

GIUSEPPE HABIB

Full list of publications

Peer Reviewed Journal Papers

1. **Habib, G.**, Kadar, F., Papp, B., Impulsive vibration mitigation through a nonlinear tuned vibration absorber, *NONLINEAR DYNAMICS*, 98(3): pp. 2115-2130 (2019).
2. Dombovari Z., Iglesias A., Molnar T.G., **Habib, G.**, Munoa J., Kuske R., Stepan G., Experimental Observations on Unsafe Zones in Milling Processes, *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A*, 377(2153): pp. 20180125 (2019).
3. **Habib, G.**, Cirillo, I., Kerschen, G., Isolated resonances and nonlinear damping, *NONLINEAR DYNAMICS*, 93(3): pp. 979-994 (2018).
4. **Habib, G.**, Kerschen, G., Stépán, G., Chatter mitigation using the nonlinear tuned vibration absorber, *INTERNATIONAL JOURNAL OF NONLINEAR MECHANICS*, 91: pp. 103-112 (2017).
5. **Habib, G.**, Romeo, F., The tuned bistable nonlinear energy sink, *NONLINEAR DYNAMICS*, 89(1): pp. 179-196 (2017).
6. Malher, A., Touzé, C., Doaré, O., **Habib, G.**, Kerschen, G., Flutter control of a two-degrees-of-freedom airfoil using a nonlinear tuned vibration absorber, *JOURNAL OF COMPUTATIONAL AND NONLINEAR DYNAMICS*, 12(5): pp. 051016 (2017).
7. Cirillo, G.I., **Habib, G.**, Kerschen, G., Sepulchre, R., Analysis and design of nonlinear resonances via singularity theory, *JOURNAL OF SOUND AND VIBRATION*, 392: pp. 295-306 (2017).
8. Verstraelen, E., **Habib, G.**, Kerschen, G., Dimitriadis, G., Experimental Passive Flutter Suppression Using a Linear Tuned Vibration Absorber, *AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS JOURNAL*, 55(5): pp. 1707-1722 (2017).
9. **Habib, G.**, Kerschen, G., Grappasonni, C., Passive linearization of nonlinear resonances, *JOURNAL OF APPLIED PHYSICS*, 120(4): pp. 044901 (2016).
10. **Habib, G.**, Kerschen, G., A principle of similarity for nonlinear vibration absorbers, *PHYSICA D*, 332: pp. 1-8 (2016).
11. **Habib, G.**, Rega, G., Stépán, G., Delayed digital position control of a single-DoF system and the nonlinear behavior of the act-and-wait controller, *JOURNAL OF VIBRATION AND CONTROL*, 22(2): pp. 481-495 (2016).
12. **Habib, G.**, Miklos, A., Enikov, E., Stépán, G., Rega, G., Nonlinear model-based parameter estimation and stability analysis of an aero-pendulum subject to digital delayed control, *INTERNATIONAL JOURNAL OF DYNAMICS AND CONTROL*, pp. 1-15 (2015).
13. **Habib, G.**, Kerschen, G., Suppression of limit cycle oscillations using the nonlinear tuned vibration absorber, *PROCEEDINGS OF THE ROYAL SOCIETY OF LONDON A*, 471(2176): 20140976 (2015).
14. Detroux, T., **Habib, G.**, Masset, L., Kerschen, G., Performance, Robustness and Sensitivity Analysis of the Nonlinear Tuned Vibration Absorber, *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*, 60: pp. 799-809 (2015).
15. **Habib, G.**, Detroux, T., Viguié, R., Kerschen, G., Nonlinear generalization of Den Hartog's equal-peak method, *MECHANICAL SYSTEMS AND SIGNAL PROCESSING*, 52: pp. 17-28 (2015).

16. **Habib, G.**, Rega, G., Stépán, G., Stability analysis of a two-DoF mechanical system subject to proportional-derivative digital position control, *JOURNAL OF VIBRATION AND CONTROL*, 21(8): pp. 1539-1555 (2015).
17. **Habib, G.**, Rega, G., Stépán, G., Bifurcation analysis of a two-DoF mechanical system subject to digital position control. Part I: theoretical investigation, *NONLINEAR DYNAMICS*, 76(3): pp. 1781-1796 (2014).
18. **Habib, G.**, Rega, G., Stépán, G., Bifurcation analysis of a two-DoF mechanical system subject to digital position control. Part II: effects of asymmetry and transition to chaos, *NONLINEAR DYNAMICS*, 74(4): pp. 1223-1241 (2013).
19. **Habib, G.**, Rega, G., Stépán, G., Nonlinear bifurcation analysis of a single-DoF model of a robotic arm subject to digital position control, *JOURNAL OF COMPUTATIONAL AND NONLINEAR DYNAMICS*, 8: pp. 011009. (2013).
20. **Habib, G.**, Rega, G., Stépán, G., Analytical investigation of single and double Neimark-Sacker bifurcations, *PERIODICA POLYTECHNICA*, 56(1): pp. 13-22 (2012).
21. Gottlieb, O., **Habib, G.**, Non-linear model-based estimation of quadratic and cubic damping mechanisms governing the dynamics of a chaotic spherical pendulum, *JOURNAL OF VIBRATION AND CONTROL*, 18(4): pp. 536-547 (2012).

Book Chapters

22. **Habib G.**, Suppression of Time-Delayed Induced Vibrations Through the Dynamic Vibration Absorber: Application to the Inverted Pendulum. In: *Topics in Nonlinear Mechanics and Physics*, pp.125-140, Springer, Singapore (2019).
23. **Habib, G.**, Romeo F., Comparative Analysis of NES and TMD Performance via High-Dimensional Invariant Manifolds. In: *IUTAM Symposium on Exploiting Nonlinear Dynamics for Engineering Systems*, pp. 143-153, Springer, Cham (2019).
24. **Habib, G.**, Kerschen, G., Linearization of nonlinear resonances through the addition of intentional nonlinearities. In: *Recent Trends in Applied Nonlinear Mechanics and Physics*, pp. 215-225, Belhaq M. (eds) Springer, Cham. (2018).
25. **Habib, G.**, Grappasonni, C., Kerschen, G., Enforcing linear dynamics through the addition of nonlinearity. In: *Nonlinear Dynamics, Volume 1*, pp. 11-18, Kerschen G. (eds). *Conference Proceedings of the Society for Experimental Mechanics Series*, Springer, Cham. (2016).
26. Verstraelen, E., Dimitriadis, G., Kerschen, G., **Habib, G.**, Passive flutter mitigation using a nonlinear tuned vibration absorber. In: *Nonlinear Dynamics, Volume 1*, pp. 133-144, Kerschen G. (eds). *Conference Proceedings of the Society for Experimental Mechanics Series*, Springer, Cham. (2016).

Conference Proceeding Papers

27. **Habib, G.**, Cirillo, G.I., Kerschen, G., Uncovering detached resonance curves in single-degree-of-freedom systems: International Conference on Structural Dynamics EUROLYN 2017, 10-13 September, Rome, Italy (2017).
28. **Habib, G.**, Kerschen, G., Stépán, G., Chatter mitigation through the nonlinear tuned vibration absorber: IMAC XXXV A conference and exposition on structural dynamics, February, Los Angeles, USA (2017).
29. **Habib, G.**, Kerschen, G., Chatter mitigation using the nonlinear tuned vibration absorber: International Conference on Noise and Vibration Engineering ISMA2016, 19-21 September, Leuven, Belgium (2016).

30. Malher, A., Touzé, C., Doaré, O. **Habib, G.**, Kerschen, G., Passive control of airfoil flutter using a nonlinear tuned vibration absorber: 11th International Conference on Flow-induced vibrations, FIV2016, 4-6 July, The Hague, Netherlands (2016).
31. **Habib, G.**, Kerschen, G., A principle of similarity for nonlinear vibration absorbers: ASME International Design Engineering Technical Conferences, 2-5 August, Boston, USA (2015).
32. Grappasonni, C., **Habib, G.**, Detroux, T., Kerschen, G., The nonlinear tuned vibration absorber in practice: International Conference on Advances in Vibrations, March 30 - April 1, Porto, Portugal (2015).
33. **Habib, G.**, Kerschen, G., Compensation of Structural Nonlinearities Using Nonlinear Attachments: IMAC XXXIII A conference and exposition on structural dynamics, 2-5 February, Orlando, USA (2015).
34. Grappasonni, C., **Habib, G.**, Detroux, T., Kerschen, G., Experimental Demonstration of a 3D-Printed Nonlinear Tuned Vibration Absorber: IMAC XXXIII A conference and exposition on structural dynamics, 2-5 February, Orlando, USA (2015).
35. Grappasonni, C., **Habib, G.**, Detroux, T., Wang, F., Kerschen, G., Jensen, J.S., Practical design of a nonlinear tuned vibration absorber: ISMA, Leuven, Belgium (2014)
36. **Habib, G.**, Kerschen, G., Stability and bifurcation analysis of a Van der Pol-Duffing oscillator with a nonlinear tuned vibration absorber: 8th ENOC, 6-11 July, Vienna, Austria (2014).
37. **Habib, G.**, Detroux, T., Kerschen, G., Generalization of Den Hartog's equal-peak method for nonlinear primary systems: CSNDD (2014).
38. **Habib, G.**, Miklos, A., Enikov, E., Stépán, G., Rega, G., Experimental validation of the act-and-wait control concept through the aeropendulum: 11th ICOVP, 9-12 September, Lisbon, Portugal (2013).
39. **Habib, G.**, Rega, G., Stépán, G., Improving the digital position control of a single-DoF system via the act-and-wait control concept: EUROMECH Colloquium 532 - Time-Periodic Systems Current Trends in Theory and Application, 27-30 August, Frankfurt, Germany (2012).
40. **Habib, G.**, Rega, G., Stépán, G., Bifurcation analysis of a two-DoF system subject to digital position control: ASME 2012 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference. 12-15 August, Chicago, Illinois, USA (2012).
41. **Habib, G.**, Rega, G., Stépán, G., Stability analysis of an elastic robotic arm subject to digital position control: 11th Conference on Dynamical Systems - Theory and Applications, 5-8 December, Lodz, Poland (2011).
42. **Habib, G.**, Rega, G., Stépán, G., Supercritical bifurcation of the digital position control of a single-dof robot model under symmetric nonlinear force: AIMETA 2012 Associazione Italiana di Meccanica Teorica e Applicata, 12-15 September 2011, Bologna, Italy (2011).
43. **Habib, G.**, Rega, G., Stépán, G., Stability and bifurcation analysis of robots subject to digital position control: 7th ENOC, 24-29 July 2011, Rome, Italy (2011).

Conference Proceeding Extended Abstracts

44. **Habib, G.**, Barrios, A., Dombovari, Z., Bistability in nonlinear elastic robotic arms subject to delayed feedback control: Seventh Conference on Nonlinear vibrations, ENOC 2020, 10th European Nonlinear Dynamics Conference, 5-10 July, Lyon, France (2019).
45. Epasto, A., **Habib, G.**, Towed wheel shimmy suppression via the tuned mass damper: Seventh Conference on Nonlinear vibrations, ENOC 2020, 10th European Nonlinear Dynamics Conference, 5-10 July, Lyon, France (2019).

46. Giorgi, G., Davidson, J., **Habib, G.**, Bracco, G., Mattiazzo, G., Kalmar-Nagy, T., Nonlinear kinematics of a moored axisymmetric wave energy converter: Seventh Conference on Nonlinear vibrations, ENOC 2020, 10th European Nonlinear Dynamics Conference, 5-10 July, Lyon, France (2019).
47. Davidson, J., Karimov, M., **Habib, G.**, Kalmar-Nagy, T., Parametric resonance in floating bodies - Comparing monochromatic and polychromatic input waves: Seventh Conference on Nonlinear vibrations, ENOC 2020, 10th European Nonlinear Dynamics Conference, 5-10 July, Lyon, France (2019).
48. **Habib, G.**, Romeo, F., Bistable nonlinear energy sink dynamics via high-dimensional invariant manifolds: Seventh Conference on Nonlinear vibrations, Localization and Energy Transfer, 1-4 July, Marseille, France (2019).
49. Karimov, M., **Habib, G.**, Effect of non-zero sensory dead zone on balancing with feedback delay: MaMeK, XIII Magyar Mechanikai Konferencia, 27-29 August, Miskolc, Hungary (2019).
50. Karimov, M., **Habib, G.**, Effect of non-zero sensory dead zone on balancing with feedback delay: ESB 2019, 25th Congress of the European Society of Biomechanics, 7-10 July, Vienna, Austria (2019).
51. **Habib, G.**, Bencsik, L., Insperger, T., Zelei, A., Impacts versus non-impulsive muscle and joint loads in a two-segmented model of hopping: ECCOMAS 2019, Thematic Conference on Multibody Dynamics, 15-18 July, Duisburg, Germany (2019).
52. **Habib, G.**, Romeo, F., Bistable nonlinear energy sink robustness analysis for multi-mode energy dissipation: AIMETA 2019, Associazione Italiana Meccanica Teorica e Applicata, 15-19 September, Rome, Italy (2019).
53. **Habib, G.**, Kerschen, G., Predicting onset and merging of isolas through force-displacement curves: NODYCON 2019, First International Nonlinear Dynamics Conference, 17-20 February, Rome, Italy (2019).
54. **Habib, G.**, Kadar, F., Papp, B., Shock vibration mitigation via the nonlinear tuned vibration absorber: NODYCON 2019, First International Nonlinear Dynamics Conference, 17-20 February, Rome, Italy (2019).
55. **Habib, G.**, Stépán, G., Tuned mass damper for suppressing delay-induced vibrations: International Conference on Structural Nonlinear Dynamics and Diagnosis, 25-27 June, Tangier, Morocco (2018).
56. **Habib, G.**, Kerschen, G., Nonlinear generalization of Den Hartog's equal peak rule: ICDVC-2018 5th International Conference on Dynamics, Vibration and Control, 28-30 July, Shijiazhuang, China (2018).
57. **Habib, G.**, Stépán, G., Tuned mass damper for suppressing delay-induced vibrations: ICDVC-2018 5th International Conference on Dynamics, Vibration and Control, 28-30 July, Shijiazhuang, China (2018).
58. **Habib, G.**, Romeo, F., TMD vs TBNES: a quantitative comparison in broadband operation: ENOLIDES, 15-19 July, Novi Sad, Serbia (2018).
59. **Habib, G.**, Stépán, G., Suppressing delay-induced vibrations via the tuned mass damper: 14th IFAC Workshop on Time Delay Systems, 28-30 June, Budapest, Hungary (2018).
60. **Habib, G.**, Cirillo G.I., Kerschen, G., Uncovering detached resonance curves in single degree-of-freedom systems: 9th ENOC, 25-30 June, Budapest, Hungary (2017).
61. **Habib, G.**, Kerschen, G., Stépán, G., A nonlinear tuned vibration absorber for chatter mitigation: 9th ENOC, 25-30 June 2017, Budapest, Hungary (2017).
62. **Habib, G.**, Kerschen, G., Chatter mitigation through the nonlinear tuned vibration absorber: 6th International Conference on Nonlinear Vibrations, Localization and Energy Transfer, 4-8 July, Liège, Belgium (2016).

63. **Habib, G.**, Grappasonni G., Kerschen, G., Passive linearization of nonlinear systems at resonance: International Conference on Structural Nonlinear Dynamics and Diagnosis, 23-25 May, Marrakech, Morocco (2016).
64. **Habib, G.**, Kerschen, G., Grappasonni, C., About linearization of mechanical systems through addition of nonlinearities: IMAC XXXIV A conference and exposition on structural dynamics, January, Orlando, USA (2016).
65. Verstraelen, E., Dimitriadis, G., Kerschen, G., **Habib, G.**, Passive flutter mitigation using a nonlinear tuned vibration absorber in the wind tunnel: IMAC XXXIV A conference and exposition on structural dynamics, January, Orlando, USA (2016).
66. Romeo, F., **Habib, G.**, The tuned bistable nonlinear energy sink: analytical design and numerical validation on a two-degree-of-freedom system: 6th International Conference on Nonlinear Vibrations, Localization and Energy Transfer, 4-8 July, Liège, Belgium (2016).
67. **Habib, G.**, Grappasonni, C., Kerschen, G., Passive linearization of a nonlinear resonance: 24th International Congress of Theoretical and Applied Mechanics XXIV ICTAM, 21-26 August, Montréal, Canada (2016).
68. **Habib, G.**, Kerschen, G., Enforcing force-displacement proportionality in nonlinear systems through the addition of nonlinearity: EUROMECH Colloquium 562 - Stability and Control of Nonlinear Vibrating Systems, IUTAM Symposium on Analytical Methods in Nonlinear Dynamics, 6-9 July, Frankfurt, Germany (2015).
69. **Habib, G.**, Kerschen, G., Suppression of self-excited oscillations through the nonlinear tuned vibration absorber: EUROMECH Colloquium 562 - Stability and Control of Nonlinear Vibrating Systems, 24-28 May, Sperlonga, Italy (2015).
70. Romeo, F., **Habib, G.**, Tuned bistable NES for 2-DOF systems vibration absorption: SIAM Conference on Applications of Dynamical Systems, 17-21 May, Snowbird, Utah (2015).
71. **Habib, G.**, Detroux, T., Kerschen, G., Nonlinear + nonlinear = linear: DyNonLin, 14 Octobre, Paris, France (2014).
72. Detroux, T., **Habib, G.**, Kerschen, G., The nonlinear tuned vibration absorber, Part II: robustness and sensitivity analysis: Istanbul, Turkey (2014).
73. **Habib, G.**, Detroux, T., Kerschen, G., The nonlinear tuned vibration absorber, Part I: design and performance analysis: Istanbul, Turkey (2014).
74. Gottlieb, O., **Habib, G.**, Fainshtein, E., Wolf, K., Model-based estimation of nonlinear material properties governing the dynamics and orbital stability of piezoelectric microcantilever sensors: EUROMECH Colloquium 541 - New Advances in the Nonlinear Dynamics and Control of Composites for Smart Engineering Design, 3-6 June, Senigallia, Italy (2013).

Other Publications (for ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development)

60. Rubini, L., **Habib, G.**, Lavra, M., “Concentrating solar collector technologies for the heat production at medium temperatures” (in Italian), 2011.
61. Rubini, L., Di Veroli, M., **Habib, G.**, Lavra, M., “Applicability of Systems and Components Assisted by Renewal Energy Sources” (in Italian), 2010.
62. Rubini, L., Di Veroli, M., Calabria, A., Sangiorgio, S., Orsini, G., Lavra, M., **Habib, G.** “Analysis for the Definition of a Climate Severity Index” (in Italian), 2009.