walk. Physical Review A, 2008, 78, .	1.0	40
31	Achieving a quantum smart workforce. Quantum Science and Technology, 2021, 6, 030501.	2.6	38
32	Entanglement-assisted quantum convolutional coding. Physical Review A, 2010, 81, .	1.0	37
33	Coupling nanocrystals to a high-Q silica microsphere: Entanglement in quantum dots via photon exchange. Physical Review A, 2000, 61, .	1.0	36
34	Protecting weak measurements against systematic errors. Physical Review A, 2016, 94, .	1.0	36
35	Computers with Closed Timelike Curves Can Solve Hard Problems Efficiently. Foundations of Physics Letters, 2003, 16, 245-253.	0.6	32
36	Classical dynamics of the quantum harmonic chain. Physical Review D, 1999, 60, .	1.6	31

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37	Protecting orbital-angular-momentum photons from decoherence in a turbulent atmosphere. <i>Physical Review A</i> , 2013, 88, .	1.0	30
38	Parametrization and distillability of three-qubit entanglement. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2001, 281, 88-100.	0.9	29
39	How much state assignments can differ. <i>Physical Review A</i> , 2002, 65, .	1.0	27
40	Classical enhancement of quantum-error-correcting codes. <i>Physical Review A</i> , 2008, 78, .	1.0	27
41	Realizing the quantum baker's map on a NMR quantum computer. <i>Physical Review A</i> , 1999, 59, 2649-2658.	1.0	26
42	Quantum State Cloning Using Deutschian Closed Timelike Curves. <i>Physical Review Letters</i> , 2013, 111, 190401.	2.9	26
43	Distillation of Greenberger-Horne-Zeilinger States by Selective Information Manipulation. <i>Physical Review Letters</i> , 2000, 84, 5908-5911.	2.9	25
44	Realistic simulations of single-spin nondemolition measurement by magnetic resonance force microscopy. <i>Physical Review A</i> , 2003, 68, .	1.0	25
45	Continuous quantum error correction for non-Markovian decoherence. <i>Physical Review A</i> , 2007, 76, .	1.0	25
46	Quantum-state diffusion with a moving basis: Computing quantum-optical spectra. <i>Physical Review A</i> , 1996, 53, 2694-2697.	1.0	24
47	Entanglement purification of unknown quantum states. <i>Physical Review A</i> , 2001, 63, .	1.0	24
48	Entanglement-assisted codeword stabilized quantum codes. <i>Physical Review A</i> , 2011, 84, .	1.0	22
49	Perfect State Distinguishability and Computational Speedups with Postselected Closed Timelike Curves. <i>Foundations of Physics</i> , 2012, 42, 341-361.	0.6	21
50	Test of weak measurement on a two- or three-qubit computer. <i>Physical Review A</i> , 2008, 77, .	1.0	19
51	Quantum Jumps as Decoherent Histories. <i>Physical Review Letters</i> , 1997, 78, 1833-1837.	2.9	18
52	Entanglement-assisted quantum error correction with linear optics. <i>Physical Review A</i> , 2007, 76, .	1.0	18
53	Quantum Data-Syndrome Codes. <i>IEEE Journal on Selected Areas in Communications</i> , 2020, 38, 449-462.	9.7	18
54	Effects of noise on quantum error correction algorithms. <i>Physical Review A</i> , 1997, 56, 1177-1188.	1.0	17

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55	Coherent communication with continuous quantum variables. <i>Physical Review A</i> , 2007, 75, .	1.0	17
56	Suppressing technical noise in weak measurements by entanglement. <i>Physical Review A</i> , 2015, 92, .	1.0	17
57	Scheme for fault-tolerant holonomic computation on stabilizer codes. <i>Physical Review A</i> , 2009, 80, .	1.0	16
58	Hypersensitivity and chaos signatures in the quantum baker's maps. <i>Journal of Physics A</i> , 2006, 39, 13405-13433.	1.6	15
59	Relation between the psychological and thermodynamic arrows of time. <i>Physical Review E</i> , 2014, 89, 052102.	0.8	15
60	Robust quantum error syndrome extraction by classical coding. , 2014, , .		13
61	Fault-tolerant holonomic quantum computation in surface codes. <i>Physical Review A</i> , 2015, 91, .	1.0	13
62	Discrete spacetime, quantum walks, and relativistic wave equations. <i>Physical Review A</i> , 2018, 97, .	1.0	13
63	Unified quantum convolutional coding. , 2008, , .		12
64	Correction of data and syndrome errors by stabilizer codes. , 2016, , .		12
65	Operator quantum error correction for continuous dynamics. <i>Physical Review A</i> , 2008, 78, .	1.0	11
66	Quantum convolutional coding with shared entanglement: general structure. <i>Quantum Information Processing</i> , 2010, 9, 509-540.	1.0	11
67	Entropy of classical histories. <i>Physical Review E</i> , 1999, 59, 6370-6380.	0.8	10
68	Decomposing generalized measurements into continuous stochastic processes. <i>Physical Review A</i> , 2007, 76, .	1.0	10
69	Geometric manipulation of ensembles of atoms on an atom chip for quantum computation. <i>Physical Review A</i> , 2012, 86, .	1.0	10
70	Implementing generalized measurements with superconducting qubits. <i>Physical Review A</i> , 2014, 90, .	1.0	10
71	Method for quantum-jump continuous-time quantum error correction. <i>Physical Review A</i> , 2016, 93, .	1.0	10
72	Detecting discrete spacetime via matter interferometry. <i>Physical Review D</i> , 2019, 99, .	1.6	10

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73	Extra shared entanglement reduces memory demand in quantum convolutional coding. Physical Review A, 2009, 79, .	1.0	9
74	Quantum scattering theory on graphs with tails. Physical Review A, 2009, 80, .	1.0	9
75	Fault-tolerant scheme of holonomic quantum computation on stabilizer codes with robustness to low-weight thermal noise. Physical Review A, 2014, 89, .	1.0	9
76	Amplification limit of weak measurements: A variational approach. Physical Review A, 2014, 90, .	1.0	9
77	Continuous limit of discrete quantum walks. Physical Review A, 2015, 91, .	1.0	9
78	Entanglement-Assisted Quantum Error-Correcting Codes. , 2009, , 161-172.		9
79	General entanglement-assisted quantum error-correcting codes. , 2007, , .		8
80	Constant depth fault-tolerant Clifford circuits for multi-qubit large block codes. Quantum Science and Technology, 2020, 5, 045007.	2.6	8
81	Quantum cellular automata and quantum field theory in two spatial dimensions. Physical Review A, 2020, 102, .	1.0	8
82	Quantum state diffusion and time correlation functions. Journal of Modern Optics, 1996, 43, 2289-2300.	0.6	7
83	Optimized entanglement-assisted quantum error correction. Physical Review A, 2010, 82, .	1.0	7
84	Simulations of Closed Timelike Curves. Foundations of Physics, 2017, 47, 375-391.	0.6	7
85	Fault-tolerant preparation of stabilizer states for quantum Calderbank-Shor-Steane codes by classical error-correcting codes. Physical Review A, 2017, 95, .	1.0	7
86	Efficient preparation of large-block-code ancilla states for fault-tolerant quantum computation. Physical Review A, 2018, 97, .	1.0	7
87	An example of the decoherence approach to quantum dissipative chaos. Physics Letters, Section A: General, Atomic and Solid State Physics, 1995, 206, 167-176.	0.9	6
88	Infinitesimal local operations and differential conditions for entanglement monotones. Physical Review A, 2006, 73, .	1.0	6
89	Coherent communication with linear optics. Physical Review A, 2008, 77, .	1.0	6
90	Non-Markovianity of the post-Markovian master equation. Physical Review A, 2018, 98, .	1.0	6

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91	Quantum steganography over noiseless channels: Achievability and bounds. Physical Review A, 2020, 101, .	1.0	6
92	Performance and error analysis of Knill's postselection scheme in a two-dimensional architecture. Quantum Information and Computation, 2014, 14, 807-822.	0.1	6
93	Convolutional entanglement distillation. , 2010, , .		5
94	Family of finite geometry low-density parity-check codes for quantum key expansion. Physical Review A, 2013, 87, .	1.0	5
95	Protecting quantum information with entanglement and noisy optical modes. Quantum Information Processing, 2009, 8, 401-413.	1.0	4
96	Continuous decomposition of quantum measurements via qubit-probe feedback. Physical Review A, 2014, 90, .	1.0	4
97	Quantum steganography over noisy channels: Achievability and bounds. Physical Review A, 2019, 100, .	1.0	4
98	Interference in dielectrics and pseudo-measurements. Journal of Modern Optics, 1998, 45, 777-783.	0.6	3
99	Introduction to decoherence and noise in open quantum systems. , 0, , 3-45.		3
100	Continuous decomposition of quantum measurements via Hamiltonian feedback. Physical Review A, 2015, 92, .	1.0	3
101	Decoherence by coupling to internal vibrational modes. Physical Review A, 2016, 94, .	1.0	3
102	Qubit positive-operator-valued measurements by destructive weak measurements. Physical Review A, 2019, 99, .	1.0	3
103	Quantum field theory from a quantum cellular automaton in one spatial dimension and a no-go theorem in higher dimensions. Physical Review A, 2020, 102, .	1.0	3
104	Fermionic and bosonic quantum field theories from quantum cellular automata in three spatial dimensions. Physical Review A, 2021, 103, .	1.0	3
105	Continuous quantum error detection and suppression with pairwise local interactions. Physical Review Research, 2020, 2, .	1.3	3
106	Single-spin measurement by magnetic resonance force microscopy: effects of measurement device, thermal noise, and spin relaxation. , 2004, , .		2
107	REALISTIC SIMULATIONS OF SINGLE-SPIN MEASUREMENT VIA MAGNETIC RESONANCE FORCE MICROSCOPY. International Journal of Quantum Information, 2005, 03, 1-9.	0.6	2
108	Continuous monitoring can improve indistinguishability of a single-photon source. Physical Review A, 2009, 79, .	1.0	2

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109	Codeword-stabilized quantum codes on subsystems. <i>Physical Review A</i> , 2012, 86, .	1.0	2
110	Entanglement-assisted quantum error-correcting codes. , 2013, , 181-200.		2
111	Compatibility of state assignments and pooling of information. <i>Physical Review A</i> , 2015, 92, .	1.0	2
112	Violating the modified Helstrom bound with nonprojective measurements. <i>Physical Review A</i> , 2015, 91, .	1.0	2
113	Error correction with orbital angular momentum of multiple photons propagating in a turbulent atmosphere. <i>Physical Review A</i> , 2017, 95, .	1.0	2
114	Decomposing qubit positive-operator-valued measurements into continuous destructive weak measurements. <i>Physical Review A</i> , 2018, 98, .	1.0	2
115	Gaussian approximation and single-spin measurement in magnetic resonance force microscopy with spin noise. <i>Physical Review A</i> , 2010, 82, .	1.0	1
116	Suppression of effective noise in Hamiltonian simulations. <i>Physical Review A</i> , 2017, 96, .	1.0	1
117	Quantum state diffusion and time correlation functions. , 0, .		1
118	Disproof of a conjectured inequality arising in the theory of magnetic flux diffusion. <i>Journal of Mathematical Physics</i> , 1989, 30, 2947-2950.	0.5	0
119	Decoherence and Quantum Trajectories. <i>Lecture Notes in Physics</i> , 2004, , 239-252.	0.3	0
120	Fault tolerance for holonomic quantum computation. , 0, , 412-431.		0
121	Entanglement-assisted operator codeword stabilized quantum codes. <i>Quantum Information Processing</i> , 2016, 15, 1921-1936.	1.0	0
122	Switchable detector array scheme to reduce the effect of single-photon detector's deadtime in a multi-bit/photon quantum link. <i>Optics Communications</i> , 2019, 441, 132-137.	1.0	0
123	Quantum steganography. , 2020, , 215-258.		0
124	REALISTIC SIMULATIONS OF SINGLE-SPIN MEASUREMENT VIA MAGNETIC RESONANCE FORCE MICROSCOPY. , 2005, , .		0
125	Coherent Communication of Continuous Quantum Variables with Linear Optics. , 2007, , .		0
126	Influence of coin symmetry on infinite hitting times in quantum walks. <i>Physical Review A</i> , 2022, 105, .	1.0	0