

Antonio Zippo

Personal Details

Full Name	Dr. Antonio Zippo
Present Position	Associate Professor - permanent
Organization	University of Modena and Reggio Emilia
Contact address	University of Modena and Reggio Emilia Department of Engineering “Enzo Ferrari” Via P. Vivarelli 10 - 41125 - Modena - Italy
Mobile	_____
E-m@il	antonio.zippo@unimore.it
Scopus Author ID	56196024100
ORCID	http://orcid.org/0000-0001-6206-2619
Total years research experience	15 years

Academic qualifications

- ❑ **PhD in High Mechanics and Automotive Design & Technology** [26 Mar 2014]
Università di Modena e Reggio Emilia - Modena, Italia
Title: Nonlinear dynamics and active vibration control of thin walled structures
Topic: Mechanical vibration. active vibration control, chaos. nonlinear dynamics.
- ❑ **Qualification as a Professional Industrial Engineer**
Sez. A, Industrial Engineering, passed in 2009
- ❑ **MSc in Mechanical Engineering** [16 Jul 2009]
Università di Modena e Reggio Emilia - Modena, Italia
Title: Spherical Tuned Liquid Damper
Topic: Tuned liquid mass damper, mechanical vibration
- ❑ **BSc in Mechanical Engineering** [27 Jun 2006]
Università di Modena e Reggio Emilia - Modena, Italia
Title: L'Aerogeneratore di Cardigliano (LE) [Wind Turbine in Cardigliano]
Topic: Site and Wind Study, wind turbine power curves analysis, business plan

University teaching activity

- ❑ Biomechanics of Human Body in MSc Bioengineering for Innovative Medicine at Department of Engineering "Enzo Ferrari" since academic year 2025/2026 [6 attending students]
- ❑ Dynamic testing of vehicles in MSc Advanced Automotive Engineering at Department of Engineering "Enzo Ferrari" since academic year 2023/2024 [30 attending students]
- ❑ Predictive Maintenance in MSc Mechanical Engineering at Department of Engineering "Enzo Ferrari" since academic year 2023/2024 [60 attending students]
- ❑ Mechanics of vehicle in BSc Mechanical Engineering at Department of Engineering "Enzo Ferrari" since academic year 2019/2020 [250 attending students]
- ❑ Multibody Dynamics in MSc Mechanical Engineering at Department of Engineering "Enzo Ferrari" since academic year 2017/2018 [60 attending students]
- ❑ Mechanical Vibrations in MSc Advanced Automotive Engineering at Department of Engineering "Enzo Ferrari" since academic year 2017/2018 [100 attending students]
- ❑ Mechanism and Machine Theory in BSc Mechanical Engineering at Department of Engineering "Enzo Ferrari" in academic year 2018/2019, 2019/2020 [180 attending students]

Professional positions held

- ❑ **Associate Professor** [01 June 2023 - present]
Position: Associate Professor of Mechanism and Machine Theory
Dipartimento di Ingegneria "Enzo Ferrari", Università di Modena e Reggio Emilia, Italia
- ❑ **Senior Lecturer** [01 June 2020 - 31 May 2023]
Position: Ricercatore a t.d. - t.pieno (art.24 c.3-B L.240/10)
Area scientifico-disciplinare 09 Ing. Industriale e dell'informazione
Settore scientifico-disciplinare ING-IND/13 Meccanica Applicata alle Macchine
Settore concorsuale 09/A2
Dipartimento di Ingegneria "Enzo Ferrari", Università di Modena e Reggio Emilia, Italia
- ❑ **Lecturer** [1 June 2017 - 31 May 2020]
Position: Ricercatore a t.d. - t.pieno (art.24 c.3-A L.240/10)
Area scientifico-disciplinare 09 Ing. Industriale e dell'informazione
Settore scientifico-disciplinare ING-IND/13 Meccanica Applicata alle Macchine
Settore concorsuale 09/A2
Dipartimento di Ingegneria "Enzo Ferrari", Università di Modena e Reggio Emilia, Italia
- ❑ **Post-Doc Research Grant** [1 July 2016 - 30 June 2017]
Validazioni sperimentali a banco ingranaggi nell'ambito del progetto METAGEAR
Dipartimento di Ingegneria "Enzo Ferrari", Università di Modena e Reggio Emilia, Italia
Tutor: Prof. Francesco Pellicano

- ❑ **Post-Doc Research Grant** [1 July 2015 - 30 June 2016]
FORTISSIMO, Simulazione Ingranaggi
 Dipartimento di Ingegneria “Enzo Ferrari”, Università di Modena e Reggio Emilia, Italia
 Tutor: Prof. Francesco Pellicano

- ❑ **Post-Doc Research Grant** [16 August 2014 - 30 June 2015]
INDGEAR - Modellazione e testing di Ingranaggi
 Dipartimento di Ingegneria “Enzo Ferrari”, Università di Modena e Reggio Emilia, Italia
 Tutor: Prof. Francesco Pellicano

- ❑ **Research Grant** [16 July 2013 - 15 July 2014]
Sviluppo metodologie per la modellazione di trasmissioni meccaniche
 Centro Interdipartimentale per la Ricerca Applicata e i Servizi nel settore della Meccanica Avanzata e della Motoristica (INTERMECH) Università di Modena e Reggio Emilia, Italia
 Tutor : Prof. Francesco Pellicano

- ❑ **Research Grant** [16 July 2010 - 15 July 2013]
Sviluppo metodologie per la modellazione di trasmissioni meccaniche
 Centro Interdipartimentale per la Ricerca Applicata e i Servizi nel settore della Meccanica Avanzata e della Motoristica (INTERMECH) Università di Modena e Reggio Emilia, Italia
 Tutor : Prof. Francesco Pellicano

- ❑ **Research Internship** [Dec 2009 – July 2010]
 Università di Modena e Reggio Emilia, Italia
 Topics: Modelling of mechanical transmissions. Geometric Definition for the simulation of the cutting process. FEM analysis: strain, stress, and evaluation of transmission error.
 Software development in Fortran, Matlab, C and Python.

- ❑ **Visiting PhD student for a project on Nonlinear Active Vibration Control of Sandwich Carbon Fiber Plate with piezoceramic actuators** [Aug 2012 - Apr 2013]
McGill University - Montreal, Canada
 Tutor : Prof. Marco Amabili

PRINCIPAL INVESTIGATOR OR RESEARCHER IN CHARGE IN FUNDED RESEARCH PROJECTS

- ❑ **Coordinator of project: “International higher education school in NVH for Industry 4.0: Higher education school in NVH for Industry 4.0” – CUP E49J21015490005**
total budget €254100 from 18-10-2021 to 31-12-2023
- ❑ **FAR2022 - Identification, modelling and analysis of nonlinear EMG signals of pathological tremor** - 27/07/2022 budget: 10.000€ granted in 27-07-2022
- ❑ **“Modeling And Experimental Measurements Of Complex Non-Linear Systems For The Active Control Of Essential And Parkinsonian Tremor”**, funded from Consorzio Futuro in Ricerca. budget: €30870 from 09-05-2022 to 31-05-2023

- ❑ Awarding of the research assignment for the project “DiaPro4.0: Prognostic Diagnostics Industry 4.0 from 21-09-2020 to 31-12-2021

PARTICIPATION IN FUNDED RESEARCH PROJECTS

- ❑ **Composite Metamaterials for Aerospace Structures - CoMetA** funded within Science for Peace and Security Programme - NATO
- ❑ Regional project “**THEORETIC** - digiTal twin of Electric powErtrains fOr moRE susTainable agrICulture” (PG/2023/308268) PR FESR 2021-2027 AZIONE 1.1.2
- ❑ Regional project “**REFIMAN** Piattaforma di MANutenzione predittiva per il REtroFltting sostenibile di impianti e macchinari esistenti nel sistema produttivo dell’Emilia-Romagna” (PG/2023/304623) PR FESR 2021-2027 AZIONE 1.1.2
- ❑ Regional project “**DIADEM** - Dimostratori di DIagnostica predittiva e Monitoraggio di componenti elettromeccanici per l’Industria 4.0 mediante lo sviluppo e l’applicazione di un innovativo sensore di DEformazione MEMS per misure non invasive ad altissima risoluzione” (PG/2023/312578) PR FESR 2021-2027 AZIONE 1.1.2
- ❑ **Ecosystem For Sustainable Transition In Emilia-Romagna** funded within (PNRR) – MISSION 4 “Istruzione Ricerca” SPOKE 2
- ❑ **Omnidirectional earthquake isolation system** - University of Waikato
- ❑ **DiaPro 4.0** - Prognostic Diagnostics Industry 4.0, POR-FESR 2014-2020 of the Emilia Romagna Region as part of the Smart Specialization Strategy (S3).
- ❑ **TASC** – Smart & Clean Agricultural Tractors (POR-FESR 2014-2020 of the Emilia Romagna Region - AXIS 1 Research and Innovation - Action 1.2.2)
- ❑ Regional project “**METAGEAR** Integrated platform for the design and advanced production of industrial gearboxes” (PG/2015 /732270) - POR-FESR 2014-2020.
- ❑ European project **Fortissimo** (FP7), within the project, the participation concerned the HPGA – High Performance Gear Analyzer experiment.
- ❑ European project “**IndGear**: condition monitoring in gear transmissions” (FP7).

Research publications and dissemination

PUBLICATIONS IN INTERNATIONAL JOURNAL

1. Molaie, M.; Zippo, A.; Manoach, E.; Doneva, S.; Warminski, J.; Pellicano, F. **Experimental study on the thermal-dependent nonlinear dynamics of a bi-metallic beam**, Composite Structures, Volume 387, 2026, ISSN 0263-8223, <https://doi.org/10.1016/j.compstruct.2026.120282>.
2. Manconi, E.; Dall’olio, F.; Riboli, M.; Zippo, A.; Tatar, F. **Contradirectional Coupling and Complete Band Gap Formation in Periodically Folded Beams and Plates**. Journal of Sound and Vibration, 2026, ISSN 0022-460X, <https://doi.org/10.1016/j.jsv.2026.119799>.
3. Zippo, A.; Molaie, M.; Borellini, E.; Pellicano, F. **Microcontroller-Based PPF Control of a CFRP-Honeycomb Composite Panel**. Symmetry 2026, 18, 588. <https://doi.org/10.3390/sym18040588>

4. Samani, F.S.; Mehrabian, A.; Zippo, A.; Pellicano, F., **Beyond Linear Limits: Advanced Nonlinear Suspensions for Enhanced Vibration Control**. Machines 2026, 14, 209. <https://doi.org/10.3390/machines14020209>
5. Molaie, M., Zippo, A., Pellicano, F., **Nonlinear dynamics of Bevel Gears: A comprehensive review** (2025) Mechanism and Machine Theory, 215, art. no. 106161 DOI: 10.1016/j.mechmachtheory.2025.106161
6. Pellicano, F., Zippo, A., **Ghost hammering in a randomly excited nonlinear dynamical system** (2025) Chaos, Solitons and Fractals, 199, art. no. 116855 DOI: 10.1016/j.chaos.2025.116855
7. Zippo, A., Molaie, M., Pellicano, F., **Nonlinear Dynamics of a Coupled Electromechanical Transmission** (2025) Vibration, 8 (3), art. no. 34 DOI: 10.3390/vibration8030034
8. Asadi, M., S. Samani, F.S., Zippo, A., Molaie, M., **Chaos Suppression in Spiral Bevel Gears Through Profile Modifications** (2025) Vibration, 8 (3), art. no. 38 DOI: 10.3390/vibration8030038
9. Molaie, M., Zippo, A., Pellicano, F., **Neural Network-Based Estimation of Gear Safety Factors from ISO-Based Simulations** (2025) Symmetry, 17 (8), art. no. 1312 DOI: 10.3390/sym17081312
10. Molaie, M., Zippo, A., Pellicano, F., **Chaotic dynamics of spiral bevel gears** (2025) International Journal of Non-Linear Mechanics, 175, art. no. 105098 DOI: 10.1016/j.ijnonlinmec.2025.105098
11. Saber, H., S. Samani, F.S., Pellicano, F., Molaie, M., Zippo, A., **Vibration Control of Light Bridges Under Moving Loads Using Nonlinear Semi-Active Absorbers** (2025) Mathematical and Computational Applications, 30 (1), art. no. 19 DOI: 10.3390/mca30010019
12. Mahmood, H., Zippo, A., Iarriccio, G., Renon, M., Pegoretti, A., **Property modification of rigid polyurethane foam by end-of-life polyvinyl chloride foam particles** (2025) Resources, Conservation and Recycling, 212, art. no. 107982, DOI: 10.1016/j.resconrec.2024.107982
13. Zippo, A., Iarriccio, G., Molaie, M., Pellicano, F., **Novel Nonlinear Suspension Based on Concept of Origami Metastructures: Theoretical and Experimental Investigations** (2024) Vibration, 7 (4), pp. 1126-1155. DOI: 10.3390/vibration7040058
14. Iarriccio, G., Zippo, A., Eskandary-Malayery, F., Ilanko, S., Mochida, Y., Mace, B., Pellicano, F., **Tunable High-Static-Low-Dynamic Stiffness Isolator under Harmonic and Seismic Loads** (2024) Vibration, 7 (3), pp. 829-843. DOI: 10.3390/vibration7030044
15. Kurpa, L., Pellicano, F., Shmatko, T., Zippo, A., **Free Vibration Analysis of Porous Functionally Graded Material Plates with Variable Thickness on an Elastic Foundation Using the R-Functions Method** (2024) Mathematical and Computational Applications, 29 (1), art. no. 10, DOI: 10.3390/mca29010010
16. Moslem Molaie, Farhad S. Samani, Antonio Zippo, Giovanni Iarriccio, Francesco Pellicano, **Spiral bevel gears: Bifurcation and chaos analyses of pure torsional system**, Chaos, Solitons & Fractals, Volume 177, 2023, 114179, <https://doi.org/10.1016/j.chaos.2023.114179>

17. Molaie, M., Samani, F.S., Zippo, A., Pellicano, F., **Spiral Bevel Gears: nonlinear dynamic model based on accurate static stiffness evaluation** (2023) Journal of Sound and Vibration, 544, art. no. 117395, DOI: 10.1016/j.jsv.2022.117395
18. Zippo, A., Iariccio, G., Bergamini, L., Colombini, E., Veronesi, P., Pellicano, F., **Fluid-Structure Interaction of a thin cylindrical shell filled with a non-Newtonian fluid** (2023) Journal of Fluids and Structures, 117, art. no. 103829, DOI: 10.1016/j.jfluidstructs.2022.103829
19. Hemmatnezhad, M., Iariccio, G., Zippo, A., Pellicano, F., **Modal localization in vibrations of circular cylindrical shells with geometric imperfections** (2022) Thin-Walled Structures, 181, art. no. 110079, DOI: 10.1016/j.tws.2022.110079
20. Molaie, M., Deylaghian, S., Iariccio, G., Samani, F.S., Zippo, A., Pellicano, F., **Planet Load-Sharing and Phasing** (2022) Machines, 10 (8), art. no. 634, DOI: 10.3390/machines10080634
21. Moslem, M., Zippo, A., Iariccio, G., Bergamini, L., Pellicano, F., **Loaded and unloaded tooth contact analysis of spiral bevel gears in consideration of misalignments** (2022) Insight: Non-Destructive Testing and Condition Monitoring, 64 (8), pp. 442-446. DOI: 10.1784/insi.2022.64.8.442
22. Iariccio, G., Zippo, A., Pellicano, F., **Asymmetric vibrations and chaos in spherical caps under uniform time-varying pressure fields** (2022) Nonlinear Dynamics, 107 (1), pp. 313-329. DOI: 10.1007/s11071-021-07033-7
23. Zippo A., Iariccio G., Pellicano F. (2021) **Synchronicity Phenomena in Circular Cylindrical Shells Under Random Excitation**. In: Altenbach H., Amabili M., Mikhlin Y.V. (eds) Nonlinear Mechanics of Complex Structures. Advanced Structured Materials, vol 157. Springer, Cham. https://doi.org/10.1007/978-3-030-75890-5_8
24. Iariccio G., Zippo A., Pellicano F., Barbieri M. (2021). **Resonances and nonlinear vibrations of circular cylindrical shells, effects of thermal gradients**. PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS. PART C, JOURNAL OF MECHANICAL ENGINEERING SCIENCE, p. 1-15, ISSN: 0954-4062, doi: 10.1177/0954406220907616
25. Zippo A., Iariccio G., Pellicano F., Shmatko T. (2020). **Vibrations of plates with complex shape: Experimental modal analysis, finite element method, and R-functions method**. SHOCK AND VIBRATION, vol. 2020, p. 1-23, ISSN: 1070-9622, doi: 10.1155/2020/8882867
26. Zippo, A., Barbieri, M., Iariccio, G., Pellicano, F., **Nonlinear vibrations of circular cylindrical shells with thermal effects: an experimental study** (2020) Nonlinear Dynamics. DOI: 10.1007/s11071-018-04753-1
27. Zippo, A., Barbieri, M., Pellicano, F., **Temperature gradient effect on dynamic properties of a polymeric circular cylindrical shell** (2019) Composite Structures, 216, pp. 301-314. DOI: 10.1016/j.compstruct.2019.02.098
28. Gelman L, Harish Chandra N., Kuros R., Pellicano F., Barbieri M., Zippo A. (2016). **Novel spectral kurtosis technology for adaptive vibration condition monitoring of multi-stage gearboxes**. INSIGHT, vol. 58, p. 409-416, ISSN: 1354-2575, doi: 10.1784/insi.2016.58.8.409

29. Pellicano Francesco, Barbieri Marco, Zippo Antonio, Strozzi Matteo (2016). **Experiments on shells under base excitation**. JOURNAL OF SOUND AND VIBRATION, vol. 369 , p. 209-227, ISSN: 0022-460X, doi: 10.1016/j.jsv.2015.12.033
30. Zippo Antonio, Barbieri Marco, Pellicano Francesco (2016). **Experimental analysis of pre-compressed circular cylindrical shell under axial harmonic load**. INTERNATIONAL JOURNAL OF NON-LINEAR MECHANICS, p. 1-24, ISSN: 0020-7462, doi: 10.1016/j.ijnonlinmec.2016.11.004
31. Zippo Antonio, Ferrari Giovanni, Amabili Marco, Barbieri Marco, Pellicano Francesco (2015). **Active vibration control of a composite sandwich plate**. COMPOSITE STRUCTURES, vol. 128, p. 100-114, ISSN: 0263-8223, doi: 10.1016/j.compstruct.2015.03.037
32. Barbieri Marco, Zippo Antonio, Pellicano Francesco (2014). **Adaptive grid-size finite element modeling of helical gear pairs**. MECHANISM AND MACHINE THEORY, vol. 82, p. 17-32, ISSN: 0094-114X, doi: 10.1016/j.mechmachtheory.2014.07.009
33. Masoumi, A; Barbieri, M; Pellicano, F; Zippo, A; Strozzi, M (2017) **Dynamic imbalance of high-speed planetary gears**, International Journal of Condition Monitoring, vol. 7, n. 1, p. 2-6, issn: 2047-6426, doi:10.1784/204764217820441008

PUBLICATIONS ON PROCEEDINGS OF INTERNATIONAL CONFERENCES

1. Molaie, M., Ebrahimnejad, R., Iarriccio, G., Zippo, A., Pellicano, F., Samani, F.S.; **SPIRAL BEVEL GEAR: THE NONLINEAR ANALYSES OF THE MESH STIFFNESS** (2024) Proceedings of the International Congress on Sound and Vibration, .
2. Zippo, A., Pellicano, F.; **HUMAN UPPER LIMB MODELLING OF PARKINSONIAN TREMOR THROUGH NEURAL NETWORK AND MULTIBODY SIMULATION** (2024) Proceedings of the International Congress on Sound and Vibration, .
3. Ebrahimnejad, R., Molaie, M., Zippo, A., Iarriccio, G., Pellicano, F.; **THEORETICAL AND EXPERIMENTAL INVESTIGATION ON NOVEL NONLINEAR SUSPENSION BASED ON ORIGAMI METASTRUCTURE CONCEPT** (2024) Proceedings of the International Congress on Sound and Vibration.
4. Iarriccio, G., Molaie, M., Hassanabadi, R.E., Zippo, A., Pellicano, F.; **EXPERIMENTAL AND NUMERICAL ANALYSIS OF A PIECEWISE NONLINEAR-LINEAR STIFFNESS ISOLATOR UNDER SEISMIC LOADS** (2024) Proceedings of the International Congress on Sound and Vibration, .
5. Samani, F.S., Molaie, M., Rakhshani, S., Asadi, M., Zippo, A., Iarriccio, G., Pellicano, F.; **Nonlinear Dynamics of Spiral Bevel Gear: Axial Bearing Stiffness Effect** (2024) Mechanisms and Machine Science, 163 MMS, pp. 73-81. DOI:10.1007/978-3-031-64553-2_9
6. Samani, F.S., Molaie, M., Rakhshani, S., Asadi, M., Ebrahimnejad, R., Zippo, A., Iarriccio, G., Pellicano, F.; **Lateral bearing stiffness effect on the spiral bevel gear nonlinear vibration response** (2024) 20th International Conference on Condition Monitoring and Asset Management, CM 2024. DOI: 10.1784/cm2024.1b1
7. Zippo, A., Pellicano, F.; **Matsuoka Nonlinear Oscillator Integration for Investigating Parkinsonian Tremor Dynamics through Multibody Simulation**

- (2024) 20th International Conference on Condition Monitoring and Asset Management, CM 2024. DOI: 10.1784/cm2024.2b2
8. Giovanni, I., Antonio, Z., Pellicano, F.; **NONLINEAR VIBRATIONS OF A SHALLOW SPHERICAL CAP UNDER PRESSURE LOADING** (2023) ASME International Mechanical Engineering Congress and Exposition, Proceedings (IMECE), 6, art. no. V006T07A066. DOI: 10.1115/IMECE2023-113288
 9. Pellicano, F., Iariccio, G., Zippo, A.; **COMPLEX DYNAMIC PHENOMENA IN CIRCULAR CYLINDRICAL SHELLS** (2023) ASME International Mechanical Engineering Congress and Exposition, Proceedings (IMECE), 6, art. no. V006T07A067. DOI: 10.1115/IMECE2023-113857
 10. Zippo, A., Iariccio, G., Pellicano, F., **Nonlinear time series analysis of Parkinsonian tremor signals** (2023) 19th International Conference on Condition Monitoring and Asset Management, CM 2023, DOI: 10.1784/cm2023.4d5
 11. Zippo, A., Shmatko, T., Pellicano, F., Kurpa, L., **Free vibration analysis of FGM plates and shallow shells by the R-functions method**, (2023) 19th International Conference on Condition Monitoring and Asset Management, CM 2023, DOI: 10.1784/cm2023.4d7
 12. Molaie, M., Ebrahimnejad, R., Zippo, A., Iariccio, G., Pellicano, F., Samani, F.S., **Nonlinear dynamic behavior of spiral bevel gear by considering the torsional shaft stiffness** (2023) 19th International Conference on Condition Monitoring and Asset Management, CM 2023, DOI: 10.1784/cm2023.4d4
 13. Iariccio, G., Zippo, A., Molaie, M., Pellicano, F., **Nonlinear isolators for civil applications** (2023) 19th International Conference on Condition Monitoring and Asset Management, CM 2023, DOI: 10.1784/cm2023.4d6
 14. Molaie, M., Iariccio, G., Zippo, A., Pellicano, F., Samani, F.S., **COMPLEX DYNAMICS OF SPIRAL BEVEL GEARS** (2023) Proceedings of the International Congress on Sound and Vibration.
 15. Zippo, A., Pellicano, F., Iariccio, G., **Microcontroller design for active vibration control**, (2023) Materials Research Proceedings, 26, pp. 479-484. DOI: 10.21741/9781644902431-78
 16. Pellicano, F., Zippo, A., Iariccio, G., **Complex dynamics in non-Newtonian fluid-structure interaction** (2023) Materials Research Proceedings, 26, pp. 449-454. DOI: 10.21741/9781644902431-73
 17. Pellicano, F., Zippo, A., Iariccio, G., **Experiments On Dynamic Non-Newtonian Fluid Interaction With Shells** (2022) ASME International Mechanical Engineering Congress and Exposition, Proceedings (IMECE), 5, art. no. V005T07A109. DOI: 10.1115/IMECE2022-96320
 18. Zippo, A., Pellicano, F., Iariccio, G., **Nonlinear Tsa For Identification Of Dynamic Properties Of Pathological Tremor** (2022) ICONSOM
 19. Zippo, A., Pellicano, F., Iariccio, G., **Experimental investigation of Circular Cylindrical Shell with non newtonian fluid**, (2022) ENOC
 20. Iariccio, G., Zippo, A., Molaie, M., Bergamini, L., Pellicano, F., **Effects of laser surface texturing on the dynamic performance of spur gears** (2022) 18th International Conference on Condition Monitoring and Asset Management, CM 2022, pp. 176-181.

21. Moslem, M., Zippo, A., Iarriccio, G., Bergamini, L., Pellicano, F., **Loaded and Unloaded Tooth Contact Analysis of Spiral Bevel Gear in Consideration of Misalignments** (2022) 18th International Conference on Condition Monitoring and Asset Management, CM 2022, pp. 111-120.
22. Zippo, A., Pellicano, F., Iarriccio, G., **Active Vibration Control based on cost effective microcontroller** (2022) 18th International Conference on Condition Monitoring and Asset Management, CM 2022, pp. 143-153.
23. Zippo, A., Bergamini, L., D'Elia, G., Pellicano, F., Dalpiaz, G., Iarriccio, G., Molaie, M., **Digital Twins: Neural-Networks for the implementation of digital twins of gearboxes** (2022) 18th International Conference on Condition Monitoring and Asset Management, CM 2022, pp. 192-196
24. Iarriccio, G., Molaie, M., Zippo, A., Pellicano, F., **Experiments on a Quasi-zero Stiffness Suspension for Passive Vibration Control** (2022) IFTOMM Mechanisms and Machine Science, 122 MMS, pp. 306-312. DOI: 10.1007/978-3-031-10776-4_36
25. Pellicano, F., Zippo, A., Iarriccio, G., **Seismic vibration of shells with non-Newtonian fluid interaction: Experiments**, (2021) "Advances in Acoustics, Noise and Vibration - 2021" Proceedings of the 27th International Congress on Sound and Vibration, ICSV 2021.
26. Bergamini, L., Zippo, A., Pellicano, F., Iarriccio, G., Molaie, M., **Gear prognostics: A predictive algorithm for lifetime estimation of operating gearboxes**, (2021) 17th International Conference on Condition Monitoring and Asset Management, CM 2021.
27. Zippo, A., Pellicano, F., Iarriccio, G., Bergamini, L., D'Elia, G., Dal Piaz, G., **Gear diagnostic: Experimental data comparison of radial accelerometers, tangential accelerometers and torque-meter**, (2021) 17th International Conference on Condition Monitoring and Asset Management, CM 2021,
28. Zippo, A., Pellicano, F., Iarriccio, G., **Time series analysis of arm and forearm measurement for functional electrical stimulation control**, (2021) 17th International Conference on Condition Monitoring and Asset Management, CM 2021.
29. Iarriccio, G., Zippo, A., Barbieri, M., Pellicano, F., **Efficiency and Durability of Spur Gears with Surface Coatings and Surface Texturing** (2021) Lecture Notes in Mechanical Engineering, pp. 285-291.
30. Barbieri, M., Iarriccio, G., Pellicano, F., Strozzi, M., Zippo, A., **Efficiency and Durability of DLC-Coated Gears**, (2021) IFTOMM - Mechanisms and Machine Science, 91, pp. 580-588. DOI: 10.1007/978-3-030-55807-9_65
31. Iarriccio, G., Zippo, A., Barbieri, M., Pellicano, F., **Experimental study on large amplitude vibrations of a circular cylindrical shell subjected to thermal gradients**, (2020) Lecture Notes in Mechanical Engineering, pp. 1397-1404. DOI: 10.1007/978-3-030-41057-5_113
32. Zippo, A., Pellicano, F., Iarriccio, G., Barbieri, M., **Vibrations of circular cylindrical shells under random excitation and thermal gradients**, (2020) Lecture Notes in Mechanical Engineering, pp. 1405-1414. DOI: 10.1007/978-3-030-41057-5_114
33. Pellicano F., Zippo A., Iarriccio G., Barbieri M. (2020) **Experimental Study on Nonlinear Random Excitation**. In: Design Tools and Methods in Industrial Engineering. ADM 2019. Lecture Notes in Mechanical Engineering. Springer, Cham First Online 20 September 2019 DOI:10.1007/978-3-030-31154-4_54

34. Zippo, A., Pellicano, F., Iariccio, G., Barbieri, M., **Experimental investigation on spur gears with novel coatings and surface micro texturing** (2019) Proceedings of the 26th International Congress on Sound and Vibration, ICSV 2019.
35. Iariccio, G., Zippo, A., Barbieri, M., Pellicano, F., **Efficiency and durability of spur gears with surface coatings and surface texturing** (2019), 2nd World Congress on Condition Monitoring (WCCM)
36. Iariccio, G., Zippo, A., Barbieri, M., Pellicano, F., **Experimental durability test for condition monitoring of carburised spur gears** (2019) 16th International Conference on Condition Monitoring and Asset Management, CM 2019
37. Iariccio, G., Zippo, A., Barbieri, M., Pellicano, F. **Experimental study on the nonlinear vibrations of a circular cylindrical shells: Effects of thermal gradients** (2019) Proceedings of the 26th International Congress on Sound and Vibration, ICSV 2019.
38. Zippo, A., Pellicano, F., Iariccio, G., Franco, V., Francesco, C., **Identification of dynamic behaviour of forearm for active control of pathological tremor** (2019) Proceedings of the 26th International Congress on Sound and Vibration, ICSV 2019.
39. Zippo, A., Pellicano, F., Iariccio, G., Valzania, F., Cavallieri, F. **Condition monitoring of parkinson pathological tremor for functional electrical stimulation control** (2019) 16th International Conference on Condition Monitoring and Asset Management, CM 2019.
40. Zippo, A., Pellicano, F., **Thermal effects on dynamics of circular cylindrical shell** (2018) 25th International Congress on Sound and Vibration 2018, ICSV 2018: Hiroshima Calling, 8, pp. 4616-4623.
41. Barbieri, M., De Felice, A., Pellicano, F., Sorrentino, S., Zippo, A., **Experimental identification of static and dynamic stiffness of polymeric vibration dampers** (2018) 25th International Congress on Sound and Vibration 2018, ICSV 2018: Hiroshima Calling, 5, pp. 3054-3060.
42. Zippo, A., Pellicano, F., Barbieri, M., Strozzi, M., **Vibration of functionally graded cylindrical shells** (2017) 24th International Congress on Sound and Vibration, ICSV 2017
43. Strozzi, M., Barbieri, M., Zippo, A., Pellicano, F., **Numerical study on nonlinear vibrations, energy exchange and resonant interactions in single walled carbon nanotubes** (2017) 24th International Congress on Sound and Vibration, ICSV 2017
44. Pellicano, F., Zippo, A., Barbieri, M., Strozzi, M., **Modal localization in vibrating circular cylindrical shells** (2017) 24th International Congress on Sound and Vibration, ICSV 2017.
45. Barbieri, M., De Felice, A., Pellicano, F., Sorrentino, S., Zippo, A. **A novel method for dynamic characterization of polymeric vibration dampers** (2017) 24th International Congress on Sound and Vibration, ICSV 2017
46. Strozzi, M., Barbieri, M., Pellicano, F., Zippo, A., **Pitting and stress analysis of gears: A numerical and experimental study** (2016) 13th International Conference on Condition Monitoring and Machinery Failure Prevention Technologies, CM 2016/MFPT 2016, .

47. Zippo, A., Barbieri, M., Pellicano, F., Strozzi, M., **Active vibration control of a composite plate** (2016) 13th International Conference on Condition Monitoring and Machinery Failure Prevention Technologies, CM 2016/MFPT 2016,
48. Masoumi, A., Barbieri, M., Pellicano, F., Zippo, A., Strozzi, M., **Dynamic imbalance of high speed planetary gears** (2016) 13th International Conference on Condition Monitoring and Machinery Failure Prevention Technologies, CM 2016/MFPT 2016,
49. Strozzi Matteo, Pellicano Francesco, Barbieri Marco, Zippo Antonio (2016). **Linear vibrations of multi-walled carbon nanotubes**. In: ICSV 2016 - 23rd International Congress on Sound and Vibration: From Ancient to Modern Acoustics. International Institute of Acoustics and Vibrations, ISBN: 9789609922623, Athenaeum Intercontinental Hotel, grc, 2016
50. Zippo Antonio, Pellicano Francesco, Barbieri Marco, Strozzi Matteo (2016). **Experimental investigation of dynamic behaviour of pre-compressed circular cylindrical shell**. In: Proceedings of the XXIV ICTAM. Montreal, Canada, 2016
51. Barbieri Marco, Zippo Antonio, Strozzi Matteo, Serafini Lorenzo, Pellicano Francesco, Bonori Giorgio (2015). **Dynamic modelling of gear pairs**. In: 22nd International Congress on Sound and Vibration, ICSV 2015. International Institute of Acoustics and Vibrations, ISBN: 9788888942483, Florence, Italy, 2015
52. Zippo Antonio, Pellicano Francesco, Barbieri Marco, Amabili Marco (2015). **Experimental and numerical study of MIMO active vibration control**. In: 22nd International Congress on Sound and Vibration, ICSV 2015. International Institute of Acoustics and Vibrations, ISBN: 9788888942483, Florence, Italy, 2015
53. Strozzi Matteo, Pellicano Francesco, Barbieri Marco, Zippo Antonio, Manevitch Leonid I. (2015). **Nonlinear oscillations of carbon nanotubes**. In: 22nd International Congress on Sound and Vibration ICSV 2015. ISBN: 9788888942483, Florence, Italy, July 12-16, 2015
54. Zippo Antonio, Pellicano Francesco, Barbieri Marco, Strozzi Matteo, **Experimental study on nonlinear dynamics of circular cylindrical shell** , Proceedings of the 18th International Conference on Composite Structures ICCS 2015, Lisbon, Portugal, June 15-18, 2015. ISSN: 0263-8223.
55. Zippo Antonio, Pellicano Francesco, Barbieri Marco, Strozzi Matteo, **PPF MIMO Control of a Composite Carbon Fiber Plate**, Proceedings of the 18th International Conference on Composite Structures ICCS 2015, Lisbon, Portugal, June 15-18, 2015. ISSN: 0263-8223.
56. Strozzi Matteo, Manevitch Leonid I., Pellicano Francesco, Barbieri Marco, Zippo Antonio (2015). **Beating phenomenon and energy localization in Single-Walled Carbon Nanotubes**. In: 18th International Conference on Composite Structures ICCS 2015, Lisbon, Portugal, June 15-18, 2015. ISSN: 0263-8223.
57. Zippo Antonio, Amabili Marco, Pellicano Francesco (2014). **Linear and nonlinear active vibration control of a sandwich carbon fiber plate**. In: Proceedings of 8th European Nonlinear Dynamics Conference ENOC 2014. ISBN: 9783200034334, Vienna, Austria, 2014
58. Pellicano Francesco, Zippo Antonio, Barbieri Marco (2014). **Nonlinear dynamics of axially loaded shells: experimental study**. In: Proceedings of 8th European

- Nonlinear Dynamics Conference ENOC 2014. ISBN: 9783200034334, Vienna, Austria, 2014
59. Zippo Antonio, Barbieri Marco, Pellicano Francesco (2013). **Circular Cylindrical Shells under combined axial loads: an experimental study**. In: Proceedings of the 4th International Conference on Nonlinear Dynamics ND-KhPI2013. ISBN: 9786176691006, Sevastopol, Ukraine, 2013
 60. Zippo Antonio, Amabili Marco, Pellicano Francesco (2013) - **Linear and nonlinear active vibration control of Carbon Fiber Sandwich Panel** - In: 4th Canadian Conference on Nonlinear Solid Mechanics: CanCNSM, ISBN: 9781550585339, Montreal, Canada, July 23-July 26, 2013
 61. Zippo Antonio, Pellicano Francesco, Barbieri Marco (2013) - **Vibration of preloaded circular cylindrical shells under axial excitation: experimental study** - In: 4th Canadian Conference on Nonlinear Solid Mechanics: CanCNSM, ISBN: 9781550585339, Montreal, Canada, July 23-July 26, 2013
 62. Pellicano Francesco, Strozzi Matteo, Zippo Antonio, Barbieri Marco, **Nonlinear Vibrations Of Circular Cylindrical Shells Under Axial Dynamic Loads**, Proceedings of the 4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM2013), July 23-26, 2013, Montreal, Canada. ISBN: 9781550585339,
 63. Zippo Antonio, Pellicano Francesco, Barbieri Marco (2013) - **Experimental study on circular cylindrical shells under combined axial loads**. In: 7th Conference on Computational Fluid and Solid Mechanics MIT 2013. ISBN: 978-00-0045-794-9, Cambridge (MA), USA, June 12-14, 2013
 64. Zippo Antonio, Strozzi Matteo, Manevitch Leonid I., Pellicano Francesco, Barbieri Marco (2013). **Nonlinear vibrations and energy conservation of Single-Walled Carbon Nanotubes**. In: 7th Conference on Computational Fluid and Solid Mechanics MIT 2013. ISBN: 978-00-0045-794-9, Cambridge (MA), USA, June 12-14, 2013
 65. Strozzi Matteo, Pellicano Francesco, Zippo Antonio (2012). **Nonlinear vibrations of functionally graded cylindrical shells: Effect of the geometry**. In: ASME 2012 International Design Engineering Technical Conferences IDETC. ISBN: 978-07-9184-504-2, Chicago (IL), USA, August 12-15, 2012
 66. Zippo Antonio, Barbieri Marco, Strozzi Matteo, Errede Vito, Pellicano Francesco (2012). **Experimental Study on Prestressed Circular Cylindrical Shell**. In: ASME 2012 International Design Engineering Technical Conferences IDETC. ISBN: 9780791845004, Chicago (IL), USA, August 12-15, 2012
 67. Zippo Antonio, Barbieri Marco, Strozzi Matteo, Errede Vito, Pellicano Francesco (2012). **Linear and nonlinear dynamics of a circular cylindrical shell under static and periodic axial load**. In: 19th International Congress on Sound and Vibration ICSV 2012. ISBN: 978-16-2276-465-5, Vilnius, Lithuania, July 8-12, 2012
 68. Barbieri Marco, Zippo Antonio, Pellicano Francesco (2011). **Adaptive Grid-Size Modelling of Helical Gear Pairs**. In: Proceedings of the IFToMM - The 13th World Congress in Mechanism and Machine Science. p. 1-5, Guanajuato: IFToMM - International Federation for the Promotion of Mechanism and Machine Science, ISBN: 9786074411317, Guanajuato, 19-23/06/2011
 69. Pellicano Francesco, Strozzi Matteo, Zippo Antonio (2011). **Effect of the geometry on the nonlinear vibrations of functionally graded cylindrical shells**. In: 6th

Conference on Computational Fluid and Solid Mechanics MIT 2011. ISBN: 978-00-0045-794-9, Cambridge (MA), USA, July 15-17, 2011

70. Strozzi Matteo, Pellicano Francesco, Zippo Antonio (2011). **Nonlinear vibrations of functionally graded circular cylindrical shells**. In: 18th International Congress on Sound and Vibration ICSV 2011. ISBN: 978-16-1839-259-6, Rio de Janeiro, Brazil, July 10-14, 2011

PUBLICATIONS ON PROCEEDINGS OF NATIONAL CONFERENCES

1. Zippo, A., Pellicano, F., Iariccio, G., **Microcontroller Design for Active Vibration Control**, (2022) AIMETA 2022
2. Pellicano, F., Zippo, A., Iariccio, G., Barbieri, M., **Experimental Study on Nonlinear Random Excitation**, Proceedings of the International Conference on Design Tools and Methods in Industrial Engineering, ADM 2019 , pp 637-648
3. Zippo, A., Pellicano, F., Barbieri, M., Strozzi, M., Masoumi, A., **Experimental identification of FGM shell properties** (2017) AIMETA 2017 - Proceedings of the 23rd Conference of the Italian Association of Theoretical and Applied Mechanics, 4, pp. 60-70.
4. Strozzi Matteo, Barbieri Marco, Zippo Antonio, Pellicano Francesco (2015). **Dynamics and Stability of Carbon Nanotubes**. In: XXII Congresso dell'Associazione Italiana di Meccanica Teorica e Applicata AIMETA 2015. ISBN: 978-88-9775-252-3, Genova, Italy, September 14-17, 2015
5. Antonio Zippo, Marco Barbieri, Francesco Pellicano (2011). **3D Nonlinear Finite Element Modeling of Helical Gears**. In: Atti del XX Congresso dell'Associazione Italiana di Meccanica Teorica e Applicata. vol. 1, p. 1-8, BOLOGNA: AIMETA 2011, ISBN: 9788890634017, Bologna, 12-15/09/2011

PARTICIPATION IN INTERNATIONAL CONFERENCES as speaker

1. Invited keynote at Advanced Applied Mechanics Conference (Gran Canaria, ES) on Dynamic Modeling and Multibody Simulation for Tremor Management in Parkinson's Disease, 2025
2. Invited Keynote Speaker "Complexity in Biological and Mechanical Systems" at The 3rd World Congress on Condition Monitoring (WCCM), 2024
3. Invited seminar at BEIJING INSTITUTE OF TECHNOLOGY on Complexity in biological and mechanical systems, 2024
4. 30th International Congress on Sound and Vibration, ICSV 2024
5. 20th International Conference on Condition Monitoring and Asset Management, CM 2024.
6. IMECE2023, ASME International Mechanical Engineering Congress and Exposition
7. ISVCS13, 13th International Symposium on Vibrations of Continuous Systems Pomeroy, Kananaskis Mountain Lodge, Alberta, Canada, July 30th - August 4th, 2023
8. 19th International Conference on Condition Monitoring and Asset Management -CM2023
9. NODYCON2023 - Third International Nonlinear Dynamics Conference
10. 28th International Congress on Sound and Vibration, ICSV 2022
11. ICONSOM 2022 - The International Conference of Nonlinear solid Mechanics

12. 10th European Nonlinear Dynamics Conference (ENOC 2020) 2022
13. 18th International Conference on Condition Monitoring and Asset Management –CM2022
14. 17th International Conference on Condition Monitoring and Asset Management –CM2021
15. 26th International Congress on Sound and Vibration, ICSV 2019.
16. 16th International Conference on Condition Monitoring and Asset Management, CM2019
17. 24th International Congress on Sound and Vibration, ICSV 2017
18. 24th International Congress of Theoretical and Applied Mechanics, ICTAM2016. August 21-26, 2016, Montreal, Canada. (presentazione orale)
19. 23rd International Congress on Sound and Vibration: From Ancient to Modern Acoustic, ICSV23, 10-14 July 2016, Athens, Greece
20. 22nd International Congress on Sound & Vibration, ICSV22, July 12-16, 2015, Firenze, Italia (presentazione orale).
21. 18th International Conference on Composite Structures ICCS 2015, Lisbon, Portugal, June 15-18, 2015.
22. 19th International Congress on Sound & Vibration, ICSV19, July 8-12, 2012, Vilnius, Lithuania (presentazione orale).
23. European Nonlinear Oscillations Conference (ENOC) 2014, July 6-11, 2014, Vienna, Austria (presentazione orale).
24. 4th Canadian Conference on Nonlinear Solid Mechanics: CanCNSM2013, Montreal, Canada, July 23-July 26, 2013 (tre presentazioni orali)
25. 7th Conference on Computational Fluid and Solid Mechanics MIT 2013. Cambridge (MA), USA, June 12-14, 2013 (due presentazioni orali)
26. ASME 2012 International Design Engineering Technical Conferences IDETC. Chicago (IL), USA, August 12-15, 2012 (due presentazioni orali)
27. 6th Conference on Computational Fluid and Solid Mechanics MIT 2011. Cambridge (MA), USA, July 15-17, 2011 (presentazione orale).
28. 18th International Congress on Sound and Vibration ICSV 2011. Rio de Janeiro, Brazil, July 10-14, 2011 (presentazione orale).

PARTICIPATION IN NATIONAL CONFERENCES as speaker

1. AIMETA2024 XXVI Conference - The Italian Association of Theoretical and Applied Mechanics, Naples, Italy, 2-6 September 2024
2. AIMETA 2022 XXV Conference - The Italian Association of Theoretical and Applied Mechanics, Palermo, Italy, 4-8 September 2022
3. AIMETA 2019 XXIV Conference The Italian Association of Theoretical and Applied Mechanics Rome, Italy, 15-19 September 2019
4. XX Congresso dell'Associazione Italiana di Meccanica Teorica e Applicata – AIMETA, 12-15 settembre 2011, Bologna (presentazione orale).

EDITORIAL ACTIVITY

Pellicano, F.; Mikhlin, Y.V.; Avramov, K.V.; Zippo, A. **Editorial for the Special Issue of Vibration: Nonlinear Vibration of Mechanical Systems**. Vibration 2026, 9, 10. <https://doi.org/10.3390/vibration9010010>

Member of Editorial Board for section 'Engineering' of Mathematical and Computational Applications - MDPI

Review Editor for Vibration Systems, Frontiers in Mechanical Engineering

Reviewer for the following journals: Journal of Sound and Vibration, Composite Structures, Journal of Mechanical Engineering, Journal of Nonlinear Dynamics, Materials, Journal of Composites Science, Applied Sciences, International Journal of Non-Linear Mechanics, Journal of Vibration and Acoustics

COLLABORATIONS FOR RESEARCH ACTIVITIES

- ❑ Loughborough University, Loughborough, UK - Prof. Andrew Watson [Topic: Vibrations]
- ❑ Westlake University, Hangzhou, China- McGill University, Montreal, Canada – Prof. M. Amabili [Topic: Nonlinear vibrations shells vascular biomechanics]
- ❑ Academician of Chinese Academy of Sciences, Beijing Institute of Technology, China - Prof. Haiyan Hu [Topic: Vibration Control, Multibody Dynamics]
- ❑ Beijing Institute of Technology, China - Prof. Jianqiao Guo [Topic: Biomechanics]
- ❑ University of Texas, Rio Grande Valley, TX, USA - Prof Dumitru Caruntu [Topic: Biomechanics, micromechanics]
- ❑ National Technical University, Kharkov, Ukraine - Prof. Tatyana Shmatko [Topic: Metamaterials]
- ❑ University of Waikato - Prof. Sinniah Ilanko [Topic: Vibration Control and Bio-inspired materials/devices]
- ❑ Huddersfield University, UK - Prof. Len Gelman [Topic: Condition Monitoring, Prognostic]
- ❑ Stephan Rudykh, School of Mathematical & Statistical Sciences, University of Galway, Galway, Ireland [Topic: Soft Materials]
- ❑ Lublin University of Technology, Poland - Prof. Jerzy Warminski [Topic: Thermal problems in structural vibrations]

BIBLIOMETRIC INDEXES (15 Apr 2026)

- ❑ H-index: 16
- ❑ Citations: 559
- ❑ Peer-review Journal publications: 98

Organizer in international congresses

-
- ❑ Chair of Track Dynamics, Vibration and Control (Track 8) ASME-IMECE 2026
 - ❑ **Member of the Scientific and Organizational Committee** for the Advances in Applied Mechanics Conference 2026
 - ❑ Co-Chair of Track Dynamics, Vibration and Control (Track 7) ASME-IMECE 2025
 - ❑ Topic Session Organizer of IMECE 2025 Track 7 Dynamics, Vibration, and Control **Powertrain Dynamics for Electric Vehicle Propulsion**
 - ❑ Topic Session Organizer of IMECE 2025 Track 7 Dynamics, Vibration, and Control **Vibrations of Continuous Systems**

- ❑ Topic Session Organizer of IMECE 2025 Track 7 Dynamics, Vibration, and Control **Advances in Rotor Dynamics**
- ❑ Topic Session Organizer of IMECE 2025 Track 7 Dynamics, Vibration, and Control **Frontiers in Biomechanics: Exploring Dynamics, Control, and Stability**
- ❑ Topic Session Organizer of IMECE 2024 Track 7 Dynamics, Vibration, and Control **07-23: Powertrain Dynamics for Electric Vehicle Propulsion**
- ❑ Topic Session Organizer of IMECE 2024 Track 7 Dynamics, Vibration, and Control **07-09: Vibrations of Continuous Systems**
- ❑ **Member of the Scientific International Committee** of British Institute of Non-Destructive Testing (BINDT) for The International Conference on Condition Monitoring and Asset Management (CM) since 2021 and organiser of a structured session on **Signal processing and Modeling of Complex Systems**
- ❑ **Special Session "Modeling and experiments of complex continuous systems"** in DSTA 2019 - 15th Dynamical Systems Theory and Applications, Lodz, Poland
- ❑ **Special Session "Signal Processing and Modeling of Complex Systems"** in WCCM 2019 - 2nd World Congress of Condition Monitoring, Singapore

Professional distinctions and memberships

-
- ❑ **"National Scientific Qualification as Full Professor"** [29/11/2023] SETTORE CONCURSUALE 09/A2 MECHANISM AND MACHINE THEORY - FASCIA: I
 - ❑ **"National Scientific Qualification as Associate Professor"** [31/05/2021] SETTORE CONCURSUALE 09/A2 MECHANISM AND MACHINE THEORY - FASCIA: II
 - ❑ **Member of ASME** *since 2012*
 - ❑ **Member of British Institute of Non-Destructive Testing (BINDT)** *since 2021*
 - ❑ **Member of AIMETA – GADES** *since 2017*
 - ❑ **Member of PhD School Board** *in Industrial and Environmental Engineering of Department of Engineering "Enzo Ferrari"*
 - ❑ **"Certificate of Merit"** for having distinguished himself in the field of national and international research conferred by the University of Modena and Reggio Emilia on 16 December 2019 by the Rector Prof. Carlo Adolfo Porro.
 - ❑ **Certificate of Merit** for having distinguished himself in the field of national and international research conferred by the University of Modena and Reggio Emilia on March 21, 2016 by the Rector Prof. Angelo Oreste Andrisano
 - ❑ **Best Paper**
Awarded by 2nd World Congress on Condition Monitoring (WCCM) to Iarriccio, G., Zippo, A., Barbieri, M., Pellicano, F., Efficiency and durability of spur gears with surface coatings and surface texturing (2019), 2nd World Congress on Condition Monitoring (WCCM) 2nd-5th December 2019, Singapore
 - ❑ **Sir James Lighthill Best Student Paper Award (2015)**
Awarded by the 22nd International Congress on Sound and Vibration ICSV 2015, for "Zippo Antonio, Pellicano Francesco, Barbieri Marco, Amabili Marco (2015). Experimental and numerical study of MIMO active vibration control. In: 22nd International Congress on Sound and Vibration, ICSV 2015. International Institute of Acoustics and Vibrations, ISBN: 9788888942483, Florence, Italy, 2015"

Fields of interest

Activities: theory, modeling and experimental research

- ❑ Powertrain systems: modeling and experimental testing of gear transmissions; simulation of gear cutting processes; geometric modeling using NURBS, curves, and surfaces; development of digital twins for predictive maintenance, condition monitoring, diagnostics, and performance optimization.
- ❑ Structural and vibrational problems: numerical and experimental techniques for the analysis of dynamic behavior, instability, durability, and vibration response of mechanical structures and systems.
- ❑ Nonlinear dynamics, stability, and chaos: analysis of mechanical structures and systems including thin-walled shells, compliant structures, and multibody systems; bifurcation and chaos analysis; nonlinear time-series methods for uncovering hidden dynamics under varying operational and extreme conditions.
- ❑ Active and passive vibration control: design and implementation of vibration mitigation strategies for noise, vibration, and harshness (NVH) reduction in automotive, aerospace, and industrial applications.
- ❑ Innovative materials and compliant structures: soft materials, smart materials, meta-materials, and composites for vibration damping, acoustic insulation, and structural integrity; experimental validation under harsh and operational environments for NVH applications.
- ❑ Non-Newtonian fluid-structure interaction: experimental investigations of coupled fluid-structure systems, vibration-induced instabilities, and thermal effects; data-driven modeling and nonlinear time-series analysis.
- ❑ Bio-engineering: modeling, simulation, and experimental EMG measurements of upper-limb dynamics for Parkinsonian tremor diagnostics, prognostics, and control; integration of nonlinear oscillators, multibody simulations, and neural networks; neural-network-based speech and signal feature extraction.

Industrial research projects

- ❑ 2025 - Eurosets srl: structural optimization on medical device for airborne equipment
- ❑ 2024 - Eurosets srl: dynamic performances on medical device for airborne equipment
- ❑ 2023 - E-shock srl: Back-to-back calibration of prototypal accelerometer
- ❑ 2023 - Eurosets srl: Structural Optimization for dynamic performances on medical device for airborne equipment
- ❑ 2022 - Eurosets srl: Environmental testing on medical device for airborne equipment
- ❑ 2022 - Vimec srl: Experimental measurement and data analysis for elevator worm gear instabilities
- ❑ 2021 - DTM srl: Experimental modal analysis for satellite PTA

Participation in industrial research projects

- ❑ 2019 - DTM srl: Experiment cell dust test - for ISS

- ❑ 2019 - DTM s.r.l Vibration tests for relief valve Exomars
- ❑ 2016 - DTM s.r.l.: "Vibration tests on heat exchangers for space use".
- ❑ 2014-2015, Comer Industries S.p.A.: "Model of a gearbox for load and stress analysis".
- ❑ 2013, Agusta-Westland S.p.A.: "Skewed Roller Brake STB applied research project".
- ❑ 2012, M&B Engineering s.r.l., "Improvement of the performance of tyre balancing machines".
- ❑ 2011, CGS Carlo Gavazzi Space, then Compagnia Generale per lo Spazio – "Structural solutions for a rapid pointing telescope" (project carried out in collaboration with ESA).
- ❑ 2010 - 2011, CNH – Case New Holland: Study and definition of virtual simulation models of the static and dynamic behavior of gear wheels under load and significant parts of transmissions".

Funded projects

- ❑ **FAR2022 - Identification, modelling and analysis of nonlinear EMG signals of pathological tremor** - Fondo di Ateneo per la Ricerca 2022 per il finanziamento di piani di sviluppo dipartimentale nell'ambito della ricerca. 27/07/2022 10.000€
- ❑ Finanziamento da CONSORZIO FUTURO IN RICERCA per ricerca su **"MODELLAZIONE E MISURE SPERIMENTALI DI SISTEMI COMPLESSI NON LINEARI FINALIZZATI AL CONTROLLO ATTIVO DEL TREMORE ESSENZIALE E PARKINSONIANO"** 01/05/2022 30870€
- ❑ Progetto **"Scuola internazionale di alta formazione in NVH per l'Industria 4.0 Higher Education school in NVH for Industry 4.0"** dal 22/11/2021 al 31/12/2023 13750 €
- ❑ **Finanziamento individuale per la ricerca di base** Individual funding of 3,000 euros for basic research activities REFERRED to IN ARTICLE 1, PARAGRAPHS 295 AND FOLLOWING, OF LAW NO. 232 OF 11 DECEMBER 2016

Personal skills

❑ Languages

Italian	Native
English	C1 level

❑ IoT skills

Programming Languages: Mathematica, Matlab, Fortran, C, Python, Visual Basic

Web technologies: Html, php

Software :MSC Marc Mentat, MSC Nastran, MSC Adams, Hypermesh, Pro Engineer, LabView, CAD, Microsoft Office Suite, Adobe Suite, OpenOffice Suite, Labview, dSpace, Calyx

Database: Mysql

Operative Systems: Dos, Windows, Linux/Unix, Mac OS

❑ Technical skills

Experience in scientific laboratory activities such as equipment calibration, electronic and mechanical setup of experiments, measurements and monitoring, FEM analysis, Multi-body analysis, modal analysis, structural analysis, environmental vibration test with or without climatic chamber..

❑ **Web Engineering** [2002 – present]

Designs, develops, and creates static and dynamic websites with web 2.0 technology, develops mobile applications for iOS and Android.

Modena, 15 April 2026