

# Balakumar Balachandran

## List of Publications by Year in descending order

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107  
papers

4,636  
citations

136950

32  
h-index

155660

55  
g-index

115  
all docs

115  
docs citations

115  
times ranked

2257  
citing authors

| #  | ARTICLE  | IF   | CITATIONS |
|----|--|------|-----------|
| 1  | Modal Interactions in Dynamical and Structural Systems. Applied Mechanics Reviews, 1989, 42, S175-S201.  | 10.1 | 242       |
| 2  | Influence of flexibility on the aerodynamic performance of a hovering wing. Journal of Experimental Biology, 2009, 212, 95-105.  | 1.7  | 224       |
| 3  | Nonlinear dynamics of milling processes. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2001, 359, 793-819.  | 3.4  | 164       |
| 4  | Experimental Verification of the Importance of The Nonlinear Curvature in the Response of a Cantilever Beam. Journal of Vibration and Acoustics, Transactions of the ASME, 1996, 118, 21-27. | 1.6  | 128       |
| 5  | Dynamics and stability of milling process. International Journal of Solids and Structures, 2001, 38, 2233-2248.  | 2.7  | 123       |
| 6  | Nonlinear motions of a flexible rotor with a drill bit: stick-slip and delay effects. Nonlinear Dynamics, 2013, 72, 61-77.   | 5.2  | 119       |
| 7  | Impact Dynamics in Milling of Thin-Walled Structures. Nonlinear Dynamics, 2000, 22, 375-392.   | 5.2  | 97        |
| 8  | A Mechanics Based Model for Study of Dynamics of Milling Operations. Meccanica, 2000, 35, 89-109.  | 2.0  | 84        |
| 9  | Nonlinear free and forced oscillations of piezoelectric microresonators. Journal of Micromechanics and Microengineering, 2006, 16, 356-367.  | 2.6  | 82        |
| 10 | Drill-String Dynamics: Reduced-Order Models and Experimental Studies. Journal of Vibration and Acoustics, Transactions of the ASME, 2011, 133, .   | 1.6  | 79        |
| 11 | Coupled axial-torsional dynamics in rotary drilling with state-dependent delay: stability and control. Nonlinear Dynamics, 2014, 78, 1891-1906.  | 5.2  | 78        |
| 12 | Stability analysis for milling process. Nonlinear Dynamics, 2007, 49, 349-359.   | 5.2  | 74        |
| 13 | Dynamics of an Elastic Structure Excited by Harmonic and Aharmonic Impactor Motions. JVC/Journal of Vibration and Control, 2003, 9, 265-279.   | 2.6  | 71        |
| 14 | Intrinsic localized modes in microresonator arrays and their relationship to nonlinear vibration modes. Nonlinear Dynamics, 2008, 54, 13-29.   | 5.2  | 66        |
| 15 | State-Dependent Delay Influenced Drill-String Oscillations and Stability Analysis. Journal of Vibration and Acoustics, Transactions of the ASME, 2014, 136, .                                | 1.6  | 65        |
| 16 | Nonlinear dynamics of a Jeffcott rotor with torsional deformations and rotor-stator contact. International Journal of Non-Linear Mechanics, 2017, 92, 102-110.                               | 2.6  | 60        |
| 17 | Dynamics of milling processes with variable time delays. Nonlinear Dynamics, 2006, 47, 49-63.  | 5.2  | 58        |
| 18 | Grazing bifurcations in an elastic structure excited by harmonic impactor motions. Physica D: Nonlinear Phenomena, 2008, 237, 1129-1138.   | 2.8  | 56        |

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|----|---|-----|-----------|
| 19 | An Experimental Investigation of Complicated Responses of a Two-Degree-of-Freedom Structure. Journal of Applied Mechanics, Transactions ASME, 1989, 56, 960-967.                      | 2.2 | 54        |
| 20 | Parametric identification of piezoelectric microscale resonators. Journal of Micromechanics and Microengineering, 2006, 16, 1593-1601.  | 2.6 | 53        |
| 21 | Parametric studies on drill-string motions. International Journal of Mechanical Sciences, 2012, 54, 260-268.  | 6.7 | 53        |
| 22 | Spatial-temporal dynamics of a drill string with complex time-delay effects: Bit bounce and stick-slip oscillations. International Journal of Mechanical Sciences, 2020, 170, 105338. | 6.7 | 53        |
| 23 | Sensor diaphragm under initial tension: Linear analysis. Experimental Mechanics, 2005, 45, 123-129.   | 2.0 | 51        |
| 24 | Torsional oscillations of a rotor with continuous stator contact. International Journal of Mechanical Sciences, 2014, 83, 65-75.  | 6.7 | 51        |
| 25 | Buckling and Free Oscillations of Composite Microresonators. Journal of Microelectromechanical Systems, 2006, 15, 42-51.  | 2.5 | 50        |
| 26 | Coupling between high-frequency modes and a low-frequency mode: Theory and experiment. Nonlinear Dynamics, 1996, 11, 17-36.   | 5.2 | 47        |
| 27 | Utilizing nonlinear phenomena to locate grazing in the constrained motion of a cantilever beam. Nonlinear Dynamics, 2009, 57, 335-349.  | 5.2 | 43        |
| 28 | Nonlinear Resonances in a Flexible Cantilever Beam. Journal of Vibration and Acoustics, Transactions of the ASME, 1994, 116, 480-484.   | 1.6 | 42        |
| 29 | A Review of Nonlinear Dynamics of Mechanical Systems in Year 2008. Journal of System Design and Dynamics, 2008, 2, 611-640.   | 0.3 | 40        |
| 30 | Dynamics and Control of Supercavitating Vehicles. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2008, 130, .   | 1.6 | 36        |
| 31 | Multiple regenerative effects in cutting process and nonlinear oscillations. International Journal of Dynamics and Control, 2014, 2, 86-101.  | 2.5 | 35        |
| 32 | COVID-19: data-driven dynamics, statistical and distributed delay models, and observations. Nonlinear Dynamics, 2020, 101, 1527-1543.   | 5.2 | 35        |
| 33 | Nonlinear instabilities and control of drill-string stick-slip vibrations with consideration of state-dependent delay. Journal of Sound and Vibration, 2020, 473, 115235.             | 3.9 | 35        |
| 34 | Energy localization and white noise-induced enhancement of $f_1$ response in a micro-scale oscillator array. Nonlinear Dynamics, 2010, 62, 1-16.                                      | 5.2 | 33        |
| 35 | Cyclic motions near a Hopf bifurcation of a four-dimensional system. Nonlinear Dynamics, 1992, 3, 19-39.  | 5.2 | 30        |
| 36 | Flexible flapping systems: computational investigations into fluid-structure interactions. Aeronautical Journal, 2011, 115, 593-604.  | 1.6 | 30        |

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|----|---|-----|-----------|
| 37 | Near-grazing dynamics of base excited cantilevers with nonlinear tip interactions. <i>Nonlinear Dynamics</i> , 2012, 70, 1297-1310.   | 5.2 | 30        |
| 38 | Neural machine-based forecasting of chaotic dynamics. <i>Nonlinear Dynamics</i> , 2019, 98, 2903-2917.  | 5.2 | 29        |
| 39 | Active feedback control of multiple waves in helicopter gearbox support struts. <i>Smart Materials and Structures</i> , 2001, 10, 1046-1058.  | 3.5 | 27        |
| 40 | Localization in Microresonator Arrays: Influence of Natural Frequency Tuning. <i>Journal of Computational and Nonlinear Dynamics</i> , 2010, 5, .   | 1.2 | 27        |
| 41 | Supercavitating Vehicles With Noncylindrical, Nonsymmetric Cavities: Dynamics and Instabilities. <i>Journal of Computational and Nonlinear Dynamics</i> , 2011, 6, .  | 1.2 | 27        |
| 42 | Geometrically exact planar beams with initial pre-stress and large curvature: Static configurations, natural frequencies, and mode shapes. <i>International Journal of Solids and Structures</i> , 2014, 51, 3361-3371. | 2.7 | 27        |
| 43 | Non-linear oscillations of milling. <i>Mathematical and Computer Modelling of Dynamical Systems</i> , 2005, 11, 273-290.  | 2.2 | 26        |
| 44 | Stability Analysis and Control of Supercavitating Vehicles With Advection Delay. <i>Journal of Computational and Nonlinear Dynamics</i> , 2013, 8, .  | 1.2 | 26        |
| 45 | Effects of noise on symmetric intrinsic localized modes. <i>Nonlinear Dynamics</i> , 2016, 85, 333-341.   | 5.2 | 25        |
| 46 | Nonlinear oscillations of piezoelectric microresonators with curved cross-sections. <i>Sensors and Actuators A: Physical</i> , 2008, 144, 194-200.  | 4.1 | 24        |
| 47 | Influence of noise on frequency responses of softening Duffing oscillators. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2018, 382, 3355-3364.  | 2.1 | 23        |
| 48 | Response localization in micro-scale oscillator arrays: influence of cubic coupling nonlinearities. <i>International Journal of Dynamics and Control</i> , 2015, 3, 183-188.  | 2.5 | 22        |
| 49 | Active control of multiple tones in an enclosure. <i>Journal of the Acoustical Society of America</i> , 1999, 106, 211-225.   | 1.1 | 20        |
| 50 | A semi-analytical tool based on geometric nonlinearities for microresonator design. <i>Journal of Micromechanics and Microengineering</i> , 2006, 16, 512-525.  | 2.6 | 20        |
| 51 | Effects of high frequency drive speed modulation on rotor with continuous stator contact. <i>International Journal of Mechanical Sciences</i> , 2017, 131-132, 559-571.   | 6.7 | 20        |
| 52 | Systems with Periodic Coefficients and Periodically Varying Delays: Semidiscretization-Based Stability Analysis. , 2009, , 131-153.   |     | 19        |
| 53 | Smooth particle hydrodynamics studies of wet granular column collapses. <i>Acta Geotechnica</i> , 2020, 15, 1205-1217.  | 5.7 | 19        |
| 54 | Noise-enhanced Response of Nonlinear Oscillators. <i>Procedia IUTAM</i> , 2012, 5, 59-68.   | 1.2 | 18        |

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|----|--|-----|-----------|
| 55 | Longitudinal nonlinear wave propagation through soft tissue. Journal of the Mechanical Behavior of Biomedical Materials, 2013, 20, 192-208.                                    | 3.1 | 18        |
| 56 | Analytical study of active control of wave transmission through cylindrical struts. Smart Materials and Structures, 2001, 10, 121-136.   | 3.5 | 17        |
| 57 | Draft: Stick-Slip Motions of a Rotor-Stator System. Journal of Vibration and Acoustics, Transactions of the ASME, 2014, 136, .   | 1.6 | 17        |
| 58 | Dynamics of circular oscillator arrays subjected to noise. Nonlinear Dynamics, 2022, 108, 1-14.  | 5.2 | 17        |
| 59 | Noise influenced elastic cantilever dynamics with nonlinear tip interaction forces. Nonlinear Dynamics, 2011, 66, 427-439.   | 5.2 | 16        |
| 60 | Lateral Load Transfer Effects on Bifurcation Behavior of Four-Wheel Vehicle System. Journal of Computational and Nonlinear Dynamics, 2009, 4, .                                | 1.2 | 13        |
| 61 | Effects of phase lag on the information rate of a bistable Duffing oscillator. Physics Letters, Section A: General, Atomic and Solid State Physics, 2015, 379, 308-313.        | 2.1 | 13        |
| 62 | Algorithm Fusion for Feature Extraction and Map Construction From SONAR Data. IEEE Sensors Journal, 2015, 15, 6460-6471.   | 4.7 | 12        |
| 63 | A new solution to enhance cuttings transport in mining drilling by using pulse jet mill technique. Science China Technological Sciences, 2019, 62, 875-884.                    | 4.0 | 12        |
| 64 | Absolute Stability of Second-Order Systems With Asymmetric Sector Boundaries. IEEE Transactions on Automatic Control, 2010, 55, 458-463.                                       | 5.7 | 11        |
| 65 | Noise-induced chaotic-attractor escape route. Nonlinear Dynamics, 2020, 102, 863-876.  | 5.2 | 11        |
| 66 | Influence of dissipation on extreme oscillations of a forced anharmonic oscillator. International Journal of Non-Linear Mechanics, 2020, 127, 103596.                          | 2.6 | 11        |
| 67 | Milling Model With Variable Time Delay. , 2004, , 933.   |     | 10        |
| 68 | Rogue waves: New forms enabled by GPU computing. Physics Letters, Section A: General, Atomic and Solid State Physics, 2014, 378, 2377-2381.                                    | 2.1 | 10        |
| 69 | Extreme wave formation in unidirectional sea due to stochastic wave phase dynamics. Physics Letters, Section A: General, Atomic and Solid State Physics, 2018, 382, 1864-1872. | 2.1 | 10        |
| 70 | Motion visualization and estimation for flapping wing systems. Acta Mechanica Sinica/Lixue Xuebao, 2017, 33, 327-340.  | 3.4 | 8         |
| 71 | Transient probability in basins of noise influenced responses of mono and coupled Duffing oscillators. Chaos, 2021, 31, 063117.  | 2.5 | 8         |
| 72 | Noise influenced response movement in coupled oscillator arrays with multi-stability. Journal of Sound and Vibration, 2022, 531, 116951.                                       | 3.9 | 8         |

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|----|---|-----|-----------|
| 73 | Stability of Precision Diamond Turning Processes That Use Round Nosed Tools*. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2001, 123, 747-748.                         | 2.2 | 7         |
| 74 | Supercavitating body dynamics, bifurcations and control. , 0, , .   |     | 7         |
| 75 | Nonlinear Phenomena in Microelectromechanical Resonators. , 2005, , 97-106.   |     | 7         |
| 76 | OFF-RESONANCE CANTILEVER DYNAMICS IN THE PRESENCE OF ATTRACTIVE AND REPULSIVE TIP INTERACTION FORCES. International Journal of Structural Stability and Dynamics, 2011, 11, 603-620.                  | 2.4 | 7         |
| 77 | Noise-influenced transient energy localization in an oscillator array. Nonlinear Theory and Its Applications IEICE, 2013, 4, 232-243.   | 0.6 | 7         |
| 78 | Safe regions with partial control of a chaotic system in the presence of white Gaussian noise. International Journal of Non-Linear Mechanics, 2017, 94, 3-11.   | 2.6 | 7         |
| 79 | State-Dependent Delay and Drill-String Dynamics. Procedia IUTAM, 2017, 22, 31-38.   | 1.2 | 7         |
| 80 | Discrete element method-based studies on dynamic interactions of a lugged wheel with granular media. Journal of Terramechanics, 2021, 94, 49-62.  | 3.1 | 6         |
| 81 | GPU Based Simulation of Physical Systems Characterized by Mobile Discrete Interactions. Computational Science, Engineering and Technology Series, 0, , 95-124.  | 0.2 | 6         |
| 82 | Online Data-Driven Prediction of Spatio-Temporal System Behavior Using High-Fidelity Simulations and Sparse Sensor Measurements. Journal of Mechanical Design, Transactions of the ASME, 2021, 143, . | 2.9 | 5         |
| 83 | Noise-assisted response steering for a rotorâ€“stator system. Journal of Sound and Vibration, 2022, 523, 116683.  | 3.9 | 5         |
| 84 | Intrinsic Localized Modes and Nonlinear Normal Modes in Micro-Resonator Arrays. , 2005, , 165.  |     | 4         |
| 85 | Implementation and Benchmarking of Two-Dimensional Vortex Interactions on a Graphics Processing Unit. Journal of Aerospace Information Systems, 2014, 11, 372-385.                                    | 1.4 | 4         |
| 86 | Computational Studies on Interactions between Robot Leg and Deformable Terrain. Procedia Engineering, 2017, 199, 2439-2444.   | 1.2 | 4         |
| 87 | Intrinsic Localized Modes in Micro-scale Oscillator Arrays Subjected to Deterministic Excitation and White Noise. , 2010, , 325-334.  |     | 4         |
| 88 | State-Dependent Delay Influenced Drill String Dynamics and Stability Analysis. , 2013, , .  |     | 3         |
| 89 | Dynamics of one-dimensional granular arrays with pre-compression. Nonlinear Dynamics, 2020, 99, 707-720.  | 5.2 | 3         |
| 90 | Wave Propagation Studies in Numerical Wave Tanks with Weakly Compressible Smoothed Particle Hydrodynamics. Journal of Marine Science and Engineering, 2021, 9, 233.                                   | 2.6 | 3         |

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|-----|--|-----|-----------|
| 91  | Data driven forecasting of aperiodic motions of non-autonomous systems. Chaos, 2021, 31, 021105.   | 2.5 | 3         |
| 92  | Continuum Modeling and Simulation of Robotic Appendage Interaction With Granular Material. Journal of Applied Mechanics, Transactions ASME, 2021, 88, .  | 2.2 | 3         |
| 93  | Three-dimensional formulation of a strain-based geometrically nonlinear piezoelectric beam for energy harvesting. Journal of Intelligent Material Systems and Structures, 2021, 32, 2153-2173.                                   | 2.5 | 2         |
| 94  | Influence of Noise on Discrete Breathers in Nonlinearly Coupled Micro-oscillator Arrays. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2011, , 247-254.   | 0.2 | 2         |
| 95  | Sensor Diaphragm Under Initial Tension: Linear Analysis. Experimental Mechanics, 2005, 45, 123-129.  | 2.0 | 2         |
| 96  | COUPLING BETWEEN HIGH-FREQUENCY MODES AND A LOW-FREQUENCY MODE: THEORY AND EXPERIMENT. , 1993, , .   |     | 1         |
| 97  | Active control of noise in a three-dimensional enclosure using indirect adaptive control. , 0, , .   |     | 1         |
| 98  | Comparative study on analytical and computational aerodynamic models for flapping wings MAVs. Aeronautical Journal, 2020, 124, 1636-1665.  | 1.6 | 1         |
| 99  | Drillstring Oscillations: The Influence of Fluid Loading and Stabilizer Effects. Shock and Vibration, 2021, 2021, 1-10.  | 0.6 | 1         |
| 100 | Near-Grazing Dynamics of Macro-scale and Micro-scale Cantilevers with Nonlinear Tip Interaction Forces. , 2013, , 281-293.   |     | 1         |
| 101 | Control of an Impacted Cantilever toward Application of an Atomic Force Microscope in Tapping Mode. Nippon Kikai Gakkai Ronbunshu, C Hen/Transactions of the Japan Society of Mechanical Engineers, Part C, 2008, 74, 1409-1415. | 0.2 | 0         |
| 102 | Noise-Influenced Dynamics of a Vertically Excited Pendulum. , 2013, , .  |     | 0         |
| 103 | Wave Propagation Through Soft Tissue: Effect of Material Nonlinearity and Nonuniform Cross-Section. , 2014, , .  |     | 0         |
| 104 | Dynamic interactions of a driven pendulum with photoelastic granular media. Physics Letters, Section A: General, Atomic and Solid State Physics, 2021, 396, 127244.  | 2.1 | 0         |
| 105 | Nonlinear Rotor Response with Coupled Lateral and Torsional Motions. IEICE Proceeding Series, 2014, 2, 22-25.  | 0.0 | 0         |
| 106 | Laboratory Scale Arrangement for Experimental Studies of Drill-String Motions. , 2016, , .   |     | 0         |
| 107 | Computationally Efficient Simulations of Stochastically Perturbed Nonlinear Dynamical Systems. Journal of Computational and Nonlinear Dynamics, 2022, , .  | 1.2 | 0         |