

ATTIVITÀ DIDATTICA

ATTIVITÀ DIDATTICA: Insegnamenti tenuti presso l'Università di Modena e Reggio Emilia

1. A.A. 2011-12, 2012-13, "Tribologia e lubrificazione" (SSD ING-IND/13, 6 CFU), CLM in Ingegneria Meccanica, (in lingua inglese).
2. A.A. 2013-14, "Laboratorio di Meccanica delle Vibrazioni – NVH" (SSD ING-IND/13, 6 CFU) per il CLM in Ingegneria del Veicolo.
3. A.A. 2014-15, 2015-16, 2016-17, "Meccanica delle Vibrazioni – NVH" (SSD ING-IND/13, 3/6 CFU in codocenza) per il CLM in Ingegneria del Veicolo.
4. A.A. 2018-19, "Mechanical transmissions" (SSD ING-IND/13, 6 CFU) all'interno dell'insegnamento "Mechanical transmissions/Automatic Controls" per il CLM Advanced automotive engineering.
5. A.A. 2019-20, 2021-22, "Meccanica applicate alle macchine" (SSD ING-IND/13) per il CL in Ingegneria meccanica (in codocenza).
6. A.A. 2017-18 - 2023-24, "Meccanica delle Vibrazioni – NVH" (SSD ING-IND/13, 6 CFU) per il CLM in Ingegneria del Veicolo.
7. A.A. 2019-20 - 2023-24, "Mechanical transmissions (SSD ING-IND/13, 6 CFU) per il CLM Advanced automotive engineering

ATTIVITÀ DI RICERCA

- Dal 7/11/2019 è professore associato per il SSD ING/ING-13 presso Dipartimento di ingegneria “Enzo Ferrari” dell’Università di Modena e Reggio Emilia

PUBBLICAZIONI su rivista

1. G. Bonori, M. Barbieri, F. Pellicano, “Optimum profile modification for a spur gear pair by means of genetic algorithm”, *Journal of Sound and Vibration*, 313(3-5), pp. 603-616, 2008.
2. M. Barbieri, G. Bonori, F. Pellicano, “Corrigendum to: Optimum profile modifications of spur gears by means of genetic algorithms”, *Journal of Sound and Vibration*, 331(21), pp. 4825-4829, 2012.
3. M. Barbieri, A.A. Lubrecht, F. Pellicano, “Behavior of lubricant fluid film in gears under dynamic conditions”, *Tribology International*, 62, pp. 37-48, 2013.
4. R. Fagiani, M. Barbieri, “Modelling of finger-surface contact dynamics”, *Tribology International*, 74, pp. 130-137, 2014.
5. F. Pellicano, M. Barbieri, “Complex dynamics of circular cylindrical shells”, *International Journal of Non-Linear Mechanics*, 65, pp. 196-212, 2014.
6. M. Barbieri, A. Zippo, F. Pellicano, “Adaptive grid-size finite element modeling of helical gear pairs”, *Mechanism and Machine Theory*, 82, pp. 17-32, 2014.
7. A. Masoumi, F. Pellicano, F.S. Samani, M. Barbieri, “Symmetry breaking and chaos-induced imbalance in planetary gears”, *Nonlinear Dynamics*, 80-1, pp. 561-582, 2015.
8. A. Zippo, G. Ferrari, M. Amabili, M. Barbieri, F. Pellicano, “Active vibration control of a composite sandwich plate”, *Composite Structures*, 128, pp. 100-114, 2015.
9. F. Pellicano, M. Barbieri, A. Zippo, M. Strozzi, “Experiments on shells under base excitation”, *Journal of Sound and Vibration*, 369, pp. 209-227, 2016.
10. R. Fagiani, M. Barbieri, “A contact mechanics interpretation of the duplex theory of tactile texture perception”, *Tribology International*, 101, pp. 49-58, 2016.
11. A. Zippo, M. Barbieri, F. Pellicano, “Experimental analysis of pre-compressed circular cylindrical shell under axial harmonic load”, *International Journal of Non-Linear Mechanics*, 94, pp. 417-440, 2017.
12. M. Barbieri, S. Ilanko, F. Pellicano, “Active vibration control of seismic excitation”, *Nonlinear Dynamics*, 93 (1), pp. 41-52, 2018.
13. A. Zippo, M. Barbieri, G. Iarriccio, F. Pellicano, “Nonlinear vibrations of circular cylindrical shells with thermal effects: an experimental study”, *Nonlinear Dynamics*, 99 (1), pp. 373 - 391, 2020.

14. A. Zippo, M. Barbieri, F. Pellicano, "Temperature gradient effect on dynamic properties of a polymeric circular cylindrical shell", *Composite Structures*, 216, pp. 301-314, 2019.
15. A. Zippo, M. Barbieri, G. Iarriccio, F. Pellicano, "Nonlinear vibrations of circular cylindrical shells with thermal effects: an experimental study", *Nonlinear Dynamics*, 99 (1), pp. 373 – 391, 2020.
16. G. Iarriccio, A. Zippo, F. Pellicano, M. Barbieri, "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*, 235 (20), pp. 4818 – 4832, 2021.
17. L. Generali, F. Veneri, M. Barbieri, G. Bolelli, L. Lusvarghi, F. Cavani, T. Matteucci, E. Pedullà, "Influence of heat treatment on fatigue resistance of two NiTi endodontic files [Influenza del trattamento termico sulla fatica di due strumenti endodontici in NiTi]", *Dental Cadmos*, 91 (6), pp. 478 - 486, 2023.

PUBBLICAZIONI su atti di convegni

18. G. Bonori, G. Scagliarini, M. Barbieri, F. Pellicano, "Vibration of gears: a global optimization approach", *Proceedings of the ISMA 2006, International Conference on Noise and Vibration Engineering*, Leuven, Belgium, 18-20 Settembre 2006.
19. M. Barbieri, G. Bonori, G. Scagliarini, F. Pellicano, "Gear vibration reduction using genetic algorithms", *Proceedings of IFToMM2007, The 12th World Congress in Mechanism and Machine Science*, Micropolis Congress Center, Besançon, France, 17-21 Giugno 2007.
20. M. Barbieri, G. Scagliarini, G. Bonori, F. Pellicano, G. Bertacchi, "Optimization methods for spur gear dynamics", *Proceedings of ENOC 2008 Sixth Euromech Nonlinear Dynamics Conference*, Saint Petersburg, Russia, 30 Giugno – 4 Luglio 2008.
21. M. Barbieri, F. Pellicano, "Coupling of Two EHL-Lubricated Contacts in Gear Dynamics", *Proceedings of the STLE/ASME 2010 International Joint Tribology Conference*, October 17-20, San Francisco, California, USA, 2010, ISBN: 978-0-7918-4419-9.
22. M. Barbieri, F. Pellicano, "Influence of Dynamic Effects on Point EHL Contacts in Gear Systems", *First International Conference on Tribology*, Associação Brasileira de Metalurgia, Materiais e Mineração, November 24-26 2010, Rio de Janeiro, RJ, Brazil.
23. M. Barbieri, A. Zippo, F. Pellicano, "Adaptive Grid-Size Modelling of Helical Gear Pairs", *13th World Congress in Mechanism and Machine Science IFToMM*, Guanajuato, Mexico, 2011, ISBN: 9781629930770.
24. M. Barbieri, F. Pellicano, "Fluid-structure interaction in EHD lubricated contacts close to the elastic resonance", *Proceedings of the 19th International Congress On Sound & Vibration, ICSV19*, Vilnius, Lithuania, July 8-12, 2012, ISBN: 978-16-2276-465-5.
25. A. Zippo, M. Barbieri, M. Strozzi, V. Errede, F. Pellicano, "Linear and nonlinear dynamics of a circular cylindrical shell under static and periodic axial load", *Proceedings of the 19th International Congress On Sound & Vibration, ICSV19*, Vilnius, Lithuania, July 8-12, 2012, ISBN: 978-16-2276-465-5.
26. A. Zippo, M. Barbieri, M. Strozzi, V. Errede, F. Pellicano, "Experimental Study on Prestressed Circular Cylindrical Shell", - *Proceedings of the ASME 2012 International Design Engineering Technical Conferences &*

Computers and Information in Engineering Conference IDETC/CIE 2012 - American Society of Mechanical Engineers, August 12-15, 2012, Chicago, USA, ISBN: 978-07-9184-504-2.

27. M. Barbieri, F. Cinque, S. Ilanko, F. Pellicano, "Active vibration control of seismic excitation", Proceedings of the 4th International Conference on Nonlinear Dynamics ND-KhPI2013, Sevastopol, Ukraine, 2013, ISBN 978-617-669-100-6.
28. A. Zippo, M. Barbieri, F. Pellicano, "Circular Cylindrical Shells under combined axial loads: an experimental study", Proceedings of the 4th International Conference on Nonlinear Dynamics ND-KhPI2013, Sevastopol, Ukraine, 2013, ISBN 978-617-669-100-6.
29. R. Fagiani, M. Barbieri, "Dynamic modelling of finger-surface contacts", Proceedings of the World Tribology Congress, Torino, Italy, 2013, ISBN 9781634393522.
30. M. Barbieri, F. Pellicano, "Modelling lubrication in gear pairs", Proceedings of the World Tribology Congress, Torino, Italy, 2013, ISBN 9781634393522.
31. E. Fava, M. Barbieri, "Transient Thermal Diffusion in Elliptic Contacts", Proceedings of the World Tribology Congress, Torino, Italy, 2013, ISBN 9781634393522.
32. A. Zippo, M. Barbieri, F. Pellicano, "Experimental study on circular cylindrical shells under combined axial loads", Proceedings of the Seventh Conference on Computational Fluid and Solid Mechanics MIT 2013, Cambridge (MA), USA, June 12-14, 2013. ISBN: 978-00-0045-794-9.
33. A. Zippo, M. Strozzi, L.I. Manevitch, F. Pellicano, M. Barbieri, "Nonlinear vibrations and energy conservation of Single-Walled Carbon Nanotubes", Proceedings of the Seventh Conference on Computational Fluid and Solid Mechanics MIT 2013, Cambridge (MA), USA, June 12-14, 2013. ISBN: 978-00-0045-794-9.
34. F. Pellicano, M. Strozzi, A. Zippo, M. Barbieri, "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.
35. A. Zippo, F. Pellicano, M. Barbieri, "Vibration Of Preloaded Circular Cylindrical Shells Under Axial Excitation: Experimental Study", Proceedings of the 4th Canadian Conference on Nonlinear Solid Mechanics (CanCNSM2013), July 23-26, 2013, Montreal, Canada.
36. M. Barbieri, S. Ilanko, F. Pellicano, "Non-smooth active control of seismic vibrations", ENOC 2014 - Proceedings of 8th European Nonlinear Dynamics Conference, Vienna, Austria, July 6-11, 2014 ISBN: 978-3-200-03433-4.
37. A. Masoumi, F. Pellicano, M. Barbieri, "Complex dynamics of planetary gear systems", ENOC 2014 - Proceedings of 8th European Nonlinear Dynamics Conference, Vienna, Austria, July 6-11, 2014 ISBN: 978-3-200-03433-4.
38. F. Pellicano, A. Zippo, M. Barbieri, "Nonlinear dynamics of axially loaded shells: experimental study", ENOC 2014 - Proceedings of 8th European Nonlinear Dynamics Conference, Vienna, Austria, July 6-11, 2014 ISBN: 978-3-200-03433-4.
39. A. Zippo, F. Pellicano, M. Barbieri, M. Strozzi, "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.

40. A. Zippo, F. Pellicano, M. Barbieri, M. Strozzi, "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.
41. M. Strozzi, L.I. Manevitch, F. Pellicano, M. Barbieri, A. Zippo, "Beating phenomenon and energy localization in Single-Walled Carbon Nanotubes", Proceedings of the 18th International Conference on Composite Structures ICCS 2015, Lisbon, Portugal, June 15-18, 2015. ISSN: 0263-8223.
42. M. Barbieri, A. Zippo, M. Strozzi, L. Serafini, F. Pellicano, G. Bonori, "Dynamic modelling of gear pairs", Proceedings of the 22nd International Congress On Sound & Vibration, ICSV22, Firenze, 2015, ISBN: 978-88-8894-249-0.
43. A. Zippo, F. Pellicano, M. Barbieri, M. Amabili, "Experimental and numerical study of MIMO active vibration control", Proceedings of the 22nd International Congress On Sound & Vibration, ICSV22, Firenze, 2015, ISBN: 978-88-8894-249-0.
44. M. Strozzi, F. Pellicano, M. Barbieri, A. Zippo, "Nonlinear oscillations of carbon nanotubes", Proceedings of the 22nd International Congress On Sound & Vibration, ICSV22, Firenze, 2015, ISBN: 978-88-8894-249-0.
45. M. Strozzi, L.I. Manevitch, F. Pellicano, M. Barbieri, A. Zippo, "Nonlinear oscillations of single-walled carbon nanotubes", Proceedings of the 22nd International Congress on Sound & Vibration, ICSV 2015, Florence, Italy, July 12-16, 2015. ISBN: 978-88-8894-249-0.
46. R. Fagiani, M. Barbieri, "A model for vibration-mediated tactile perception", Proceedings of the International Tribology Conference, 16-20 September, 2015, Tokyo, Japan.
47. M. Barbieri, F. Pellicano, "EHL lubrication in spur and helical gear pairs", Proceedings of the International Tribology Conference, 16-20 September, 2015, Tokyo, Japan.
48. A. Zippo, F. Pellicano, M. Barbieri, M. Strozzi, "Experimental investigation of dynamic behaviour of pre-compressed circular cylindrical shell", Proceedings of the XXIV ICTAM, August 21-26, 2016, Montreal, Canada.
49. M. Strozzi, F. Pellicano, M. Barbieri, A. Zippo, "Linear vibrations of multi-walled carbon nanotubes", Proceedings of the 23rd International Congress on Sound & Vibration, ICSV 2016, Athens, Greece, July 10-14, 2016.
50. A. Zippo, M. Barbieri, F. Pellicano, M. Strozzi, "Active vibration control of a composite plate", Proceedings of the 13th International Conference on Condition Monitoring and Machinery Failure Prevention Technologies, CM 2016/MFPT, 2016.
51. M. Strozzi, M. Barbieri, F. Pellicano, A. Zippo, "Pitting and stress analysis of gears: A numerical and experimental study", Proceedings of the 13th International Conference on Condition Monitoring and Machinery Failure Prevention Technologies, CM 2016/MFPT, 2016.
52. L. Gelman, N. Harish Chandra, R. Kurosz, F. Pellicano, M. Barbieri, A. Zippo, "Novel spectral kurtosis technology for adaptive vibration condition monitoring of multi-stage gearboxes", Insight: Non-Destructive Testing and Condition Monitoring, 58 (8), pp. 409-416, 2016.
53. D. Marano, A. Piantoni, L. Tabaglio, M. Lucchi, M. Barbieri, F. Pellicano, "Effects of gear manufacturing errors on rack and pinion steering meshing", WCCM 2017 - Proceedings of the 1st World Congress on Condition Monitoring, 2017.

54. M. Barbieri, A. De Felice, F. Pellicano, S. Sorrentino,, A. Zippo, “A novel method for dynamic characterization of polymeric vibration dampers” 24th International Congress on Sound and Vibration, ICSV, 2017.
55. F. Pellicano, A. Zippo, M. Barbieri, M. Strozzi, “Modal localization in vibrating circular cylindrical shells”, Proceedings of the 24th International Congress on Sound and Vibration, ICSV, London, United Kingdom, 2017.
56. M. Strozzi, M. Barbieri, A. Zippo, F. Pellicano, “Numerical study on nonlinear vibrations, energy exchange and resonant interactions in single walled carbon nanotubes”, Proceedings of the 24th International Congress on Sound and Vibration, ICSV, London, United Kingdom, 2017.
57. A. Zippo, F. Pellicano, M. Barbieri, M. Strozzi, “Vibration of functionally graded cylindrical shells”, Proceedings of the 24th International Congress on Sound and Vibration, ICSV, London, United Kingdom, 2017.
58. M. Strozzi, M. Barbieri, A. Zippo, F. Pellicano, “Numerical simulation and experimental validation of normal strain distribution and pitting phenomenon in industrial gears”, Proceedings of the 24th International Congress on Sound and Vibration, ICSV, London, United Kingdom, 2017.
59. A. Masoumi, M. Barbieri, F. Pellicano, “Optimization of planetary gear systems by means of genetic algorithm”, Proceedings of the 24th International Congress on Sound and Vibration, ICSV, London, United Kingdom, 2017.
60. M. Barbieri, A. De Felice, F. Pellicano, S. Sorrentino, A. Zippo, “Experimental identification of static and dynamic stiffness of polymeric vibration dampers”, Proceedings of the 25th International Congress on Sound and Vibration 2018, ICSV 2018: Hiroshima Calling, 5, pp. 3054-3060, Hiroshima, Japan, 2018.
61. M. Barbieri, S. Ilanko, F. Pellicano, “Active isolation of structures under seismic vibrations”, Proceedings of the 25th International Congress on Sound and Vibration 2018, ICSV 2018: Hiroshima Calling, 8, pp. 4648-4653, Hiroshima, Japan, 2018.
62. G. Iarriccio, A. Zippo, M. Barbieri, F. Pellicano, “Experimental durability test for condition monitoring of carburized spur gears”, 16th International Conference on Condition Monitoring and Asset Management, CM 2019, Glasgow, 2019.
63. A. Zippo, F. Pellicano, G. Iarriccio, M. Barbieri, “Experimental investigation on spur gears with novel coatings and surface micro texturing”, Proceedings of the 26th International Congress on Sound and Vibration, ICSV 2019, Montreal, 2019.
64. G. Iarriccio, A. Zippo, M. Barbieri, F. Pellicano, “Experimental study on the nonlinear vibrations of a circular cylindrical shells: Effects of thermal gradients” Proceedings of the 26th International Congress on Sound and Vibration, ICSV 2019, Montreal, 2019.
65. F. Pellicano, A. Zippo, G. Iarriccio, M. Barbieri, “Experimental Study on Nonlinear Random Excitation”, International Conference on Design Tools and Methods in Industrial Engineering, ADM 2019, Lecture Notes in Mechanical Engineering, pp. 637 – 648, 2020.
66. A. Zippo, F. Pellicano, G. Iarriccio, M. Barbieri, “Vibrations of circular cylindrical shells under random excitation and thermal gradients”, 4th Conference of the Italian Association of Theoretical and Applied Mechanics, AIMETA 2019, Rome, Lecture Notes in Mechanical Engineering, pp. 1405 - 1414, 2020.

67. G. Iarriccio, A. Zippo, M. Barbieri, F. Pellicano, “Experimental study on large amplitude vibrations of a circular cylindrical shell subjected to thermal gradients”, 24th Conference of the Italian Association of Theoretical and Applied Mechanics, AIMETA 2019, Rome, Lecture Notes in Mechanical Engineering, pp. 1397 – 1404, 2020.
68. M. Barbieri, G. Iarriccio, F. Pellicano, M. Strozzi, A. Zippo, “Efficiency and Durability of DLC-Coated Gears”, Mechanisms and Machine Science, 91, pp. 580 – 588, 2021.
69. G. Iarriccio, A. Zippo, M. Barbieri, F. Pellicano, “Efficiency and Durability of Spur Gears with Surface Coatings and Surface Texturing”, Lecture Notes in Mechanical Engineering, 2nd World Congress on Condition Monitoring, WCCM 2019, pp. 285 – 291, 2021.
70. S.P. Iacubino, M. Barbieri, Marco, A. Vergnano, “Design and Optimization of an Innovative and Compact Gearbox Synchronizer”, 3rd International Conference of the Italian Association of Design Methods and Tools for Industrial Engineering, ADM 2023, Lecture Notes in Mechanical Engineering, pp. 353 - 361, Florence, 2024.