Kenneth Showalter

List of Publications by Year
in descending order

128	9,388	34105	38395
papers	citations	52 h-index	95 g-index

129	129	129	3691
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Chimera and phase-cluster states in populations of coupled chemical oscillators. Nature Physics, 2012, 8, 662-665.	16.7	612
2	Nonlinear Chemical Dynamics:Â Oscillations, Patterns, and Chaos. The Journal of Physical Chemistry, 1996, 100, 13132-13147.	2.9	443
3	Control of waves, patterns and turbulence in chemical systems. Physics Reports, 2006, 425, 79-194.	25.6	384
4	Controlling chaos in the Belousovâ€"Zhabotinsky reaction. Nature, 1993, 361, 240-243.	27.8	383
5	Dynamical Quorum Sensing and Synchronization in Large Populations of Chemical Oscillators. Science, 2009, 323, 614-617.	12.6	358
6	Noise-supported travelling waves in sub-excitable media. Nature, 1998, 391, 770-772.	27.8	309
7	Navigating Complex Labyrinths: Optimal Paths from Chemical Waves. Science, 1995, 267, 868-871.	12.6	246
8	Chimera States in Populations of Nonlocally Coupled Chemical Oscillators. Physical Review Letters, 2013, 110, 244102.	7.8	235
9	Mixedâ€mode oscillations in chemical systems. Journal of Chemical Physics, 1992, 97, 6191-6198.	3.0	209
10	Detailed studies of propagating fronts in the iodate oxidation of arsenous acid. Journal of the American Chemical Society, 1982, 104, 3838-3844.	13.7	196
11	Controlling chemical chaos. The Journal of Physical Chemistry, 1991, 95, 4957-4959.	2.9	196
12	Chemical Wave Logic Gates. The Journal of Physical Chemistry, 1996, 100, 18970-18975.	2.9	189
13	Design and Control of Wave Propagation Patterns in Excitable Media. Science, 2002, 296, 2009-2012.	12.6	187
14	Spiral wave chimera states in large populations of coupled chemical oscillators. Nature Physics, 2018, 14, 282-285.	16.7	175
15	Logic gates in excitable media. Journal of Chemical Physics, 1995, 103, 2058-2066.	3.0	166
16	Motion Analysis of Self-Propelled Ptâ^'Silica Particles in Hydrogen Peroxide Solutions. Journal of Physical Chemistry A, 2010, 114, 5462-5467.	2.5	160
17	Minimum-Risk Path Finding by an Adaptive Amoebal Network. Physical Review Letters, 2007, 99, 068104.	7.8	157
18	Reaction Mechanism for Light Sensitivity of the Ru(bpy)32+-Catalyzed Belousovâ^'Zhabotinsky Reaction. Journal of Physical Chemistry A, 1997, 101, 8200-8206.	2.5	149

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19	A modified Oregonator model exhibiting complicated limit cycle behavior in a flow system. Journal of Chemical Physics, 1978, 69, 2514.	3.0	146
20	Instabilities in propagating reactionâ€diffusion fronts. Journal of Chemical Physics, 1993, 98, 6332-6343.	3.0	143
21	Chemical waves on spherical surfaces. Nature, 1989, 339, 609-611.	27.8	141
22	Convective effects on chemical waves. 2. Simple convection in the iodate-arsenous acid system. The Journal of Physical Chemistry, 1991, 95, 1299-1306.	2.9	139
23	Excitability, wave reflection, and wave splitting in a cubic autocatalysis reaction-diffusion system. Philosophical Transactions of the Royal Society: Physical and Engineering Sciences, 1994, 347, 631-642.	1.0	125
24	Signal transmission in chemical systems: propagation of chemical waves through capillary tubes. The Journal of Physical Chemistry, 1994, 98, 522-531.	2.9	120
25	Noise Driven Avalanche Behavior in Subexcitable Media. Physical Review Letters, 1999, 82, 855-858.	7.8	118
26	Anisotropy and Spiral Organizing Centers in Patterned Excitable Media. Science, 1995, 269, 1857-1860.	12.6	111
27	Regular and irregular spatial patterns in an immobilized-catalyst Belousov-Zhabotinskii reaction. The Journal of Physical Chemistry, 1989, 93, 2774-2780.	2.9	94
28	Cross-membrane coupling of chemical spatiotemporal patterns. Nature, 1991, 351, 132-135.	27.8	94
29	Extreme multistability in a chemical model system. Physical Review E, 2011, 83, 056206.	2.1	93
30	Multistability and tipping: From mathematics and physics to climate and brainâ€”Minireview and preface to the focus issue. Chaos, 2018, 28, 033501.	2.5	91
31	Nonaxisymmetric and Axisymmetric Convection in Propagating Reaction-Diffusion Fronts. The Journal of Physical Chemistry, 1994, 98, 6505-6508.	2.9	90
32	A mapâ€based algorithm for controlling lowâ€dimensional chaos. Journal of Chemical Physics, 1992, 96, 7506-7513.	3.0	88
33	Experimental observation of extreme multistability in an electronic system of two coupled RÃ¶ssler oscillators. Physical Review E, 2014, 89, 022918.	2.1	86
34	Period doubling and chaos in a three-variable autocatalator. The Journal of Physical Chemistry, 1990, 94, 5243-5246.	2.9	83
35	Instabilities in propagating reactionâ€diffusion fronts of the iodateâ€arsenous acid reaction. Journal of Chemical Physics, 1995, 102, 2471-2478.	3.0	83
36	Wave Propagation in Subexcitable Media with Periodically Modulated Excitability. Physical Review Letters, 2001, 86, 1646-1649.	7.8	76

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37	Chemical waves in inhomogeneous excitable media. Physica D: Nonlinear Phenomena, 1991, 49, 21-32.	2.8	75
38	Pattern formation in a ferroinâ€bromate system. Journal of Chemical Physics, 1980, 73, 3735-3742.	3.0	74
39	Noise sustained waves in subexcitable media: From chemical waves to brain waves. Chaos, 1998, 8, 567-575.	2.5	71
40	Onset of convection for autocatalytic reaction fronts: Laterally unbounded system. Physical Review A, 1991, 43, 749-760.	2.5	70
41	Feedback stabilization of unstable propagating waves. Physical Review E, 2002, 65, 065602.	2.1	69
42	Simple and complex propagating reaction-diffusion fronts. The Journal of Physical Chemistry, 1992, 96, 8702-8711.	2.9	68
43	Wave-Induced Chemical Chaos. Physical Review Letters, 1996, 76, 546-549.	7.8	68
44	Luther's 1906 discovery and analysis of chemical waves. Journal of Chemical Education, 1987, 64, 742.	2.3	64
45	Detailed studies of trigger wave initiation and detection. Journal of the American Chemical Society, 1979, 101, 7463-7469.	13.7	61
46	Bistability, mushrooms, and isolas. Journal of Chemical Physics, 1984, 80, 4177-4184.	3.0	60
47	Tracking unstable periodic orbits in the Belousov-Zhabotinsky reaction. Physical Review Letters, 1994, 72, 2955-2958.	7.8	58
48	Wave Front Interaction Model of Stabilized Propagating Wave Segments. Physical Review Letters, 2005, 94, 068302.	7.8	58
49	The oscillatory Landolt reaction. Empirical rate law model and detailed mechanism. Journal of the American Chemical Society, 1987, 109, 4869-4876.	13.7	56
50	Emergence of Collective Behavior in Groups of Excitable Catalyst-Loaded Particles: Spatiotemporal Dynamical Quorum Sensing. Physical Review Letters, 2009, 102, 158301.	7.8	56
51	Chemical waves in the acidic iodate oxidation of arsenite. The Journal of Physical Chemistry, 1981, 85, 2152-2155.	2.9	54
52	Spiral Wave Formation in Three-Dimensional Excitable Media. Physical Review Letters, 1996, 77, 3244-3247.	7.8	53
53	Dynamical quorum sensing and synchronization in collections of excitable and oscillatory catalytic particles. Physica D: Nonlinear Phenomena, 2010, 239, 785-790.	2.8	53
54	Chimera and chimera-like states in populations of nonlocally coupled homogeneous and heterogeneous chemical oscillators. Chaos, 2016, 26, 094826.	2.5	53

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55	Transient chaos in a closed chemical system. Journal of Chemical Physics, 1991, 94, 1134-1140.	3.0	50
56	Phase-lag synchronization in networks of coupled chemical oscillators. Physical Review E, 2015, 92, 022819.	2.1	49
57	From chemical systems to systems chemistry: Patterns in space and time. Chaos, 2015, 25, 097613.	2.5	49
58	Trigger waves in the acidic bromate oxidation of ferroin. The Journal of Physical Chemistry, 1981, 85, 440-447.	2.9	48
59	False bifurcations in chemical systems: canards. Philosophical Transactions of the Royal Society: Physical and Engineering Sciences, 1991, 337, 275-289.	1.0	47
60	Wave Mediated Synchronization of Nonuniform Oscillatory Media. Physical Review Letters, 2007, 98, 074101.	7.8	47
61	Introduction: Control and synchronization of chaos. Chaos, 1997, 7, 509-511.	2.5	46
62	Uncertain destination dynamics. Physical Review E, 1999, 60, 3876-3880.	2.1	45
63	Insights into collective cell behaviour from populations of coupled chemical oscillators. Physical Chemistry Chemical Physics, 2015, 17, 20047-20055.	2.8	44
64	Experimental and theoretical studies of feedback stabilization of propagating wave segments. Faraday Discussions, 2002, 120, 383-394.	3.2	42
65	Critical slowing down in the bistable iodate-arsenic(III) reaction. The Journal of Physical Chemistry, 1983, 87, 1098-1099.	2.9	41
66	Bistability in the iodate oxidation of arsenous acid. The Journal of Physical Chemistry, 1981, 85, 2575-2582.	2.9	39
67	Tracking Unstable Turing Patterns through Mixed-Mode Spatiotemporal Chaos. Physical Review Letters, 1995, 75, 2895-2898.	7.8	39
68	Synchronization of spatiotemporal patterns in locally coupled excitable media. Physical Review E, 2003, 68, 026205.	2.1	39
69	Phase Clusters in Large Populations of Chemical Oscillators. Angewandte Chemie - International Edition, 2011, 50, 10161-10164.	13.8	38
70	Formation and evolution of scroll waves in photosensitive excitable media. Chaos, 1998, 8, 872-878.	2.5	37
71	Stochastic resonance of electrochemical aperiodic spike trains. Physical Review E, 2005, 71, 031110.	2.1	37
72	Relaxation behavior in a bistable chemical system near the critical point and hysteresis limits. Journal of Chemical Physics, 1986, 84, 5427-5436.	3.0	35

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73	Simple model for the oscillatory iodate oxidation of sulfite and ferrocyanide. The Journal of Physical Chemistry, 1990, 94, 4973-4979.	2.9	35
74	Stabilizing and characterizing unstable states in high-dimensional systems from time series. Physical Review E, 1995, 51, 3988-3996.	2.1	33
75	Spatiotemporal dynamics of networks of excitable nodes. Chaos, 2006, 16, 015110.	2.5	33
76	Propagating acidity fronts in the iodate-arsenous acid reaction. The Journal of Physical Chemistry, 1986, 90, 225-226.	2.9	32
77	Collapse of Spatiotemporal Chaos. Physical Review Letters, 2003, 91, 174103.	7.8	32
78	Spatial Symmetry Breaking in the Belousov-Zhabotinsky Reaction with Light-Induced Remote Communication. Physical Review Letters, 2001, 87, 088303.	7.8	31
79	Kinetic bistability in the permanganate oxidation of oxalate. Journal of the American Chemical Society, 1981, 103, 7012-7013.	13.7	30
80	Resonance Pacemakers in Excitable Media. Physical Review Letters, 2006, 96, 244101.	7.8	28
81	Spatiotemporal Networks in Addressable Excitable Media. Physical Review Letters, 2005, 95, 038306.	7.8	26
82	Wave-induced chaos in a continuously fed unstirred reactor. Journal of the Chemical Society, Faraday Transactions, 1996, 92, 2911.	1.7	25
83	Coherent structure analysis of spatiotemporal chaos. Physical Review E, 2000, 61, 2095-2098.	2.1	25
84	Propagating Precipitation Waves: Experiments and Modeling. Journal of Physical Chemistry A, 2013, 117, 12719-12725.	2.5	25
85	Controlling low-dimensional chaos by proportional feedback. Physica A: Statistical Mechanics and Its Applications, 1992, 188, 210-216.	2.6	23
86	Oscillations in chemical systems. 24. Oscillatory decomposition of formic acid in sulfuric acid. Journal of the American Chemical Society, 1978, 100, 1042-1049.	13.7	22
87	Modelling studies of spiral waves and target patterns in premixed flames. Journal of the Chemical Society, Faraday Transactions, 1997, 93, 1733-1739.	1.7	22
88	Normal Modes for Chemical Reactions from Time Series Analysis. Journal of Physical Chemistry A, 1999, 103, 8246-8251.	2.5	22
89	Uncertain dynamics in nonlinear chemical reactions. Physical Chemistry Chemical Physics, 2003, 5, 5444.	2.8	21
90	Period lengthening and associated bifurcations in a twoâ€variable, flow Oregonator. Journal of Chemical Physics, 1988, 88, 778-791.	3.0	20

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91	AN ADAPTIVE CONTROL ALGORITHM FOR TRACKING UNSTABLE PERIODIC ORBITS. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 1994, 04, 1311-1317.	1.7	19
92	Synchronization of heterogeneous oscillator populations in response to weak and strong coupling. Chaos, 2018, 28, 123114.	2.5	18
93	Oscillations in chemical systems. 15. Deliberate generation of trigger waves of chemical reactivity. Journal of the American Chemical Society, 1976, 98, 3730-3731.	13.7	17
94	Transverse coupling of chemical waves. Chaos, 1991, 1, 435-444.	2.5	17
95	Nonlinear Control of Dynamical Systems from Time Series. Physical Review Letters, 1996, 76, 3312-3315.	7.8	17
96	Collective behavior of stabilized reaction-diffusion waves. Chaos, 2008, 18, 026108.	2.5	17
97	Relaxation behavior in a bistable chemical system near the unstable steady state and separatrix. Journal of Chemical Physics, 1985, 83, 1101-1110.	3.0	16
98	Desynchronization of stochastically synchronized chemical oscillators. Chaos, 2015, 25, 123116.	2.5	16
99	Link weight evolution in a network of coupled chemical oscillators. Physical Review E, 2014, 89, 052712.	2.1	14
100	Transition from spiral wave chimeras to phase cluster states. Scientific Reports, 2020, 10, 7821.	3.3	13
101	Complex organizing centers in groups of oscillatory particles. Physical Chemistry Chemical Physics, 2011, 13, 17802.	2.8	12
102	The influence of the form of autocatalysis on the speed of chemical waves. Philosophical Transactions of the Royal Society: Physical and Engineering Sciences, 1991, 337, 249-260.	1.0	11
103	Self-Segregation of Competitive Chaotic Populations. Physical Review Letters, 2000, 84, 5018-5021.	7.8	11
104	Collective behavior of particle-like chemical waves. European Physical Journal: Special Topics, 2008, 165, 161-167.	2.6	11
105	Echo Behavior in Large Populations of Chemical Oscillators. Physical Review X, 2016, 6, .	8.9	10
106	Autonomous cycling between excitatory and inhibitory coupling in photosensitive chemical oscillators. Chaos, 2018, 28, 045114.	2.5	9
107	Relaxation behavior in a bistable chemical system. Plateau behavior. Journal of Chemical Physics, 1989, 91, 938-942.	3.0	8
108	Introduction to Focus Issue: Design and Control of Self-Organization in Distributed Active Systems. Chaos, 2008, 18, 026101.	2.5	8

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109	Three-dimensional modeling of propagating precipitation waves. Chaos, 2015, 25, 064306.	2.5	8
110	Simple and Complex Reaction-Diffusion Fronts. , 1995, , 485-516.		8
111	Controlling spatiotemporal dynamics of flame fronts. Journal of Chemical Physics, 1994, 101, 6606-6614.	3.0	7
112	Photochemical motion control of surface active Belousovâ€“Zhabotinsky droplets. Chaos, 2020, 30, 083143.	2.5	7
113	Single and double rotor spiral waves on spherical surfaces. Reaction Kinetics and Catalysis Letters, 1990, 42, 263-274.	0.6	6
114	Nonlinear prediction, filtering, and control of chemical systems from time series. Chaos, 1997, 7, 614-620.	2.5	6
115	Competitive autocatalysis in reaction-diffusion systems Exclusive product selectivity. Journal of the Chemical Society, Faraday Transactions, 1998, 94, 53-57.	1.7	6
116	Comment on "A new iodate driven nonperiodic oscillatory reaction in a continuously stirred tank reactor". The Journal of Physical Chemistry, 1985, 89, 2118-2119.	2.9	5
117	Novel modes of synchronization in star networks of coupled chemical oscillators. Chaos, 2021, 31, 093127.	2.5	5
118	Studies of propanediol-chromium(III) species in acidic solution. Journal of the American Chemical Society, 1976, 98, 8087-8093.	13.7	4
119	Twisted scroll wave dynamics: partially pinned waves in excitable chemical media. Physical Chemistry Chemical Physics, 2019, 21, 2419-2425.	2.8	3
120	Response. Science, 1995, 269, 418-418.	12.6	2
121	Introduction to Focus Issue: Nonlinear and Stochastic Physics in Biology. Chaos, 2011, 21, 047501.	2.5	2
122	Washout effects in pumped tank reactors. Journal of the American Chemical Society, 1984, 106, 816-817.	13.7	1
123	Stabilizing steady and periodic behavior in propagating flame fronts. Physica D: Nonlinear Phenomena, 1995, 84, 12-22.	2.8	1
124	Topographic organization of Hebbian neural connections by synchronous wave activity. Chaos, 2001, 11, 287.	2.5	1
125	Chemical Waves in the Iodate-Arsenous Acid System. Springer Series in Synergetics, 1981, , 160-165.	0.4	1
126	QUORUM SENSING AND SYNCHRONIZATION IN POPULATIONS OF COUPLED CHEMICAL OSCILLATORS. World Scientific Lecture Notes in Complex Systems, 2013, , 261-278.	0.1	0

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127	Computational Studies in Nonlinear Dynamics. Reviews in Computational Chemistry, 0, , 177-270.	1.5	0
128	Measurements and Modelling of Unstable Steady State, Separatrix, and Critical Point Behavior. Springer Series in Synergetics, 1984, , 50-54.	0.4	0