Steven Shaw

List of Publications by Citations

159 papers	6,205 citations	39 h-index	74 g-index
173 ext. papers	7,043 ext. citations	3.3 avg, IF	5.88 L-index

#	Paper	IF	Citations
159	A periodically forced piecewise linear oscillator. *Journal of Sound and Vibration*, **1983**, 90, 129-155	3.9	692
158	Normal Modes for Non-Linear Vibratory Systems. *Journal of Sound and Vibration*, **1993**, 164, 85-124	3.9	428
157	Non-linear normal modes and invariant manifolds. *Journal of Sound and Vibration*, **1991**, 150, 170-173	3.9	226
156	On the dynamic response of a system with dry friction. *Journal of Sound and Vibration*, **1986**, 108, 305-325	3.9	222
155	Normal Modes of Vibration for Non-Linear Continuous Systems. *Journal of Sound and Vibration*, **1994**, 169, 319-347	3.9	184
154	Chaotic vibrations of a beam with non-linear boundary conditions. *International Journal of Non-Linear Mechanics*, **1983**, 18, 465-477	2.8	179
153	Nonlinear Dynamics and Its Applications in Micro- and Nanoresonators. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2010**, 132,	1.6	172
152	The Dynamics of a Harmonically Excited System Having Rigid Amplitude Constraints, Part 1: Subharmonic Motions and Local Bifurcations. *Journal of Applied Mechanics, Transactions ASME*, **1985**, 52, 453-458	2.7	168
151	Generalized parametric resonance in electrostatically actuated microelectromechanical oscillators. *Journal of Sound and Vibration*, **2006**, 296, 797-829	3.9	157
150	The nonlinear response of resonant microbeam systems with purely-parametric electrostatic actuation. *Journal of Micromechanics and Microengineering*, **2006**, 16, 890-899	2	131
149	Periodically Forced Linear Oscillator with Impacts: Chaos and Long-Period Motions. *Physical Review Letters*, **1983**, 51, 623-626	7.4	119
148	Forced vibrations of a beam with one-sided amplitude constraint: Theory and experiment. *Journal of Sound and Vibration*, **1985**, 99, 199-212	3.9	117
147	The transition to chaos in a simple mechanical system. *International Journal of Non-Linear Mechanics* , **1989**, 24, 41-56	2.8	106
146	A NEW GALERKIN-BASED APPROACH FOR ACCURATE NON-LINEAR NORMAL MODES THROUGH INVARIANT MANIFOLDS. *Journal of Sound and Vibration*, **2002**, 249, 971-993	3.9	102
145	Tunable Microelectromechanical Filters that Exploit Parametric Resonance. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2005**, 127, 423-430	1.6	97
144	PERFORMANCE AND DYNAMIC STABILITY OF GENERAL-PATH CENTRIFUGAL PENDULUM VIBRATION ABSORBERS. *Journal of Sound and Vibration*, **2002**, 252, 791-815	3.9	92
143	. *Journal of Microelectromechanical Systems*, **2016**, 25, 297-303	2.5	85

142	On the response of the non-linear vibration absorber. *International Journal of Non-Linear Mechanics*, **1989**, 24, 281-293	2.8	85
141	Linear and Nonlinear Tuning of Parametrically Excited MEMS Oscillators. *Journal of Microelectromechanical Systems*, **2007**, 16, 310-318	2.5	77
140	Modal Reduction of a Nonlinear Rotating Beam Through Nonlinear Normal Modes*. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2002**, 124, 229-236	1.6	77
139	Chaotic And Periodic Dynamics Of A Slider-Crank Mechanism With Slider Clearance. *Journal of Sound and Vibration*, **1994**, 177, 307-324	3.9	75
138	The Dynamics of a Harmonically Excited System Having Rigid Amplitude Constraints, Part 2: Chaotic Motions and Global Bifurcations. *Journal of Applied Mechanics, Transactions ASME*, **1985**, 52, 459-464	2.7	75
137	Nonlinear normal modes for vibratory systems under harmonic excitation. *Journal of Sound and Vibration*, **2005**, 288, 791-812	3.9	70
136	APPLICATION OF GLOBAL METHODS FOR ANALYZING DYNAMICAL SYSTEMS TO SHIP ROLLING MOTION AND CAPSIZING. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **1992**, 02, 101-115	2	70
135	Direct observation of coherent energy transfer in nonlinear micromechanical oscillators. *Nature Communications*, **2017**, 8, 15523	17.4	65
134	Circulant Matrices and Their Application to Vibration Analysis. *Applied Mechanics Reviews*, **2014**, 66,	8.6	64
133	The Onset of Chaos in a Two-Degree-of-Freedom Impacting System. *Journal of Applied Mechanics, Transactions ASME*, **1989**, 56, 168-174	2.7	56
132	A single input-single output coupled microresonator array for the detection and identification of multiple analytes. *Applied Physics Letters*, **2008**, 93, 054102	3.4	55
131	The construction of non-linear normal modes for systems with internal resonance. *International Journal of Non-Linear Mechanics*, **2005**, 40, 729-746	2.8	55
130	The impact of nonlinearity on degenerate parametric amplifiers. *Applied Physics Letters*, **2010**, 96, 234101	3.4	50
129	Stability of the Unison Response for a Rotating System With Multiple Tautochronic Pendulum Vibration Absorbers. *Journal of Applied Mechanics, Transactions ASME*, **1997**, 64, 149-156	2.7	50
128	Instabilities and bifurcations in a rotating shaft. *Journal of Sound and Vibration*, **1989**, 132, 227-244	3.9	49
127	Modal Analysis-Based Reduced-Order Models for Nonlinear Structures--An Invariant Manifold Approach. *The Shock and Vibration Digest*, **1999**, 31, 3-16		48
126	Nonlinear Modal Analysis of Structural Systems Using Multi-Mode Invariant Manifolds. *Nonlinear Dynamics*, **2001**, 25, 183-205	5	47
125	Normal modes for large amplitude vibration of a cantilever beam. *International Journal of Solids and Structures*, **1994**, 31, 1981-2014	3.1	45

124	Normal modes for piecewise linear vibratory systems. *Nonlinear Dynamics*, **1996**, 10, 135-164	5	41
123	Nonlinear Dynamics of Vehicle Traction. *Vehicle System Dynamics*, **2003**, 40, 377-399	2.8	40
122	Chaos and Three-Dimensional Horseshoes in Slowly Varying Oscillators. *Journal of Applied Mechanics, Transactions ASME*, **1988**, 55, 959-968	2.7	40
121	Finite-Element-Based Nonlinear Modal Reduction of a Rotating Beam with Large-Amplitude Motion. *JVC/Journal of Vibration and Control*, **2003**, 9, 235-263	2	39
120	Component Mode Synthesis Using Nonlinear Normal Modes. *Nonlinear Dynamics*, **2005**, 41, 17-46	5	39
119	Accurate reduced-order models for a simple rotor blade model using nonlinear normal modes. *Mathematical and Computer Modelling*, **2001**, 33, 1085-1097		39
118	Mechanical Domain Parametric Amplification. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2008**, 130,	1.6	38
117	The Dynamics of an Impact Print Hammer. *Journal of Vibration and Acoustics, Transactions of the ASME*, **1988**, 110, 193-200	1.6	38
116	A Review of Nonlinear Dynamics of Mechanical Systems in Year 2008. *Journal of System Design and Dynamics*, **2008**, 2, 611-640		37
115	Non-linear resonance of an unbalanced rotating shaft with internal damping. *Journal of Sound and Vibration*, **1991**, 147, 435-451	3.9	37
114	Tuning of centrifugal pendulum vibration absorbers for translational and rotational vibration reduction. *Mechanism and Machine Theory*, **2013**, 66, 56-65	4	36
113	The dynamic response of a centrifugal pendulum vibration absorber with motion-limiting stops. *Journal of Sound and Vibration*, **1988**, 126, 221-235	3.9	35
112	Tuning for Performance and Stability in Systems of Nearly Tautochronic Torsional Vibration Absorbers. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2010**, 132,	1.6	33
111	Tautochronic Vibration Absorbers for Rotating Systems. *Journal of Computational and Nonlinear Dynamics*, **2006**, 1, 283-293	1.4	33
110	Bifurcation Generated Mechanical Frequency Comb. *Physical Review Letters*, **2018**, 121, 244302	7.4	33
109	Centrifugal Pendulum Vibration Absorbers: An Experimental and Theoretical Investigation. *Nonlinear Dynamics*, **2003**, 34, 293-307	5	32
108	An invariant manifold approach to nonlinear normal modes of oscillation. *Journal of Nonlinear Science*, **1994**, 4, 419-448	2.8	32
107	A single input□ingle output mass sensor based on a coupled array of microresonators. *Sensors and Actuators A: Physical*, **2007**, 137, 147-156	3.9	31

106	The experimental response of an impacting pendulum system. *International Journal of Non-Linear Mechanics*, **1990**, 25, 1-16	2.8	31
105	Nonlinearity of Degenerately Doped Bulk-Mode Silicon MEMS Resonators. *Journal of Microelectromechanical Systems*, **2016**, 25, 859-869	2.5	31
104	Structural optimization for nonlinear dynamic response. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2015**, 373,	3	29
103	The non-linear dynamics of electromagnetically actuated microbeam resonators with purely parametric excitations. *International Journal of Non-Linear Mechanics*, **2013**, 55, 79-89	2.8	29
102	Steady-State Responses in Systems of Nearly-Identical Torsional Vibration Absorbers. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2003**, 125, 80-87	1.6	29
101	Spectrum of an oscillator with jumping frequency and the interference of partial susceptibilities. *Physical Review Letters*, **2010**, 105, 230601	7.4	28
100	Chaotic dynamics of a slender beam rotating about its longitudinal axis. *Journal of Sound and Vibration*, **1988**, 124, 329-343	3.9	28
99	Catastrophic sliding bifurcations and onset of oscillations in a superconducting resonator. *Physical Review E*, **2010**, 81, 016213	2.4	27
98	Nonlinear Dynamics and Its Applications in Micro- and Nanoresonators **2008**,		25
97	Nonlinear normal modes and their application in structural dynamics. *Mathematical Problems in Engineering*, **2006**, 2006, 1-15	1.1	25
96	Chaotic Motions of a Torsional Vibration Absorber. *Journal of Applied Mechanics, Transactions ASME* , **1988**, 55, 952-958	2.7	25
95	Sub-harmonic resonant solutions of a harmonically excited dry friction oscillator. *Nonlinear Dynamics*, **2007**, 50, 93-109	5	24
94	Bifurcation diagram and dynamic response of a MEMS resonator with a 1:3 internal resonance. *Applied Physics Letters*, **2019**, 114, 254104	3.4	23
93	Anomalous Decay of Nanomechanical Modes Going Through Nonlinear Resonance. *Scientific Reports*, **2017**, 7, 18091	4.9	23
92	The Dynamic Stability and Non-Linear Resonance of a Flexible Connecting Rod: Single-Mode Model. *Journal of Sound and Vibration*, **1994**, 170, 25-49	3.9	23
91	Vibration Reduction in a Variable Displacement Engine Using Pendulum Absorbers **2003**,		22
90	Self-induced parametric amplification in ring resonating gyroscopes. *International Journal of Non-Linear Mechanics*, **2017**, 94, 300-308	2.8	21
89	Tailoring the nonlinear response of MEMS resonators using shape optimization. *Applied Physics Letters*, **2017**, 110, 081902	3.4	21

88	Frequency division using a micromechanical resonance cascade. *Applied Physics Letters*, **2014**, 105, 244103	3.4	21
87	A Subharmonic Vibration Absorber for Rotating Machinery. *Journal of Vibration and Acoustics, Transactions of the ASME*, **1997**, 119, 590-595	1.6	21
86	The Dynamic Response of Tuned Impact Absorbers for Rotating Flexible Structures. *Journal of Computational and Nonlinear Dynamics*, **2006**, 1, 13-24	1.4	21
85	MEMS implementation of axial and follower end forces. *Journal of Sound and Vibration*, **2005**, 286, 637-644	3.9	21
84	A review of parametric resonance in microelectromechanical systems. *Nonlinear Theory and Its Applications IEICE*, **2013**, 4, 198-224	0.6	20
83	Capsize criteria for ship models with memory-dependent hydrodynamics and random excitation. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2000**, 358, 1761-1791	3	20
82	Nonlinear Modal Analysis of Structural Systems Using Multi-Mode Invariant Manifolds **2001**, 183-205		20
81	Active Vibration Control of a Flexible Beam Using a Buckling-Type End Force. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2006**, 128, 278-286	1.6	19
80	Phase Noise Reduction and Optimal Operating Conditions for a Pair of Synchronized Oscillators. *IEEE Transactions on Circuits and Systems I: Regular Papers*, **2016**, 63, 1-11	3.9	18
79	Nonlinear Normal Modes of a Rotating Shaft Based on the Invariant Manifold Method. *International Journal of Rotating Machinery*, **2004**, 10, 319-335	1.3	18
78	Stability and Bifurcation of Longitudinal Vehicle Braking. *Nonlinear Dynamics*, **2005**, 40, 339-365	5	18
77	Chaotic dynamics of a whirling pendulum. *Physica D: Nonlinear Phenomena*, **1988**, 31, 190-211	3.3	18
76	Bifurcations of subharmonics. *Journal of Differential Equations*, **1986**, 65, 304-320	2.1	17
75	Vibration reduction in a tilting rotor using centrifugal pendulum vibration absorbers. *Journal of Sound and Vibration*, **2016**, 385, 55-68	3.9	16
74	Accounting for Roller Dynamics in the Design of Bifilar Torsional Vibration Absorbers. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2011**, 133,	1.6	16
73	Phase Noise Reduction in an MEMS Oscillator Using a Nonlinearly Enhanced Synchronization Domain. *Journal of Microelectromechanical Systems*, **2016**, 25, 870-876	2.5	16
72	Synchronous and non-synchronous responses of systems with multiple identical nonlinear vibration absorbers. *Journal of Sound and Vibration*, **2015**, 348, 105-125	3.9	15
71	The effects of unbalance on oil whirl. *Nonlinear Dynamics*, **1990**, 1, 293-311	5	15

70	The effects of Coulomb friction on the performance of centrifugal pendulum vibration absorbers. *Nonlinear Dynamics*, **2012**, 69, 589-600	5	14
69	Vibration Suppression in Structures Using Cable Actuators. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2010**, 132,	1.6	14
68	Nonlinear Interactions in Systems of Multiple Order Centrifugal Pendulum Vibration Absorbers. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2013**, 135,	1.6	13
67	Subharmonic Resonance Cascades in a Class of Coupled Resonators. *Journal of Computational and Nonlinear Dynamics*, **2013**, 8,	1.4	12
66	Escape statistics for parameter sweeps through bifurcations. *Physical Review E*, **2012**, 85, 046202	2.4	12
65	Parametric amplification in a resonant sensing array. *Journal of Micromechanics and Microengineering*, **2012**, 22, 035004	2	12
64	Vibration absorbers for a rotating flexible structure with cyclic symmetry: nonlinear path design. *Nonlinear Dynamics*, **2010**, 60, 149-182	5	12
63	The dynamic stability and nonlinear resonance of a flexible connecting rod: Continuous parameter model. *Nonlinear Dynamics*, **1993**, 4, 573-603	5	12
62	Nonlinear dynamics of MEMS systems **2011**,		11
61	Noise-induced intermittency in a superconducting microwave resonator. *Europhysics Letters*, **2010**, 89, 17003	1.6	11
60	On codimension-three bifurcations in the motion of articulated tubes conveying a fluid. *Physica D: Nonlinear Phenomena*, **1987**, 24, 305-327	3.3	11
59	On the transient response of forced nonlinear oscillators. *Nonlinear Dynamics*, **2012**, 67, 2609-2619	5	10
58	Effects of Nonlinearities and Damping on the Dynamic Response of a Centrifugal Pendulum Vibration Absorber. *Journal of Vibration and Acoustics, Transactions of the ASME*, **1992**, 114, 305-311	1.6	10
57	On "roller-coaster" experiments for nonlinear oscillators. *Nonlinear Dynamics*, **1992**, 3, 375-384	5	10
56	Phase Control of Self-Excited Parametric Resonators. *Physical Review Applied*, **2019**, 12,	4.3	9
55	Resonance Suppression in Multi-Degree-of-Freedom Rotating Flexible Structures Using Order-Tuned Absorbers. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2012**, 134,	1.6	9
54	Parametrically Excited MEMS-Based Filters **2005**, 137-146		9
53	Experimental Investigation of a System With Multiple Nearly Identical Centrifugal Pendulum Vibration Absorbers **2003**, 913		9

52	Phase noise suppression through parametric filtering. *Applied Physics Letters*, **2017**, 110, 063503	3.4	8
51	Nonlinear Transient Dynamics of Pendulum Torsional Vibration Absorbers—Part I: Theory. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2013**, 135,	1.6	8
50	Non-synchronous and Localized Responses of Systems of Identical Centrifugal Pendulum Vibration Absorbers. *Arabian Journal for Science and Engineering*, **2014**, 39, 9205-9217		7
49	Nonlinear Transient Dynamics of Pendulum Torsional Vibration Absorbers—Part II: Experimental Results. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2013**, 135,	1.6	7
48	Experimental investigation on mode coupling of bulk mode silicon MEMS resonators **2015**,		6
47	Modal disparity and its experimental verification. *Journal of Sound and Vibration*, **2008**, 311, 1465-1475	3.9	6
46	Torsional Vibration Reduction in Internal Combustion Engines Using Centrifugal Pendulums **1995**,		6
45	Tuning linear and nonlinear characteristics of a resonator via nonlinear interaction with a secondary resonator. *Nonlinear Dynamics*, **2020**, 99, 433-443	5	6
44	The effects of nonlinear damping on degenerate parametric amplification. *Nonlinear Dynamics*, **2020**, 102, 2433-2452	5	5
43	A CAE Methodology for Reducing Rattle in Structural Components **1997**,		5
42	Resonant modal interactions in micro/nano-mechanical structures. *Nonlinear Dynamics*, **2021**, 104, 1801-1828	5	5
41	Comparison of Nonlinear System Identification Methods for Free Decay Measurements with Application to MEMS Devices. *Conference Proceedings of the Society for Experimental Mechanics*, **2017**, 29-46	0.3	4
40	Frequency Sweeping With Concurrent Parametric Amplification. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **2012**, 134,	1.6	4
39	Attenuation of Engine Torsional Vibrations Using Tuned Pendulum Absorbers **1997**,		4
38	A FAST-MANIFOLD APPROACH TO MELNIKOV FUNCTIONS FOR SLOWLY VARYING OSCILLATORS. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **1996**, 06, 1575-1578	2	4
37	MODE LOCALIZATION DUE TO SYMMETRY-BREAKING NONLINEARITIES. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **1991**, 01, 471-475	2	4
36	An Experimental Study of Torsional Vibration Absorbers **2001**,		4
35	Accounting for Roller Dynamics in the Design of Bifilar Torsional Vibration Absorbers **2009**,		3

34	Analysis and Design of Multiple Order Centrifugal Pendulum Vibration Absorbers **2012**,		3
33	Fast estimation of bifurcation conditions using noisy response data **2010**,		3
32	A MEMS-Based Rate Gyro Based on Parametric Resonance **2008**,		3
31	A Method for the Improvement of Impact Printer Performance. *Journal of Vibration and Acoustics, Transactions of the ASME*, **1988**, 110, 528-532	1.6	3
30	Vibration Absorbers for Cyclic Rotating Flexible Structures: Linear and Nonlinear Tuning **2008**,		3
29	Steady-State Non-Synchronous and Localized Responses of Tuned Pendulum Vibration Absorbers **1999**,		3
28	Spectral narrowing of parametrically pumped thermomechanical noise. *Applied Physics Letters*, **2020**, 117, 033504	3.4	3
27	Effective and robust rocking centrifugal pendulum vibration absorbers. *Journal of Sound and Vibration*, **2022**, 527, 116821	3.9	3
26	Modeling for Nonlinear Vibrational Response of Mechanical Systems. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2017**, 277-319	0.6	2
25	Nonlinearity and parametric pumping in sensors: Opportunities and limitations **2017**,		2
24	Resonance Suppression in Multi-DOF Rotating Flexible Structures Using Order-Tuned Absorbers **2009**,		2
23	The Effects of Nonlinearity on Parametric Amplifiers **2008**,		2
22	The Dynamic Response of a System With Preloaded Compliance. *Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME*, **1988**, 110, 278-283	1.6	2
21	A SISO, Multi-Analyte Sensor Based on a Coupled Microresonator Array **2006**,		2
20	Modal Properties of Rotating Shafts with Order-Tuned Absorbers. *Conference Proceedings of the Society for Experimental Mechanics*, **2014**, 181-189	0.3	2
19	The Supression of Chaos in Periodically Forced Oscillators **1990**, 289-296		2
18	Non-Linear Normal Modes, Invariance, and Modal Dynamics Approximations of Non-Linear Systems **1993**,		2
17	The Effects of Gravity on the Response of Centrifugal Pendulum Vibration Absorbers1. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2021**, 143,	1.6	2

16	Generalized Parametric Resonance. *SIAM Journal on Applied Dynamical Systems*, **2016**, 15, 767-788	2.8	2
15	Suppressing Frequency Fluctuations of Self-Sustained Vibrations in Underdamped Nonlinear Resonators. *Physical Review Applied*, **2021**, 15,	4.3	2
14	Special Section on the Dynamics of MEMS and NEMS. *Journal of Vibration and Acoustics, Transactions of the ASME*, **2017**, 139,	1.6	1
13	Nonlinear Transient Dynamics of Pendulum Torsional Vibration Absorbers **2011**,		1
12	The Balanced Dynamical Bridge: Detection and Sensitivity to Parameter Shifts and Non-Gaussian Noise **2012**,		1
11	Frequency Sweeping With Concurrent Parametric Amplification **2008**,		1
10	Nonlinear Response of Parametrically-Excited MEMS **2005**, 453		1
9	Torsional Vibration Absorbers: A Testing and Evaluation Apparatus **2001**,		1
8	Giant parametric amplification and spectral narrowing in atomically thin MoS2 nanomechanical resonators. *Applied Physics Reviews*, **2022**, 9, 011404	17.3	1
7	Designing Nonlinear Torsional Vibration Absorbers **2012**, 135-169		1
6	Effects of Remote Boundary Conditions on Clamping Loss in Micromechanical Resonators. *Journal of Microelectromechanical Systems*, **2022**, 1-13	2.5	0
5	Vibration Control in a Flexible Beam Using a Conservative Force **2004**, 1451		
4	The Construction of Nonlinear Normal Modes for Systems With Internal Resonance: Application to Rotating Beams **2002**, 445		
3	Application of the Harmonic Balance Method to Centrifugal Pendulum Vibration Absorbers. *Conference Proceedings of the Society for Experimental Mechanics*, **2016**, 243-252	0.3	
2	Preface to the special issue NODYCON 2019 *Nonlinear Dynamics*, **2019**, 98, 2427-2434	5	
1	Maximizing the rate sensitivity of resonating gyroscopes using nonlinear shape optimization. *Journal of Micromechanics and Microengineering*, **2022**, 32, 064003	2	