Diego Misseroni

Professor of Aerospace Structures

ERC Consolidator Grant Holder | Member, European Academy of Sciences and Arts
University of Trento, Italy

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PROFILE

Full Professor of Aerospace Structures working on the mechanics of programmable architected materials. His research focuses on geometric instability, multistability, and mechanical frustration as design variables in reconfigurable systems. By combining discrete folding kinematics, energy-based modeling, and continuum mechanics, he studies origami-inspired and architected structures across scales.

His work integrates nonlinear theory, computational modeling, additive manufacturing, and experimental validation to investigate mechanically tunable metamaterials, deployable structures, and wave-guiding architectures. Through competitively funded research programs, he advances the understanding of instability-driven mechanical behavior in multifunctional structural systems.

RESEARCH IMPACT & COMPETITIVE FUNDING

Current Position

Full Professor of Aerospace Structures, University of Trento, Italy (since 2024)

Head, Laboratory for Reconfigurable Metamaterials and Structures

Scientific Output & Impact

70+ peer–reviewed journal articles

Publications in *Nature Communications, Nature Reviews Methods Primers, PNAS (Cozzarelli Prize 2025), Advanced Materials, Materials Today, JMPS,* and *Proceedings of the Royal Society A*

12 journal cover features

h–index: 30 | 2700+ citations

Major Competitive Funding: €2.5M+ competitive funding as PI

ERC Consolidator Grant (2022, €1.93M)

ERC Proof of Concept (2025, €150k)

Horizon Europe Innovation Action (€7.37M total project)

PRIN MIUR (2024, €200k)

International Recognition

Member, European Academy of Sciences and Arts (2025)

SES Huajian Gao Young Investigator Medal (2025)

ASME Thomas J.R. Hughes Young Investigator Award (2024)

Fulbright Research Scholar, Princeton University (2023)

Westlake Distinguished Fellowship (2025)

Research Leadership & Visibility

11 PhD students supervised to completion | 4 ongoing | 7 postdoctoral researchers

Editor, International Journal of Non–Linear Mechanics

CV updated: October 31, 2026

Guest Editor (Engineering Structures; Frontiers in Materials); Reviewer for major journals including PNAS, Nature Communications, Science Robotics, Science Advances, JMPS, EML, Advanced Materials, Advanced Science.

Invited and keynote lectures at Princeton, Georgia Tech, Kyoto, Westlake, IIT Madras, Southampton; major conferences including SES, ICTAM, META

SELECTED PUBLICATIONS

1. **Misseroni D.**, Pratapa P.P., Liu K., Kresling B., Chen Y, Daraio C., and Paulino G.H. (2024). Origami Engineering, **Nature Review Methods Primers**, 4, 40.
   Defines origami engineering as a unified framework integrating geometric mechanics, computational modeling, fabrication, and experimental validation for programmable architected materials.
2. Norenberg J.P.C.V., Cunha Jr. A., and **Misseroni D.†** (2026). Elastic-invisibility-enabled metastructure with mechanically programmed nonlinear resonators for vibration attenuation and energy harvesting, **Advanced Functional Materials**, accepted.
   Demonstrates how architected structures can be programmed to simultaneously suppress vibrations and harvest mechanical energy, opening new routes toward adaptive and multifunctional mechanical systems.
3. Zhang Y., Li J., Wu Q., Amabili M., **Misseroni D.**, and Jiang H. (2025). Viscoelastic Structural Damping Enables Broadband Low-Frequency Sound Absorption. **Proceedings of the National Academy of Sciences**, 122(43), e2520808122. **Recipient of the 2025 PNAS Cozzarelli Prize.**
   Demonstrates a new route to broadband low-frequency sound absorption by exploiting structural damping, with implications for lightweight acoustic and vibration-control systems.
4. Zang S., **Misseroni D.†**, Zhao T., and Paulino G.H. (2024). Kresling origami mechanics explained: Experiments and theory, **Journal of the Mechanics and Physics of Solids**, 105630.
   Establishes a unified experimental and theoretical description of Kresling origami mechanics, revealing how geometry controls multistability and mechanical response.
5. **Misseroni D.**, Movchan A.B., Movchan N.V., Bigoni D. (2019). Omnidirectional flexural invisibility of multiple interacting voids in vibrating elastic plates. **Proceedings of the Royal Society A**, 475, 20190283.
   Experimental and analytical study of flexural wave cloaking in structured elastic plates. It shows how tailored void distributions reduce scattering in vibrating systems.
6. **Misseroni D.†**, Pratapa P.P., Liu K., and Paulino G.H. (2022). Experimental realization of tunable Poisson's ratio in deployable origami metamaterials, **Extreme Mechanics Letters**, 53, 101685.
   Introduces a boundary–condition–controlled experimental methodology enabling the first rigorous validation of tunable Poisson's ratio in deployable origami across the full folding range.

TEACHING LEADERSHIP

- **Two–time recipient of the DICAM Teaching Excellence Award (2018, 2023)**
- **UNDERGRADUATE:** Solid and Structural Mechanics (since 2015); Mechanics of Glass, Lightweight and Masonry Structures (since 2020); Fracture Mechanics (2018–2020)
- **GRADUATE:** Metastructures; Advanced Modeling of Exotic Metamaterials; Waves in Metamaterials and Periodic Structures; Experimental Mechanics (Summer Schools); Mechanics of Architected Materials (CISM–IISc Workshop)

APPENDIX – DETAILED ACADEMIC RECORD

I. ACADEMIC CAREER & POSITIONS

ACADEMIC APPOINTMENTS

01/2024–Present	Full Professor, DICAM, University of Trento, IT
04/2022–12/2023	Associate Professor, DICAM, University of Trento
04/2016–03/2022	Assistant Professor tenure track (RTDA–RTDB), University of Trento
01/2015–03/2016	Postdoctoral Fellow, University of Trento
01/2014–01/2015	Marie Curie Experienced Research Associate, University of Liverpool, UK

VISITING PROFESSORSHIPS & INTERNATIONAL FELLOWSHIPS

02/2025–04/2026	**Westlake Distinguished Fellowship**, Westlake University, Hangzhou, China
01/2023–06/2023	**Fulbright Research Scholar**, Princeton University, USA
03/2023	Visiting Scientist, Indian Institute of Technology (IIT) Madras, India
02/2020	Visiting Scientist, Georgia Institute of Technology, USA
05/2017	Visiting Scientist, IMT Lucca, Italy
03/2017	Visiting Scientist, University of Cagliari, Italy
09/2016–10/2016	Visiting Scientist, University of Liverpool, UK

II. MAJOR HONORS & DISTINCTIONS

ACADEMIC MEMBERSHIP & MAJOR AWARDS

- **Ordinary member, European Academy of Sciences and Arts** (Salzburg, AUSTRIA), Class VI: Technical and Environmental Sciences (2025)
- **ERC Proof of Concept Grant**, European Research Council, €150k competitive award (2026)
- **SES Huajian Gao Young Investigator Medal**, Society of Engineering Science, USA, (2025). Awarded for pioneering experimental and theoretical contributions to architected metamaterials and origami structures
- **Thomas J. R. Hughes (ASME) Young Investigator Award**, American Society of Mechanical Engineers, USA (2024). Recognizing fundamental contributions to the mechanics of architected metamaterials
- **ERC Consolidator grant**, European Research Council, €1.93M competitive award (2023)
- **Cozzarelli Prize**, Proceedings of the National Academy of Sciences (PNAS), USA (2026). Awarded for outstanding scientific excellence and originality among papers published in PNAS across all disciplines.

INTERNATIONAL RESEARCH AWARDS & FELLOWSHIPS

- **Westlake Distinguished Fellowship**, Westlake Fellows Program, China, (2025)
- **ZwickRoell Science Award**, ZwickRoell, Germany (2022). For innovative experimental methodologies in metamaterials research.
- **Paul Roell Science Medal**, ZwickRoell, Germany (2022)
- **EML Young Investigator Award**, Extreme Mechanics Letters (Elsevier), (2022)
- **Fulbright Fellowship – Research Scholar Award**, Princeton University, US – Italy Fulbright Commission (2022)

NATIONAL & FIELD–SPECIFIC RECOGNITION

- **AIMETA Junior Prize in Solid and Structural Mechanics**, Italian Association of Theoretical and Applied Mechanics (2017). For foundational contributions to configurational forces and instability–driven structural mechanics.
- **Best Paper Award**, AIDDA XXVII International Congress, Padova, Italy (2023)
- **Award of Best Video in Gallery of Nonlinear Dynamics**, IUTAM Symposium on Nonlinear dynamics, Tsukuba, Japan (2023)
- **Trentino Research Award – Young Researchers**, Autonomous Province of Trento – Italy

INTERNATIONAL SCIENTIFIC INVITATION

- **Invited Contributor**, *Nature Reviews Methods Primers* – Review article on "Origami Engineering"
- **Invited Contributor**, Inaugural "Rising Stars" Collection, *Frontiers in Materials* (Article: *Compressive response of non–slender octet carbon microlattices*)

III.A. COMPETITIVE RESEARCH FUNDING

Total competitive funding as Principal Investigator: €2.5M+

EUROPEAN RESEARCH COUNCIL

- **ERC Consolidator Grant (2024–2029)**, SFOAM – Self–Foldable Origami–Architected Metamaterials, Principal Investigator, €1.93M. Frontier research program establishing instability–driven origami metamaterials as programmable mechanical systems.
- **ERC Proof of Concept (2026-2027)**, FLEXGRIP – Flexible Geometric Reprogrammable Interfaces and Prototypes, Principal Investigator, €150k. Translational project advancing programmable origami metamaterials toward adaptive gripping and deployable engineering applications.

EUROPEAN COMPETITIVE FUNDING

- **HORIZON–INN. ACTION (2024–2027)**, SUBBIMATT – Sustainable, Biobased and Bio–Inspired Materials for Smart Technical Textiles, Research Unit Coordinator, €513k unit funding (Total project: €7.37M).

INTERNATIONAL COMPETITIVE FUNDING

- **ROYAL SOCIETY INTERNATIONAL EXCHANGES (2026–2028)**, Mechanically Intelligent Origami Metastructures from Insect Wing Joints for Adaptive Morphing, International Co-applicant, £12000. Bilateral research collaboration with Dr Hamed Rajabi, London South Bank University.

NATIONAL COMPETITIVE FUNDING

- **PoC by TRENTINO (2026–2027),** VIBESENSE – Autonomous, low-maintenance monitoring for vibrating industrial assets that are currently difficult to monitor, Principal Investigator, €30k total project
- **PRIN MIUR (2024–2026),** ADACTIVE – Advanced Design of Active Microstructured Materials via Additive Manufacturing, Research Unit Coordinator, €200k total project
- **UNITN Starting Grant (2019–2021)**, Bio–inspired ceramics using wood microstructure as template, Principal Investigator, €13.3k
- **GNFM Young Researchers Project (2021–2022)**, Study and design of the frequency band structure of temporally modulated intelligent metamaterials, Principal Investigator
- **GNFM Young Researchers Project (2019–2020)**, Active Hierarchical Metamaterials, Principal Investigator

ADDITIONAL RESEARCH FUNDING

- **UNITN COVID–19 Research Grant (2021–2022)**, Unit Coordinator, €58k
- **FFABR – Financing of Basic Research Activities (2017)**

III.B. EARLY CAREER EUROPEAN EXPERIENCE

- H2020–MSCA–ITN LIGHTEN (2020–2024) – Researcher
- ERC Advanced Grant "INSTABILITIES" (2014–2019) – Researcher
- FP7 IAPP INTERCER2 (2011–2015) – Marie Curie Experienced Fellow

IV. RESEARCH LEADERSHIP & SUPERVISION

Research leadership includes direction of doctoral and postdoctoral research in programmable architected materials, nonlinear mechanics, and metamaterials, integrating theoretical development, advanced modeling, and experimental validation.

LABORATORY LEADERSHIP

- Head, **Laboratory for Reconfigurable Metamaterials and Structures**, University of Trento
- Current group: 5 PhD candidates and 4 postdoctoral researchers

DOCTORAL SUPERVISION

PhD Students – Completed (11)

Selected current positions of former doctoral students:

- João Pedro C. V. Norenberg – Assistant Professor, São Paulo State University, Brazil
- Costanza Armanini – Senior Lecturer, New York University Abu Dhabi
- Federico Bosi – Associate Professor, UCL, London, UK

(Full list of doctoral dissertations available upon request.)

PhD Students – Ongoing (4)

- Wang Shuhong – Homogenization–based modeling of origami metamaterials
- Sveva Juliano – Homogenization of origami metamaterials
- Toofani Arman – Bio–inspired origami structures
- Peijie Sun – Self–foldable Origami Metamaterials

POSTDOCTORAL SUPERVISION

Supervised postdoctoral researchers in: Origami–architected metamaterials, Self–foldable origami structures, Architected Materials, Solid Mechanics, Deployable and inflatable structural systems, Acoustic metamaterials.

Supervised postdoctoral researchers awarded competitive fellowships, *including the Marie Sklodowska-Curie Actions (MSCA) Seal of Excellence.*

Postdoc Students – Completed (1)

- Alessandro Fortunati – Assistant Professor, Università Federico II, Napoli, Italy
- Kemeng Cui, Origami dynamics

Postdoc Students – Ongoing (6)

- Shinsuke Nakashima, Origami–inspired robotic grippers
- Qida Lin, Reconfigurable architected metamaterials
- Anandaroop Lahiri, 'Origami–architected metamaterials'
- Samantha Mora, 'Design of deployable and inflatable structural systems'
- Guozhan Xia, 'Design of self–foldable origami structures'

UNDERGRADUATE SUPERVISION

- 41 Master's theses supervised
- 37 Bachelor's theses supervised

(Thesis titles and names available upon request.)

V. Full Publication Record

Research output includes 60+ peer–reviewed journal articles in leading international journals in mechanics, materials science, and applied physics.

Research results have been featured on the cover of major international journals on 12 occasions, including: *Advanced Materials, Advanced Science, Materials Today, Extreme Mechanics Letters, and Proceedings of the Royal Society A.*

A) Peer–Reviewed Journal Articles

61. Norenberg J.P., Cunha Jr. A., and **Misseroni D.** (2026). Elastic-invisibility-enabled metastructure with mechanically programmed nonlinear resonators for vibration attenuation and energy harvesting, Advanced Functional Materials, 2026, accepted.
60. Bigoni D., **Misseroni D.**, and Piccolroaz A. (2026). The strange mechanics of an elastic rod under null–resultant transverse loads, Journal of the Mechanics and Physics of Solids, 106590.
59. Beigrezaee M.J., Jalali S.K., **Misseroni D.**, and Pugno, N. M. (2026). A refined Gibson–Ashby model for functionally graded honeycombs with random irregularities. International Journal of Mechanical Sciences, 111297.
58. Zhang Y., Li J., Wu Q., Amabili M., **Misseroni D.**, and Jiang H. (2025). Viscoelastic Structural Damping Enables Broadband Low–Frequency Sound Absorption, Proceedings of the National Academy of Sciences, 122 (43) e2520808122.
    Recipient of the 2025 Cozzarelli Prize (PNAS).
57. Zang S., Zhao T., **Misseroni D.**, and Paulino G.H. (2025). Origami Frustration and Its Influence on Energy Landscapes of Origami Assemblies, Proceedings of the National Academy of Sciences, 122 (36) e2426790122.
56. Mora S.H., Pugno N.P, and **Misseroni D.** (2025). Programming the Energy Landscape of 3D–Printed Kresling Origami via Crease Geometry and Viscosity, Extreme Mechanics Letters, 102314.
55. McInerney J., **Misseroni D.**, Paulino G.H., Rocklin D.Z., Mao X. (2025). Coarse–Grained Fundamental Forms for Characterizing Isometries of Trapezoid–based Origami Metamaterials, Nature Communications, 16, 1823.
54. **Misseroni D.**, Pratapa P.P., Liu K., Kresling B., Chen Y, Daraio C., and Paulino G.H. (2024). Origami Engineering, Nature Review Methods Primers, 4, 40.
53. Greco G., **Misseroni D.**, Castellucci F., Di Novo N.G., and Nicola M.P. (2024). Functionally–graded serrated fangs allow spiders to mechanically cut silk, carbon and Kevlar® fibres, Advanced Science, 479, 2406079.
52. Zang S., **Misseroni D.**, Zhao T., and Paulino G.H. (2024). Kresling origami mechanics explained: Experiments and theory, Journal of the Mechanics and Physics of Solids, 105630.

51. Fortunati A., **Misseroni D.**, Bacigalupo A. (2024). Spectro–hierarchical homogenization scheme for elasto–dynamic problems in periodic Cauchy materials, Applied Mathematical Modelling, 132, 366–383.

50. Jalali S.K., Beigrezaee M.J., **Misseroni D.**, and Pugno N.M. (2024). A modified Gibson–Ashby model for functionally graded lattice structures, Mechanics of Materials, 104822.

49. Bigoni D., Dal Corso F., Kirillov N.K., **Misseroni D.**, Noselli G., and Piccolroaz A. (2023). Flutter instability in solids and structures, with a view on biomechanics and metamaterials, Proceedings of the Royal Society A, 479, 20230523.

48. Koutsogiannakis P., **Misseroni D.**, Bigoni D., and Dal Corso F. (2023). Stabilization against gravity and self–tuning of an elastic variable–length rod through an oscillating sliding sleeve, Journal of the Mechanics and Physics of Solids, 105452.

47. Horst F., Beyreuther E., Bodenstein E., Gantz S., **Misseroni D.**, Pugno, N.M. Schuy C., Tommasino F., Weber U., and Pawelke J. (2023). Passive SOBP generation from a static proton pencil beam using 3D–printed range modulators for FLASH experiments, Frontiers in Physics, 11, 1213779.

46. Liu K., Pratapa P.P., **Misseroni D.**, Tachi T., and Paulino H.G. (2022). Triclinic metamaterials by tristable origami with reprogrammable frustration, Advanced Materials, 34(43), 2107998.

45. Mora S.H., Pugno N.P, and **Misseroni D.** (2022). 3D printed architected lattice structures by material jetting, Materials Today, 59, 107–132.

44. **Misseroni D.**, Pratapa P.P., Liu K., and Paulino G.H. (2022). Experimental realization of tunable Poisson's ratio in deployable origami metamaterials, Extreme Mechanics Letters, 53, 101685.

43. Cavuoto R., Lenarda P., **Misseroni D.**, Paggi M., and Bigoni D. (2022). Failure through crack propagation in components with holes and notches: an experimental assessment of the phase field model, International Journal of Solids and Structures, 257, 111798.

42. Liprandi D., **Misseroni D.**, Bosia F., Fraldi M., and Pugno N.M. (2022). A Griffith 3D peeling model to generalize Kendall and double peeling theories, Meccanica, 57, 1125–1138.

41. Morvaridi M., Carta G., Bosia F., Gliozzi A.S., Pugno N.M., **Misseroni D.**, and Brun M. (2021). Hierarchical auxetic and isotropic porous medium with extremely negative Poisson's ratio, Extreme Mechanics Letters, 48, 101405.

40. Kherraz N., Radienski M., Mazzotti M., Kudela P., Bosia F., Gliozzi A., **Misseroni D.**, Pugno N.M., Ostachowicz W., and Miniaci M. (2021). Experimental full wavefield reconstruction and band diagram analysis in a single–phase phononic plate with internal resonators, Journal of Sound and Vibration, 48, 101405.

39. Movchan I.B., Yakovleva A.A., **Misseroni D.**, Pugno N.M, and Movchan A.B. (2021). Multi–physics of dynamic elastic metamaterials and earthquake systems, Frontiers in Materials, 7, 620701.

38. Schütt F., Rasch F., Deka N., Reimers A., Saure L.M., Kaps S., Rank J., Carstensen J., Mishra Y.K., **Misseroni D.**, Vázquez A.R., Lohe M.R., Nia A.S., Pugno N.M., Feng X., Adelung R. (2021). Electrically powered reversible air explosions using microtubular graphene assemblies, Materials Today, 48, 7–17.

37. Pugno M.C., **Misseroni D.**, and Pugno N.M. (2021). Air–encapsulating elastic mechanism of submerged Taraxacum blowballs, Materials Today Bio, 9, 100095.

36. **Misseroni D.**, E. Barbieri, and Pugno N.M. (2021). Extreme deformations of the cantilever Euler Elastica under transverse aerodynamic load, Extreme Mechanics Letters, 42, 101110.

35. Bacigalupo A., De Bellis M.L., and **Misseroni D.** (2020). Design of tunable acoustic metamaterials with periodic piezoelectric microstructure, Extreme Mechanics Letters, 40, 100977.

34. Bigoni D., and **Misseroni D.** (2020). Structures loaded with a force acting along a fixed straight line, or the "Reut's column problem", Journal of the Mechanics and Physics of Solids, 134, 103741.

33. Cazzolli A., **Misseroni D.**, and Dal Corso F. (2020). Elastica catastrophe machines, Journal of the Mechanics and Physics of Solids, 136, 103735.

32. Bigoni D., Cavuoto R., **Misseroni D.**, Paggi M., Ruffini A., Sprio S., and Tampieri A. (2020). Ceramics with the signature of wood, Materials Today Bio, 5, 100032.

31. Sprio S., Panseri S., Montesi M., Dapporto M., Ruffini A., Dozio S.M., Cavuoto R., **Misseroni D.**, Paggi M., Bigoni D., and Tampieri A. (2020). Hierarchical porosity inherited by natural sources affects the mechanical and biological behaviour of bone scaffolds, Journal of the European Ceramic Society, 40(4), 1717–1727.

30. Cabras L., Brun M., and **Misseroni D.** (2019). Micro–structured medium with large isotropic negative thermal expansion, Proceedings of the Royal Society A, 475, 20190468.

29. **Misseroni D.**, Movchan A., and Bigoni D. (2019). Omnidirectional flexural invisibility of multiple interacting voids in vibrating elastic plates, Proceedings of the Royal Society A, 475, 20190283.

28. Kudo A., **Misseroni D.**, Wei Y., and Bosi F. (2019). Compressive response of non–slender octet carbon microlattices, Frontiers in Materials, 6:169. Invited contribution to the inaugural "Rising Stars" collection in Frontiers in Materials.

27. Armanini C., Dal Corso F., **Misseroni D.**, and Bigoni D. (2019). Configurational forces and nonlinear structural dynamics, Journal of the Mechanics and Physics of Solids, 130, 82–100.

26. Gei M. and **Misseroni D.** (2018). Experimental investigation of progressive instability and collapse of no–tension brickwork pillars, International Journal of Solids and Structures, 155, 81–88.

25. Bigoni D., Kirillov O.N., **Misseroni D.**, Noselli G., and Tommasini M. (2018). Flutter and divergence instability in the Pflüger's column: experimental evidence of the Ziegler's destabilization paradox, Journal of Mechanics and Physics of Solids, 116, 99–116.

24. Bigoni D., Kirillov O.N., **Misseroni D.**, Noselli G., and Tommasini M. (2018). Detecting singular weak–dissipation limit for flutter onset in reversible systems, Physical Review E, 97 (2), 023003.

23. Dal Corso F., **Misseroni D.**, Pugno N.M., Movchan A.B, Movchan N.V., and Bigoni D. (2017). Serpentine locomotion through elastic energy release, Journal of the Royal Society Interface, 14, 20170055.

22. Armanini C., Dal Corso F., **Misseroni D.**, and Bigoni D. (2017). From the elastica compass to the elastica catapult: an essay on the mechanics of soft robot arm, Proceedings of the Royal Society A, 473, 20160870.
21. Bosi F., **Misseroni D.**, Dal Corso F., Neukirch S., and Bigoni D. (2016). Asymptotic self–restabilization of a continuous elastic structure, Physical Review E, 94 (6), 063005.
20. **Misseroni D.**, Afferrante L., Carbone G., and Pugno N. (2016). Non–linear double–peeling: experimental vs. theoretical predictions, The Journal of Adhesion, 94, 46–57.
19. Tommasini M., Kirillov O.N., **Misseroni D.**, and Bigoni D. (2016). The destabilizing effect of external damping: Singular flutter boundary for the Pflüger column with vanishing external dissipation, Journal of the Mechanics and Physics of Solids, 91, 204–215.
18. **Misseroni D.**, Colquitt D.J., Movchan A.B., Movchan N.V., and Jones I.S. (2016). Cymatics for the cloaking of flexural vibrations in a structured plate, Scientific Reports, 6, 23929.
17. Bigoni F., Bigoni D, **Misseroni D.**, and Wang D. (2016). Megalithic stone beam bridges of ancient China reach the limits of strength, thus disprove size effect in granite, Journal of Cultural Heritage, 26, 167–171.
16. **Misseroni D.** (2016). Experiments on fracture trajectories in ceramic samples with voids, Journal of the European Ceramic Society, 36, 2277–2281.
15. Penasa M, Argani L., **Misseroni D.**, Dal Corso F., Cova M., and Piccolroaz A. (2016). Computational modelling and experimental validation of industrial forming processes by cold pressing of aluminum silicate powder, Journal of the European Ceramic Society, 36, 2351–2362.
14. Argani L., **Misseroni D.**, Piccolroaz A., Vinco Z., Capuani D., and Bigoni D. (2016). Plastically–driven variation of elastic stiffness in green bodies during powder compaction: Part I Experiments and elastoplastic coupling, Journal of the European Ceramic Society, 36, 2159–2167.
13. Argani L., **Misseroni D.**, Piccolroaz A., Capuani D., and Bigoni D. (2016). Plastically–driven variation of elastic stiffness in green bodies during powder compaction: Part II: Micromechanical modelling, Journal of the European Ceramic Society, 36, 2169–2174.
12. Bigoni F., Bigoni D, **Misseroni D.**, and Wang D. (2016). Megalithic stone beam bridges of ancient China reach the limits of strength, thus disprove size effect in granite, Journal of Cultural Heritage, 26, 167–171.
11. Bosi F., **Misseroni D.**, Dal Corso F., and Bigoni D. (2015). Self–Encapsulation, or "dripping" of an elastic rod, Proceedings of the Royal Society A, 471, 2179.
10. Bosi F., **Misseroni D.**, Dal Corso F., and Bigoni D. (2015). Development of configurational forces during the injection of an elastic rod, Extreme mechanics letters, 4, 83–88.
9. **Misseroni D.**, Noselli G., Zaccaria D., and Bigoni D. (2015). The deformation of an elastic rod with a clamp sliding along a smooth and curved profile, International Journal of Solids and Structures, 69–70, 491–497.
8. **Misseroni D.**, Movchan A.B., Movchan N.V., and Bigoni D. (2015). Experimental and analytical insights on fracture trajectories in brittle materials with voids, International Journal of Solids and Structures, 63, 219–225.

7. Bigoni D., Dal Corso F., Bosi F., and **Misseroni D.** (2015). Eshelby–like forces acting on elastic structures: theoretical and experimental proof, Mechanics of Materials, 80, 368–374.
6. Bigoni D., Dal Corso F., **Misseroni D.**, and Bosi F. (2014). Torsional locomotion, Proceedings of the Royal Society A, 470, 20140599.
5. Bosi F., **Misseroni D.**, Dal Corso F., and Bigoni D. (2014). An elastica arm scale, Proceedings of the Royal Society A, 470, 20140232.
4. Bigoni D., Dal Corso F., Bosi F., and **Misseroni D.** (2014). Instability of a penetrating blade, Journal of the Mechanics and Physics of Solids, 64, 411–425.
3. **Misseroni D.**, Dal Corso F., Shahzad S., and Bigoni D. (2014). Stress concentration near stiff inclusions: validation of rigid inclusion model and boundary layers by means of photoelasticity, Engineering Fracture Mechanics, 121–122, 87–97.
2. Bigoni D., **Misseroni D.**, Noselli G., and Zaccaria D. (2012). Effects of the constraint's curvature on structural instability: tensile buckling and multiple bifurcations, Proceedings of the Royal Society A, 468 (2144), 2191–2209.
1. Zaccaria D., Bigoni D., Noselli G., and **Misseroni D.** (2011). Structures buckling under tensile dead load, Proceedings of the Royal Society A, 467 (2130), 1687–1700.

B) Articles in Refereed Books

7. McInerney J.P., **Misseroni D.**, Rocklin D.Z., Paulino G.H., and Mao X. (2026). Isometries of Trapezoid-Based Origami. In: Lu G., You Z., Assis M. (eds), Origami8, Volume 1 – Proceedings of the 8th International Meeting on Origami in Science, Mathematics and Education, Lecture Notes in Mechanical Engineering, Springer, pp. 93–105.
6. Bertolini A., Lenarda P., Piccolroaz A., **Misseroni D.**, Bigoni D., Giordano M., et al. (2026). Mechanical Characterization of Compacted Waste Sludge from Paper Industry. In: Proceedings of XXVI AIMETA Conference 2024, Lecture Notes in Mechanical Engineering, Springer, pp. 647–653.
5. Comitti A., Vijayakumaran H., Nejabatmeimandi M. H., Seixas L., Cabello A., **Misseroni D.**, Penasa M., Peach C., Bessa M., Bown A.C., Dal Corso F., and Bosi F. (2024). Ultralight membrane structures toward a sustainable environment. In: 'Sustainable Structures and Buildings,' 2024, pp. 17–37, Springer.
3. Bigoni D., Bosi F., Dal Corso F., and **Misseroni D.** (2022). Configurational Forces on Elastic Structures. In: '50+ Years of AIMETA: A Journey through Theoretical and Applied Mechanics in Italy', Springer.
2. Bigoni D., Bosi F., **Misseroni D.**, Dal Corso F., and Noselli G. (2015). New phenomena in nonlinear elastic structures: from tensile buckling to configurational forces. In: 'CISM Lecture Notes No. 562 "Extremely Deformable Structures" (Ch. 2)', edited by: D. Bigoni, Springer.
1. Bigoni D., **Misseroni D.**, Noselli G., and Zaccaria D. (2013). Surprising instabilities of simple elastic structures. In: 'Nonlinear physical systems – Spectral analysis, stability and bifurcation', edited by: Kirillov, O.N. and Pelinovsky, D.E., Wiley–ISTE, London.

C) Conference Proceedings

9. Aditra R.F., Mora Hidalgo S.C., Maffei R., Misseroni D., Bosi F., and Beccarelli P. (2026). Development of a pneumatic actuator based on bio-PU coated fabrics for architectural applications. ce/papers, 9(4–5), 295.
8. Gori M., Azam F., Mora S., Beccarelli P., Aditra R.F., Misseroni D., and Bosi F. (2026). Performance-Driven Modeling and Optimization of a Pneumatic Membrane Actuator for Adaptive Building Façades. ce/papers, 9(4–5), 13–20.
7. Norenberg J.P.C.V., Cunha Jr. A., and Misseroni D. (2025). Multifunctional metastructure based on beam for attenuate elastic wave propagation and energy harvesting. Proceedings of the XX International Symposium on Dynamic Problems of Mechanics (DINAME 2025), Águas de Lindóia, Brazil.
6. Norenberg J.P.C.V., Cunha Jr. A., and **Misseroni D.** (2025). Multifunctional nonlinear metabeam for energy harvesting and vibration mitigation. Proceedings of the Fourth International Nonlinear Dynamics Conference (NODYCON 2025), Hoboken, NJ, USA.
5. Bacigalupo A., De Bellis M.L., Gnecco G., and **Misseroni D**. (2021). 'Wave propagation control in active acoustic metamaterials.' In: 'Journal of Physics: Conference Series (Vol. 2015, No. 1, p. 012031),' IOP Publishing.
4. **Misseroni D.** (2017). Experimental proof for the cloaking of flexural vibrations in a structured plate, '21st Internat. Conference on Composite Materials – ICCM21', Xi'an (China), August 20–25.
3. Bigoni D., Kirillov O., **Misseroni D.**, Tommasini M., and Noselli G. (2016). Experiments on the Pflüger column: flutter from friction, 'Proceedings of the First International Symposium on Flutter and its Application', Tokyo (Japan), May 15–17.
2. **Misseroni D.**, Bigoni D. Movchan A.B., and Movchan N. V. (2014). Experiments on fracture trajectories in brittle materials with voids, 'Proceedings of the International CAE Conferenze', Pacengo del Garda, (Italy), October 27–28.
1. Dal Corso F., Bigoni D., Noselli G., **Misseroni D.**, and Shahzad, S. (2014). Rigid inclusions: stress singularity, inclusion neutrality and shear bands, 'Proceedings of the 3rd International Conference on Fracture, Fatigue and Wear', Kitakyushu (Japan), September 1–3.

D) Teaching Articles

2. **Misseroni D.**, Bigoni D., and Dal Corso F. (2014). A model for teaching elastic frames, Journal of Materials Education, 36 (5–6), 169–174.
1. Bigoni D., Dal Corso F., **Misseroni D.**, and Tommasini M. (2012). A teaching model for truss structures, European Journal of Physics, 33, 1179–1186.

E) Outreach Articles

3. **Misseroni D.** (2025). Folding pathways and energy landscapes in origami-inspired systems, The Project Repository Journal, European Dissemination Media Agency, 25, ISSN 2632-4067.

2. Misseroni D. (2024). From paper to innovation: revolutionising technology with the ancient art of origami and kirigami, The Project Repository Journal, European Dissemination Media Agency, 21, ISSN 2632-4067.
1. D. Misseroni (2024). L'arte origami nella progettazione di matemateriali, Guida Progetti Europei, Il Sole 24 Ore - Scenari guide.

VI. Editorial Responsibilities & Scientific Service

Scientific service includes editorial leadership, peer review for high–impact journals, and evaluation roles for national and international funding agencies.

Editorial Leadership

- **Editor**, *International Journal of Non–Linear Mechanics*, Elsevier
- Guest Editor, *Engineering Structures*, Elsevier (Research Topic Collection)
- Guest Editor, *Frontiers in Materials* – Mechanics of Materials Section
- Member, Early Career Advisory Board, *Extreme Mechanics Letters*, Elsevier (EML–ECAB)

Referee Activity (selected high–impact journals)

Regular reviewer for leading international journals, including:

Proceedings of the National Academy of Sciences (PNAS), Nature Communications, Science Robotics, Science Advances, Journal of the Mechanics and Physics of Solids (JMPS), Advanced Materials, Advanced Science, Proceedings of the Royal Society A, Materials & Design, Extreme Mechanics Letters, International Journal of Solids and Structures, and others.

(Complete list available upon request.)

Research Evaluation & National Service

- President, Ministerially appointed Examination Board for the Italian State Examination granting professional qualification as an Engineer, University of Trento, 2026
- Reviewer, National Research, Development and Innovation Office (Hungary)
- Reviewer, National Science Center (Poland)
- Evaluator, Italian Research Quality Assessment (VQR 2015–2019)

VII. Invited & Keynote Lectures

Invited lectures and keynote presentations at leading international universities, research institutions, and major scientific conferences.

Keynote & Plenary (selected)

- **IUTAM Symposium**, Cambridge (2026) – Keynote
- **SES Annual Technical Meeting**, Hangzhou (2024), Atlanta (2025) – Keynote
- **XX International symposium on dynamic problems of mechanics**, São Paulo – Keynote

- **META – International Conference on Metamaterials**, Toyama (2024) – Keynote
- **AUXETIC 2024**, Poznan (2024) – Plenary
- **ZwickRoell Academia Day**, Cambridge (2022) – Keynote
- **COBEM – International Congress of Mechanical Engineering**, Brasilia (2021) – Keynote

INVITED LECTURES (SELECTED)

Princeton University (USA) | Georgia Institute of Technology (USA) | Kyoto University (Japan) Westlake University (China) | Indian Institute of Technology Madras (India) | University of Southampton (UK) | Southeast University (China)| IMT Lucca (Italy) | University of Cagliari (Italy) | Imperial College London (UK) | Fudan University (China) | SISSA (Italy)

(Complete chronological list available upon request.)

INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES (SELECTED)

Invited contributions at major conferences including:

SES Annual Meetings | ICTAM – International Congress of Theoretical and Applied Mechanics | META Conference |AIMETA Conference | AUXETIC Conference | European Solid Mechanics Conference (ESMC)

(Complete chronological list available upon request.)

VIII. CONFERENCE & WORKSHOP ORGANIZATION

Active contribution to the organization of international conferences and thematic symposia in mechanics of solids, metamaterials, and structural stability.

INTERNATIONAL CONFERENCE & SYMPOSIUM ORGANIZATION

- Co-Organizer, Mini–Symposium "Mechanics of architected materials: Experiments and modelling", European Mechanics of Materials Conference (EMMO 2026 – Firenze)
- Co-Organizer, Mini–Symposium “Architected and Origami–inspired Metamaterials and Structures”, The Fifth International Conference on Simulation for Additive Manufacturing (Sim–AM 2025 – Pavia)
- Co-Organizer, Mini–Symposium “Elastic Metamaterials”,
  European Solid Mechanics Conference (ESMC 2018 – Bologna; ESMC 2022 – Galway)
- Co-Organizer, Mini–Symposium “Architected, active, and origami-based materials”, The XXVI AIMETA - Italian Association of Theoretical and Applied Mechanics - congress (AIMETA 2024 – Napoli)
- Co-Organizer, Symposium “Recent Advances in Mechanics of Solids and Structures” Conference in honor of Prof. Davide Bigoni, Trento (2019)
- Member, Organizing Committee,
  European Solid Mechanics Conference (ESMC 2018)
- Member, Scientific & Organizing Committee,
  CERMODEL 2017 – Modelling and Simulation Meet Innovation in Ceramics Technology

THEMATIC WORKSHOP ORGANIZATION

- Co-Organizer, Workshop "Origami Metamaterials and Architected Materials for Innovative Engineering Solutions", Trento (2024)
- Co-Organizer, Workshop "State of the Art and Challenges in the Dynamics and Stability of Structures", Trento (2018)

IX. INSTITUTIONAL LEADERSHIP & SERVICE

Institutional service includes governance, doctoral education, program evaluation, and strategic development of research infrastructure within the Department of Civil, Environmental and Mechanical Engineering (DICAM), University of Trento.

DEPARTMENTAL GOVERNANCE

- **Member, Departmental Executive Committee** (2024–Present)
- Member, Teaching Committee – Architecture and Building Engineering Program (2021–2023)
- Member, Internal Audit Panel – Architecture and Building Engineering Program (2017–2021)

DOCTORAL & ACADEMIC PROGRAM INVOLVEMENT

- Member, Doctoral School of Civil, Environmental and Mechanical Engineering (since 2016)
- Member, Degree Program Review Panel – Architecture and Building Engineering (2016–2017)

RESEARCH INFRASTRUCTURE & STRATEGIC INITIATIVES

- Member, Models Laboratory Panel (2017–2022)
- Member, RELABs Project Panel – Mainstreaming of Research Laboratories (2017–2019)

X. TEACHING ACTIVITY

Teaching integrates research on programmable architected materials and nonlinear mechanics into undergraduate and graduate curricula, fostering cross–disciplinary training in structural mechanics, metamaterials, and advanced modeling. Courses combine theoretical foundations with experimental and computational approaches, aligning education with current research developments.

TEACHING DISTINCTIONS

- **DICAM Teaching Excellence Award**, (2018, 2023) University of Trento, Italy

UNDERGRADUATE TEACHING

University of Trento – Department of Civil, Environmental and Mechanical Engineering (DICAM)

- **Solid and Structural Mechanics** (since 2015)
- **Mechanics of Glass, Lightweight and Masonry Structures** (since 2018)
- **Fracture Mechanics** (2018–2020)
- Assistant to *Structural Mechanics* (2011–2013)

Courses delivered within Civil Engineering and Architecture & Building Engineering degree programs.

GRADUATE TEACHING & ADVANCED PROGRAM

- **Metastructures** – Triple Degree Program (France–Italy–Germany) (since 2025)
- **Advanced Modeling of Exotic Metamaterials** – MASTER–M3 Program (since 2025)
- **Lab on Deployable Metamaterials** – MASTER–M3 Program (since 2025)
- **Foundations of Mechanics and Acoustics** – MASTER–M3 Program (since 2025)
- **Waves in Metamaterials and Periodic Structures** – University of Trento (2023)

INTERNATIONAL & SPECIALIZED COURSES

- Lecturer, **From Folds to Experiments: Morph and Trimorph Origami Metamaterials**, Mechanical Metamaterials Summer School, Southampton, UK (2026)
- Lecturer, **From Folds to Energy Landscapes: Kresling Origami Mechanics**, Mechanical Metamaterials Summer School, Southampton, UK (2026)
- Lecturer, **Mechanics of Architected Materials**, CISM–IISc Workshop, Bangalore, India (2025)
- Lecturer, **Experimental Mechanics**, RE–FRACTURE2 Summer School (2022)

XI. OUTREACH & PUBLIC ENGAGEMENT

PUBLIC LECTURES & SCIENCE COMMUNICATION EVENTS

- Wired Next Fest 2024, Rovereto (Italy) – *"Materiali estremi ispirati dall'arte degli origami"* (29/09/2024)
- Seminar to ERC Applicants, University of Trento – *Origami Engineering* (19/06/2024, 16/06/2025)
- Seminar to undergraduate students, University of Trento – *Origami Engineering* (19/12/2023)
- Seminar to undergraduate students, University of Trento – *Dynamics of Architected Materials* (20/12/2023)

EXHIBITIONS & INTERACTIVE INSTALLATIONS

- Researchers' Night – BRIGHT–NIGHT 2025, Lucca (Italy) – Demonstrations and hands–on activities (26/09/2025)

- Researchers' Night – BRIGHT–NIGHT 2024, Lucca (Italy) – Demonstrations and hands–on activities (27/09/2024)
- Researchers' Night 2023, MUSE Trento – Demonstrations and hands–on activities (29/09/2023)
- SHARPER Night, MUSE Trento – Exhibition: *Impariamo dalla natura a progettare i materiali del futuro* (24/09/2021)
- FOCUS Live, MUSE Trento – Exhibition: *Tutti a bordo della "Torsional Gun"* (18–20/10/2019)
- Researchers' Night 2018, Trento – Interactive exhibit: *Ponti da deformare e strutture che tremano* (28/09/2018)
- Researchers' Night 2017, MUSE Trento – Interactive exhibit: *Freccette torsionali* (29/09/2017)
- Researchers' Night 2015, Trento – Exhibition: *L'arte di costruire* (25/09/2015)
- Researchers' Night 2012, Trento – Exhibition: *Deformami un po'* (28/09/2012)
- Researchers' Night 2011, Trento – Exhibition: *Chiave di volta* (23/09/2011)

PERMANENT EXHIBITIONS

- *The "Elastica Arm Scale"* exhibited at Museo della Bilancia, Campogalliano (Italy) (2015–Present)

XII. EDUCATION

- Ph.D. in Engineering of Civil and Mechanical Structural Systems, University of Trento, Italy (2010–2013), Supervisor: Professor Davide Bigoni
- M.Sc. in Civil Engineering, University of Trento, Italy (110/110 cum laude)
- B.Sc. in Civil Engineering, University of Trento, Italy (110/110 cum laude)

XIII. LANGUAGES

Italian: Native **| English:** C1