William L Ditto

List of Publications by Year
in descending order

148	8,696	57758 44	43889 91
papers	citations	h-index	g-index

153	153	153	3821
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Controlling chaos in the brain. Nature, 1994, 370, 615-620.	27.8	898
2	Controlling cardiac chaos. Science, 1992, 257, 1230-1235.	12.6	828
3	Experimental control of chaos. Physical Review Letters, 1990, 65, 3211-3214.	7.8	660
4	Spatiotemporal evolution of ventricular fibrillation. Nature, 1998, 392, 78-82.	27.8	476
5	Array Enhanced Stochastic Resonance and Spatiotemporal Synchronization. Physical Review Letters, 1995, 75, 3-6.	7.8	421
6	Stochastic Resonance in a Neuronal Network from Mammalian Brain. Physical Review Letters, 1996, 77, 4098-4101.	7.8	316
7	Taming spatiotemporal chaos with disorder. Nature, 1995, 378, 465-467.	27.8	215
8	Electric field suppression of epileptiform activity in hippocampal slices. Journal of Neurophysiology, 1996, 76, 4202-4205.	1.8	193
9	Principles and applications of chaotic systems. Communications of the ACM, 1995, 38, 96-102.	4.5	190
10	Reliable Logic Circuit Elements that Exploit Nonlinearity in the Presence of a Noise Floor. Physical Review Letters, 2009, 102, 104101.	7.8	186
11	Experimental observation of a strange nonchaotic attractor. Physical Review Letters, 1990, 65, 533-536.	7.8	183
12	Dynamics Based Computation. Physical Review Letters, 1998, 81, 2156-2159.	7.8	178
13	Modeling and forecasting of epidemic spreading: The case of Covid-19 and beyond. Chaos, Solitons and Fractals, 2020, 135, 109794.	5.1	171
14	A Noise-Assisted Reprogrammable Nanomechanical Logic Gate. Nano Letters, 2010, 10, 1168-1171.	9.1	160
15	Using the sensitive dependence of chaos (the â€˜â€˜butterfly effectâ€™â€™) to direct trajectories in an experimental chaotic system. Physical Review Letters, 1992, 68, 2863-2866.	7.8	136
16	Scaling laws for spatiotemporal synchronization and array enhanced stochastic resonance. Physical Review E, 1996, 53, 2081-2086.	2.1	129
17	Noise Enhanced Propagation. Physical Review Letters, 1998, 81, 5048-5051.	7.8	120
18	Controlling Stochastic Resonance. Physical Review Letters, 1999, 82, 4574-4577.	7.8	111

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19	Experimental observation of crisis-induced intermittency and its critical exponent. Physical Review Letters, 1989, 63, 923-926.	7.8	110
20	Mastering Chaos. Scientific American, 1993, 269, 78-84.	1.0	89
21	Computing with distributed chaos. Physical Review E, 1999, 60, 363-377.	2.1	86
22	Techniques for the control of chaos. Physica D: Nonlinear Phenomena, 1995, 86, 198-211.	2.8	84
23	Chaos computing: implementation of fundamental logical gates by chaotic elements. IEEE Transactions on Circuits and Systems Part 1: Regular Papers, 2002, 49, 1629-1633.	0.1	81
24	Realization of reliable and flexible logic gates using noisy nonlinear circuits. Applied Physics Letters, 2009, 95, .	3.3	80
25	Disorder-enhanced synchronization. Physics Letters, Section A: General, Atomic and Solid State Physics, 1995, 206, 54-60.	2.1	77
26	Dynamics of a two-frequency parametrically driven duffing oscillator. Journal of Nonlinear Science, 1991, 1, 423-455.	2.1	74
27	Evidence for Determinism in Ventricular Fibrillation. Physical Review Letters, 1995, 75, 1230-1233.	7.8	72
28	Strange Nonchaotic Stars. Physical Review Letters, 2015, 114, 054101.	7.8	70
29	Introduction to Focus Issue: Intrinsic and Designed Computation: Information Processing in Dynamical Systemsâ€"Beyond the Digital Hegemony. Chaos, 2010, 20, 037101.	2.5	69
30	Experimental Maintenance of Chaos. Physical Review Letters, 1995, 74, 4420-4423.	7.8	68
31	Implementation of NOR Gate by a Chaotic Chua's Circuit. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2003, 13, 2669-2672.	1.7	68
32	Controlling chaos in high dimensions: Theory and experiment. Physical Review E, 1996, 53, 4334-4344.	2.1	67
33	Logical stochastic resonance. Chemical Physics, 2010, 375, 424-434.	1.9	63
34	Experimental confirmation of the scaling theory for noise-induced crises. Physical Review Letters, 1991, 66, 1947-1950.	7.8	60
35	Creating morphable logic gates using logical stochastic resonance in an engineered gene network. Europhysics Letters, 2011, 93, 18001.	2.0	52
36	Experimental observation of stochastic resonance in a magnetoelastic ribbon. Physical Review A, 1992, 46, 5253-5256.	2.5	51

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37	Nonlinear antenna technology. Proceedings of the IEEE, 2002, 90, 882-897.	21.3	49
38	Theory of controlling stochastic resonance. Physical Review E, 2000, 62, 317-327.	2.1	48
39	Noninvasive control of stochastic resonance. Physical Review E, 2001, 63, 041107.	2.1	47
40	Removal, Suppression, and Control of Chaos by Nonlinear Design. Applied Mechanics Reviews, 1995, 48, 795-808.	10.1	46
41	Introduction: Control and synchronization of chaos. Chaos, 1997, 7, 509-511.	2.5	46
42	Support vector machines for seizure detection in an animal model of chronic epilepsy. Journal of Neural Engineering, 2010, 7, 036001.	3.5	46
43	Chaogates: Morphing logic gates that exploit dynamical patterns. Chaos, 2010, 20, 037107.	2.5	45
44	Logical stochastic resonance with correlated internal and external noises in a synthetic biological logic block. Chaos, 2011, 21, 047521.	2.5	45
45	Flexible parallel implementation of logic gates using chaotic elements. Physical Review E, 2002, 65, 036216.	2.1	44
46	Chaotic resonance: A simulation. Journal of Statistical Physics, 1993, 70, 437-450.	1.2	42
47	Maintenance of chaos in a computational model of a thermal pulse combustor. Chaos, 1997, 7, 605-613.	2.5	42
48	Granger causality relationships between local field potentials in an animal model of temporal lobe epilepsy. Journal of Neuroscience Methods, 2010, 189, 121-129.	2.5	42
49	Physics-enhanced neural networks learn order and chaos. Physical Review E, 2020, 101, 062207.	2.1	42
50	Control and synchronization of chaos in high dimensional systems: Review of some recent results. Chaos, 1997, 7, 644-652.	2.5	41
51	Noise-aided computation within a synthetic gene network through morphable and robust logic gates. Physical Review E, 2011, 83, 041909.	2.1	41
52	Experimental confirmation of the theory for critical exponents of crisis. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 153, 105-109.	2.1	37
53	Monostable array-enhanced stochastic resonance. Physical Review E, 2001, 63, 051107.	2.1	35
54	Parallel computing with extended dynamical systems. Physical Review E, 2002, 65, 036214.	2.1	35

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55	Realization of the fundamental NOR gate using a chaotic circuit. Physical Review E, 2003, 68, 016205.	2.1	33
56	Chaos computing: ideas and implementations. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2008, 366, 653-664.	3.4	32
57	Circadian control of neural excitability in an animal model of temporal lobe epilepsy. Neuroscience Letters, 2009, 455, 145-149.	2.1	32
58	Spike timing dependent plasticity promotes synchrony of inhibitory networks in the presence of heterogeneity. Journal of Computational Neuroscience, 2008, 25, 262-281.	1.0	29
59	Logic from nonlinear dynamical evolution. Physics Letters, Section A: General, Atomic and Solid State Physics, 2009, 373, 1346-1351.	2.1	28
60	A Simple Nonlinear Circuit Contains an Infinite Number of Functions. IEEE Transactions on Circuits and Systems II: Express Briefs, 2016, 63, 944-948.	3.0	28
61	Evolving into epilepsy: Multiscale electrophysiological analysis and imaging in an animal model. Experimental Neurology, 2006, 198, 31-47.	4.1	27
62	An Integrated Circuit Design for a Dynamics-Based Reconfigurable Logic Block. IEEE Transactions on Circuits and Systems II: Express Briefs, 2017, 64, 715-719.	3.0	27
63	Real-time experimental control of a system in its chaotic and nonchaotic regimes. Physical Review E, 1997, 56, R3749-R3752.	2.1	26
64	Introduction: Cardiovascular physics. Chaos, 2007, 17, 015101.	2.5	26
65	Temporal Lobe Epilepsy: Anatomical and Effective Connectivity. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2009, 17, 214-223.	4.9	24
66	Chaos control of cardiac arrhythmias. Trends in Cardiovascular Medicine, 1995, 5, 76-80.	4.9	23
67	Non-parametric early seizure detection in an animal model of temporal lobe epilepsy. Journal of Neural Engineering, 2008, 5, 85-98.	3.5	23
68	A method for visualization of ventricular fibrillation: Design of a cooled fiberoptically coupled image intensified CCD data acquisition system incorporating wavelet shrinkage based adaptive filtering. Chaos, 1998, 8, 94-102.	2.5	22
69	Nonlinear dynamics as an engine of computation. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20160222.	3.4	22
70	Forecasting Hamiltonian dynamics without canonical coordinates. Nonlinear Dynamics, 2021, 103, 1553-1562.	5.2	21
71	Adaptive control and tracking of chaos in a magnetoelastic ribbon. Physical Review E, 1995, 51, R2689-R2692.	2.1	20
72	Controlling neuronal spikes. Physical Review E, 2001, 63, 056209.	2.1	20

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73	FAULT TOLERANCE AND DETECTION IN CHAOTIC COMPUTERS. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2007, 17, 1955-1968.	1.7	20
74	Crisisâ€induced intermittency in a parametrically driven, gravitationally buckled, magnetoelastic amorphous ribbon experiment (invited). Journal of Applied Physics, 1990, 67, 5619-5623.	2.5	19
75	Nonlinear dynamics based digital logic and circuits. Frontiers in Computational Neuroscience, 2015, 9, 49.	2.1	19
76	Detection of High Frequency Oscillations with Teager Energy in an Animal Model of Limbic Epilepsy. , 2006, 2006, 2578-80.		18
77	Exploiting chaos for applications. Chaos, 2015, 25, 097615.	2.5	18
78	Pulse-enhanced stochastic resonance. Physics Letters, Section A: General, Atomic and Solid State Physics, 2000, 277, 13-17.	2.1	17
79	Noise tolerant spatiotemporal chaos computing. Chaos, 2014, 24, 043110.	2.5	17
80	Chaotic attractor hopping yields logic operations. PLoS ONE, 2018, 13, e0209037.	2.5	17
81	Applications of chaos in biology and medicine. AIP Conference Proceedings, 1996, , .	0.4	16
82	Tracking unstable periodic orbits in nonstationary high-dimensional chaotic systems:Method and experiment. Physical Review E, 1997, 55, 4935-4942.	2.1	16
83	Reconfigurable logic blocks based on a chaotic Chua circuit. Chaos, Solitons and Fractals, 2009, 41, 233-244.	5.1	15
84	Unstable periodic orbits and noise in chaos computing. Chaos, 2011, 21, 047520.	2.5	15
85	Construction of a reconfigurable dynamic logic cell. Pramana - Journal of Physics, 2005, 64, 433-441.	1.8	14
86	Predicting synchrony in heterogeneous pulse coupled oscillators. Physical Review E, 2009, 80, 021908.	2.1	13
87	A simple nonlinear dynamical computing device. Chaos, Solitons and Fractals, 2009, 42, 809-819.	5.1	11
88	Phase shift in the 24-hour rhythm of hippocampal EEG spiking activity in a rat model of temporal lobe epilepsy. Journal of Neurophysiology, 2013, 110, 1070-1086.	1.8	11
89	Implementing Boolean Functions in Hybrid Digital-Analog Systems. Physical Review Applied, 2017, 7, .	3.8	11
90	The scaling of physics-informed machine learning with data and dimensions. Chaos, Solitons and Fractals: X, 2020, 5, 100046.	2.1	11

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91	EXPLOITING NONLINEAR DYNAMICS TO STORE AND PROCESS INFORMATION. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2008, 18, 1551-1559.	1.7	10
92	Synchrony with shunting inhibition in a feedforward inhibitory network. Journal of Computational Neuroscience, 2010, 28, 305-321.	1.0	10
93	Stochastic amplification of calcium-activated potassium currents in Ca2+ microdomains. Journal of Computational Neuroscience, 2011, 31, 647-666.	1.0	10
94	Closing editorial: Forecasting of epidemic spreading: lessons learned from the current covid-19 pandemic. Chaos, Solitons and Fractals, 2020, 139, 110278.	5.1	10
95	Can Neurons Distinguish Chaos from Noise?. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 1998, 08, 767-781.	1.7	9
96	PULSATION PERIOD VARIATIONS IN THE RRc LYRAE STAR KIC 5520878. Astrophysical Journal, 2015, 798, 42.	4.5	9
97	Detecting and characterizing high-frequency oscillations in epilepsy: a case study of big data analysis. Royal Society Open Science, 2017, 4, 160741.	2.4	9
98	Nonlinear dynamics based machine learning: Utilizing dynamics-based flexibility of nonlinear circuits to implement different functions. PLoS ONE, 2020, 15, e0228534.	2.5	9
99	Exploiting the controlled responses of chaotic elements to design configurable hardware. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2006, 364, 2483-2494.	3.4	8
100	Chaos computing in terms of periodic orbits. Physical Review E, 2011, 84, 036207.	2.1	8
101	Role of network topology in noise reduction using coupled dynamics. Nonlinear Dynamics, 2016, 84, 1805-1812.	5.2	8
102	Using Recurrence Quantification Analysis Determinism for Noise Removal in Cardiac Optical Mapping. IEEE Transactions on Biomedical Engineering, 2006, 53, 767-770.	4.2	7
103	Coupling Reduces Noise: Applying Dynamical Coupling to Reduce Local White Additive Noise. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2015, 25, 1550040.	1.7	7
104	ANALYSIS OF HIGH-RESOLUTION MICROELECTRODE EEG RECORDINGS IN AN ANIMAL MODEL OF SPONTANEOUS LIMBIC SEIZURES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2009, 19, 605-617.	1.7	6
105	Effects of phase on homeostatic spike rates. Biological Cybernetics, 2010, 102, 427-440.	1.3	6
106	Nonperturbative solutions of nonlinear differential equations using continued fractions. Journal of Mathematical Physics, 1988, 29, 1761-1770.	1.1	5
107	Reduction of Additive Colored Noise Using Coupled Dynamics. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2016, 26, 1650005.	1.7	5
108	Simple nonlinear models suggest variable star universality. Physica D: Nonlinear Phenomena, 2016, 316, 16-22.	2.8	5

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109	Harnessing tipping points for logic operations. European Physical Journal: Special Topics, 2021, 230, 3403-3409.	2.6	5
110	Coherence Analysis Over the Latent Period of Epileptogenesis Reveal that High-Frequency Communication is Increased Across Hemispheres in an Animal Model of Limbic Epilepsy. , 2006, 2006, 1154-6.		4
111	Temporal spike pattern learning. Physical Review E, 2008, 78, 031918.	2.1	4
112	Synthetic Computation: Chaos Computing, Logical Stochastic Resonance, and Adaptive Computing. Understanding Complex Systems, 2014, , 51-65.	0.6	4
113	Superlinearly scalable noise robustness of redundant coupled dynamical systems. Physical Review E, 2016, 93, 032213.	2.1	4
114	Exact solutions of nonlinear differential equations using continued fractions. Societa Italiana Di Fisica Nuovo Cimento B-General Physics, Relativity Astronomy and Mathematical Physics and Methods, 1990, 105, 429-435.	0.2	3
115	Array enhanced stochastic resonance: Implications for signal processing. AIP Conference Proceedings, 1996, , .	0.4	3
116	Reply to â€œComment on â€˜Monostable array-enhanced stochastic resonanceâ€™ â€• Physical Review E, 2002, 66, .	2.1	3
117	Pre-Ictal Entropy Analysis of Microwire Data from an Animal Model of Limbic Epilepsy. , 2006, 2006, 1605-7.		3
118	ROBUST CONTROL OF SPATIOTEMPORAL CHAOS IN COUPLED MAP LATTICES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2009, 19, 2031-2042.	1.7	3
119	Negotiating the separatrix with machine learning. Nonlinear Theory and Its Applications IEICE, 2021, 12, 134-142.	0.6	3
120	DYNAMIC TRANSMURALITY: CARDIAC OPTICAL MAPPING REVEALS WAVES TRAVEL ACROSS TRANSMURAL ABLATION LINES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2007, 17, 3229-3234.	1.7	2
121	Noise Enhanced Logic Gates. AIP Conference Proceedings, 2011, , .	0.4	2
122	Nonlinear dynamics-based adaptive hardware. , 2017, , .		2
123	The fundamentals of controlling chaos. Integrative Psychological and Behavioral Science, 1994, 29, 235-245.	0.3	1
124	Exploring the nonlinear dynamics of a physiologically viable model neuron. AIP Conference Proceedings, 1996, , .	0.4	1
125	Construction of a Chaotic Computer Chip. Understanding Complex Systems, 2009, , 3-13.	0.6	1
126	Reprogrammable biological logic gate that exploits noise. , 2011, , .		1

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127	Phase shift in hippocampal circadian rhythm during the latent period of epileptic rats. BMC Neuroscience, 2011, 12, .	1.9	1
128	Chaos for Speech Coding and Production. Lecture Notes in Computer Science, 2011, , 270-278.	1.3	1
129	Experimental Observation of a Stranger Nonchaotic Attractor. Physical Review Letters, 1990, 65, 1172-1172.	7.8	0
130	<title>Experimental techniques for exploiting chaos</title>. , 1993, , .		0
131	Maintaining Chaos. Materials Research Society Symposia Proceedings, 1996, 459, 545.	0.1	0
132	Electromagnetic fields and biological tissues: from nonlinear response to chaos control. , 2000, , 341-373.		0
133	Chaos at 35,000 feet. IEEE Instrumentation and Measurement Magazine, 2000, 3, 18-21.	1.6	0
134	Nonlinear Synchronization Analysis of Spatiotemporal Heart Data. AIP Conference Proceedings, 2003, , .	0.4	0
135	Investigation and Remediation of Karst Features at Foundry Landfill Site. , 2003, , 349.		0
136	Nonlinear analysis of cardiac optical mapping data reveals ordered period in defibrillation failure. , 2005, , .		0
137	Reconfigurable Logic Element using a Chaotic Circuit. , 2006, , .		0
138	Exploiting Chaos for Computation. , 2006, , .		0
139	Exploiting Nonlinear Dynamics to Search for the Existence of Matches in a Database. , 2006, , .		0
140	Early seizure detection in an animal model of temporal lobe epilepsy. AIP Conference Proceedings, 2007, , .	0.4	0
141	Effective and Anatomical Connectivity in a Rat Model of Spontaneous Limbic Seizure. , 0, , 45-59.		0
142	Watch Your Step: Integrating Nonlinear Dynamical Flows by Stepping Through Space and Time. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2014, 24, 1450145.	1.7	0
143	Present and the Future of Chaos Computing. Lecture Notes in Networks and Systems, 2017, , 101-109.	0.7	0
144	Dynamical coupling outperforms â€œmajority winsâ€•in organizing redundancy to mitigate noise. Nonlinear Dynamics, 2017, 87, 605-615.	5.2	0

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145	Nonlinear Dynamics and Chaos for Fleixble, Reconfigurable Computing. , 2017, , .		0
146	Nonlinear Computing and Nonlinear Artificial Intelligence. Understanding Complex Systems, 2019, , 44-53.	0.6	0
147	Spectral Scaling Analysis of RR Lyrae Stars in OGLE-IV Galactic Bulge Fields. Lecture Notes in Networks and Systems, 2017, , 65-76.	0.7	0
148	Pre-Ictal Entropy Analysis of Microwire Data from an Animal Model of Limbic Epilepsy. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	0