Diego Misseroni | Curriculum Vitae

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Academic positions

Professor (Full) *01/2024–Present*
University of Trento, DICAM, Italy

Associate Professor *04/2022–12/2023*
University of Trento, DICAM, Italy

Assistant Professor (RTDA – RTDB) *04/2016–03/2022*
University of Trento, DICAM, Italy

Postdoctoral Fellow *01/2015–03/2016*
University of Trento, DICAM, Italy

Marie Curie Experienced Research Associate *01/2014–01/2015*
University of Liverpool, Department of Mathematical Sciences, UK

Fellowship & Visiting

Westlake Distinguished Fellowship *02/2025–04/2026*
Westlake University, *School of Engineering*, Hangzhou, China
Host: Prof. Hanqing Jiang

Fulbright Fellowship *01/2023–06/2023*
Princeton University, *School of Engineering and Applied Science*, New Jersey, USA
Host: Prof. Glaucio H. Paulino

Georgia Institute of Technology, *School of Civil and Environmental Engineering*, USA *02/2020*
Visiting Scientist. Host: Prof. Glaucio H. Paulino

IMT, **School for Advanced Studies**, Lucca, Italy *05/2017*
Visiting Scientist. Host: Prof. Marco Paggi

University of Cagliari, *Dep. of Mechanical, Chemical and Material engineering*, Italy *03/2017*
Visiting Scientist. Host: Prof. Michele Brun

University of Liverpool, *Department of Mathematical Sciences*, UK *09/2016–10/2016*
Visiting Scientist. Host: Prof. Alexander B. Movchan

Education

University of Trento *2010–2013*
Ph.D. in Engineering of Civil and Mechanical Structural Systems
Title: *Experimental models of elastic structures: tensile buckling and Eshelby-like forces*
Supervisor: *Davide Bigoni*

University of Trento *2008–2010*
Master's Degree in Civil Engineering - Structures, 110/110 cum laude
Title: *Buckling of elastic structures under tensile dead load*

University of Trento *2003–2007*
Bachelor's Degree in Civil Engineering, 110/110 cum laude
Title: *Fracture Experiments on chalk specimens*

Awards & Achievements

A) Research awards

- **2025 SES Huajian Gao Young Investigator Medal** *2025*
  Society of Engineering Science, USA
  Motivation: *"for your contributions to the fundamental understanding of the mechanical behavior of architected metamaterials and origami structures by innovative experimental realizations leading to new insights and theoretical findings."*
- **Westlake Distinguished Fellowship - Research Scholar Award @ Westlake University** *2025*
  Westlake Fellows Program, China
- **2024 Thomas J. R. Hughes (ASME) Young Investigator Award** *2024*
  American Society of Mechanical Engineers, USA
  Motivation: *"for contributions to the fundamental understanding of the mechanical behavior of architected metamaterials by innovative experimental realizations leading to new insights and theoretical findings."*
- **2022 ZwickRoell Science Award** *2023*
  ZwickRoell, Germany
  Motivation: *" for innovative use of material testing machines in conducting experiments on metamaterials."*
- **2022 Paul Roell Medal** *2023*
  ZwickRoell, Germany
- **2022 ERC Consolidator grant** *2023*
  European Research Council
- **2022 EML Young Investigator Award** *2022*
  Extreme Mechanics Letters Team - Elsevier
- **FULBRIGHT Fellowship - Research Scholar Award @ Princeton University** *2022*
  US - Italy Fulbright Commission
- **AIMETA Junior Prize in Solid and Structural Mechanics** *2017*
  Awarded at the XXIII AIMETA Congress in Salerno, Italy.
  With the following motivation: *"for the fundamental results in structural mechanics, by introducing the effect of the configurational forces in the characterization of the stability of the equilibrium of structural systems and then designing and realizing proof-of-concept prototypes for the validation of the theoretical results."*
- **Best Paper Award** *2023*
  AIDDA XXVII International Congress 2023, Padova, Italy
- **Award of Best Video in Gallery of Nonlinear Dynamics** *2023*
  IUTAM Symposium on Nonlinear dynamics, Tsukuba, Japan
- **Trentino Research Award - Young Researchers** *2022*
  PAT – Italy

B) Teaching awards

- **2023 DICAM Teaching Excellence Award** *2024*
  University of Trento, Italy
  Motivation: *"for his clarity in presenting concepts, his great availability to students, the thoroughness and completeness of the teaching materials provided, the excellent organization of the course, and the passion for the subject that he conveys to students during lectures. The professor has succeeded in making particularly difficult concepts accessible to students, with careful attention to their well-being during classroom sessions. He is also recognized for his ability to engage students interactively through practical examples, using structural models directly in his lectures to make theoretical concepts more comprehensible. The committee appreciates the use of continuous assessment through weekly homework assignments with the possibility of feedback."*

- **2018 DICAM Teaching Excellence Award**
  University of Trento, Italy
  Motivation: *"For the clarity of his explanations, his availability to students, and his ability to motivate them to study a challenging subject. As elements of innovative teaching, his lectures are interspersed with experimental applications using models of structures and beams, both to better explain sometimes very theoretical concepts and to demonstrate their application in the real world."*

C) Research results featured on the cover of International Journals

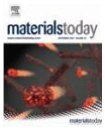
2024
The article "Functionally-graded serrated fangs allow spiders to mechanically cut silk, carbon and Kevlar® fibres" made the **cover** of the **Advanced Science** journal.

2023
The article "*Flutter instability in solids and structures, with a view on biomechanics and metamaterials*" made the **cover** of the **Proceedings of the Royal Society A**

2022
The article "*3D printed architected lattice structures by material jetting*" made the **cover** of the **Materials Today** journal.

2022
The article "*Triclinic Metamaterials by Tristable Origami with Reprogrammable Frustration*" made the **frontispiece** of the **Advanced Materials** journal.

2022
The article "*Experimental realization of tunable Poisson's ratio in deployable origami metamaterials*" made the **cover** of the **Extreme Mechanics Letters** journal.



2021
The article "*Electrically powered reversible air explosions using microtubular graphene assemblies*" made the **cover** of the **Materials Today** journal.

2019
The article "*Micro-structured medium with large isotropic negative thermal expansion*" made the **cover** of the **Proceedings of the Royal Society A**

2019
The article "*Omnidirectional flexural invisibility of multiple interacting voids in vibrating elastic plates*" made the **cover** of the **Proceedings of the Royal Society A**

2017
The article "*From the elastica compass to the elastica catapult: an essay on the mechanics of soft robot arm*" made the **cover** of the **Proceedings of the Royal Society A**

2015
The article "*Torsional locomotion*" made the **cover** of the **Proceedings of the Royal Society A**

2014
The article "*An elastica arm scale*" made the **cover** of the **Proceedings of the Royal Society A**

Grants

2023 HORIZON-CL4-2023-RESILIENCE-01-TWO-STAGE (HORIZON-INN. ACTIONS) *2024–2027*
Title of the project: SUBBIMATT -*Sustainable, Biobased and Bio-Inspired Materials for Smart Technical Textiles.* Role: Research Unit Coordinator.
Unit Funding: 513 k€. Total funding: 7.37 M€.

2022 European Research Council (ERC) Consolidator Grant *2024–2029*
Title of the project: SFOAM - *Self-Foldable Origami-Architected Metamaterials.*
Role: Principal Investigator. Total funding: 1.93 M€.

Fulbright - Research Scholar fellowship @ Princeton University *2023*
Title of the project: *Topological Morphing of Frustrated Metamaterials.*
Role: Principal Investigator. Total funding: 12 k€.

UNITN COVID 19 Grant *2021–2022*
Title of the project: Unmasked.
Role: Unit coordinator. Total funding: 58 k€.

Young Researchers Project GNFM 2020 *2021–2022*
Title of the project: *Optimal design of the frequency band structure of smart metamaterials.*
Role: Unit coordinator. Total funding: 3 k€.

UNITN Starting Grant Young Researchers 2019 *2019–2021*
Title of the project: *The design and manufacture of bio-inspired ceramics using the microstructure of wood as a template*.
Role: Principal Investigator. Total funding: 13.3 k€.

Young Researchers Project GNFM 2018 *2019–2020*
Title of the project: Active Hierarchical Metamaterials.
Role: Principal Investigator. Total funding: 3 k€.

Financing of Basic Research Activities (FFABR). Total funding: 3 k€. *2017*

Teaching experiences

UNDERGRADUATE COURSES

Lecturer of the course **"Mechanics of Glass Structures, Lightweight Structures and Masonry Structures"** (60 hours) *04/2018–Present*
Civil Engineering, University of Trento, DICAM, Italy

Lecturer of the course **"Mechanics of Masonry Structures and Fracture Mechanics"** (60 hours) *09/2018–09/2020*
Civil Engineering, University of Trento, DICAM, Italy

Lecturer of the course **"Solid and Structural Mechanics"** (108 hours) *09/2015–Present*
Architecture and Building Engineering, University of Trento, DICAM, Italy

Assistant to the course of **"Structural Mechanics"** (40 hours) *09/2011–06/2013*
Civil and Environmental Engineering, University of Trento, DICAM, Italy

PHD COURSES

Four lectures in the course **"Waves in metamaterials and periodic structures"** *03/2023*
University of Trento, Italy

RE-FRACTURE2 Summer School 2022 - Nonlinear solid mechanics *07/2022*
Four lectures on: **"Experimental Mechanics"**
University of Trento, Italy

Institutional roles and responsibilities

Member of the "Teaching Committee", Architecture and Building Engineering programme, University of Trento, DICAM, Italy *10/2021–10/2023*

Member of the "Models Laboratory" panel *12/2017–Present*
University of Trento, DICAM, Italy

Member of the panel for the mainstreaming of the research labs (RELABs project) *06/2017–12/2019*
University of Trento, DICAM, Italy

Member of Internal Audit (IA) for the Architecture and Building Engineering programme, University of Trento, DICAM, Italy *01/2017–10/2021*

Member of the Doctoral School of Civil, Environmental, and Mechanical Engineering, University of Trento, DICAM, Italy *04/2016–Present*

Member of panel for the review of the Degree Programme, Architecture and Building Engineering programme, University of Trento, DICAM, Italy *11/2016–02/2017*

Research projects participation

- European Project H2020-MSCA-2020-ITN: LIGHTEN - Ultralight membrane structures towards a sustainable environment. *2020–2024*
  Role: Researcher. Coordinator: Prof. F. Bosi.
- European Project FP7-PEOPLE-IDEAS-ERC-2013-AdG: INSTABILITIES - Instabilities and nonlocal multiscale modelling of materials. *2014–2019*
  Role: Researcher. Coordinator: Prof. D. Bigoni.
- European Project FP7-PEOPLE-2011-IAPP: *INTERCER2 - Modelling and optimal design of ceramic structures with defects and imperfect interfaces.* *2011–2015*
  Role: Experienced Marie Curie Fellow. Coordinator: Prof. D. Bigoni.

Conferences organization

- Co-organizer of the mini-symposium "Elastic Metamaterials" within the *ESMC2022 - 11th European Solids Mechanics Conference*, July 4-8, 2022, Galway (Ireland).
- Co-organizer of the Symposium "*Recent advances in Mechanics of Solids and Structures - Conference in honor of Professor Davide Bigoni's 60th birthday*", June 6-7, 2019, Trento (Italy).
- Co-organizer of the mini-symposium "Elastic Metamaterials" within the *ESMC2018 - 10th European Solids Mechanics Conference*, July 2-6, 2018, Bologna (Italy).
- Member of the Organizing Committees of the Congress *ESMC2018 - 10th European Solids Mechanics Conference*, July 2-6, 2018, Bologna (Italy).

- Co-organizer of the workshop "*State of the art and challenges in the dynamics and stability of structures*", January 26, 2018, Trento (Italy).
- Member of the Scientific and Organizing Committees of the Congress *CERMODEL2017 - Modelling and Simulation meet Innovation in Ceramics Technology*, July 26-28, 2017, Trento (Italy).

Articles published in international journals

RESEARCH ARTICLE

57. 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*.
56. **Misseroni D.**, Pratapa P.P., Liu K., Kresling B., Chen Y, Daraio C., and Paulino G.H. (2024). Origami Engineering, *Nature Rev. Methods Primers*, ***4****, 40*.
55. 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.
54. 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.
53. 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.
52. 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.
51. 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.
50. 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.
49. 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.
48. 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.
47. Mora S.H., Pugno N.P, and **Misseroni D.** (2022). 3D printed architected lattice structures by material jetting, *Materials Today*, 59, 107-132.
46. **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.
45. 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.
44. 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.

43. 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.

42. 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.

41. 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.

40. 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, *Mater. Today*, 48, 7-17.

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

38. **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.

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

36. 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.

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

34. 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.

33. 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.

32. 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.

31. **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.

30. 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*.

29. 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.

28. 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.

27. 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.

26. 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.

25. 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.

24. 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.

23. 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.

22. **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.

21. 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.

20. **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.

19. 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.

18. **Misseroni D.** (2016). Experiments on fracture trajectories in ceramic samples with voids, *Journal of the European Ceramic Society*, 36, 2277-2281.

17. 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.

16. 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.

15. 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.

14. 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.

13. 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.

12. 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.

11. **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.

10. **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.

9. 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.

8. Bigoni D., Dal Corso F., **Misseroni D.**, and Bosi F. (2014). Torsional locomotion, *Proceedings of the Royal Society A*, 470, 20140599.
7. Bosi F., **Misseroni D.**, Dal Corso F., and Bigoni D. (2014). An elastica arm scale, *Proceedings of the Royal Society A*, 470, 20140232.
6. 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.
5. **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.
4. 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.
3. 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.

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.

Invited contributions

2. Invitation to contribute to the review article on "Origami engineering" for *Nature Review Primer Methods*
1. Invitation to contribute to the inaugural "Rising Stars" collection in *Frontiers in Materials*. Related article: Compressive response of non-slender octet carbon microlattices.

Articles published in refereed books

4. 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.

Conference proceedings

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.

Invited presentations at Conferences and Workshops

17. **Misseroni D.** (2024) 'Experiments on Origami-Based Metamaterials and Structures.' *2024 SES Annual Technical Meeting*, Hangzhou (China), August 20-23.
EML 10th Anniversary Symposium (Invitation Only)
16. **Misseroni D.** (2024) 'Exploring Tunable Poisson's Ratio in Origami Metamaterials.' *META 2024 14th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, Toyama (Japan), July 16-19.
15. **Misseroni D.** (2024) 'Unveiling Complex Mechanics of Kresling Origami.' *AUXETIC 2024 11th International Conference Auxetics and other materials and models with "negative" characteristics*, Poznan (Poland), Jun 17-21.
14. **Misseroni D.** (2024) 'Geometric Mechanics of Origami Metamaterials with Tunable Poisson's Ratio.' *2024 ProHyp - Perspectives on Multiphase Fluid Dynamics, Continuum Mechanics and Hyperbolic Balance Laws*, Trento (Italy), April 22-26.
13. **Misseroni D.** (2023) 'Reprogrammable Frustration and Tunable Auxeticity in Origami Metamaterials.' *2023 SES Annual Technical Meeting*, Minneapolis (USA), October 8-11.
12. **Misseroni D.** (2022) 'Experimental realisation of tunable Poisson's ratio in deployable origami metamaterials.' *ZwickRoell Academia Day 2023*, Cambridge (UK), September 26, **KEYNOTE PRESENTATION**.
11. **Misseroni D.** (2022) 'Origami metamaterial with reprogrammable mechanical properties.' *Final Event Project 2018-2022 Department of Excellence*, Trento (IT), November 25, **KEYNOTE PRESENTATION**.
10. **Misseroni D.** (2021) 'Elastic metamaterial for wave control over a broad range of frequencies.' *COBEM2021 - 26th International Congress of Mechanical Engineering*, Brasilia (BR), November 22–26, **KEYNOTE PRESENTATION**.
9. **Misseroni D.** (2021) 'Elastic wave propagation in structured plates.' *Workshop "Advances in ELAsto-DYNamics, NonLinear mechanics and Stability of architected materials and structures"*, University of Paris-Est Créteil, Paris (FR), November 18–19.

8. **Misseroni D.** (2018) 'Scattering reduction for flexural vibrations in a structured plate via reinforcing of the boundary.' *Emerging Trends in Applied Mathematics and Mechanics*, Krakow (Poland), June 18–22.
7. **Misseroni D.** (2017) 'Flutter and divergence instability in continuous structures: experimental and numerical proof.' *International Workshop Recent Advances in Mechanics and Mathematics of Materials*, Rome (Italy), November 22–24.
6. **Misseroni D.** (2017) 'Scattering reduction for flexural vibrations in structured plates: numerical and experimental proof.' *XXIII AIMETA Conference - The Italian Association of Theoretical and Applied Mechanics*, Salerno (Italy), September 4–7.
5. **Misseroni D.** (Movchan A.B., and Movchan N.V.) (2016) 'Cloaking of flexural vibrations in a structured plate: Numerical and Experimental proof-of-concept.' *International Workshop Advances in Mechanical Metamaterials*, Trento (Italy), October 10–11.
4. **Misseroni D.** (2016) 'Serpentine motion through a frictionless channel.' Invited lecture. *24th International Congress of Theoretical and Applied Mechanics*, Montreal (Canada), August 21–26.
3. **Misseroni D.** (2016) 'Flutter instabilities induced by Coulomb friction on continuous systems' *IUTAM Symposium on Dynamic Instabilities in Solids*, Madrid (Spain), May 17–20.
2. **Misseroni D.** (2015) 'Experimental validation of an asymptotic model to predict crack trajectories influenced by voids.' *FFW2014 - Euromech Colloquium 575 Contact Mechanics and Coupled Problems in Surface Phenomena*, IMT Lucca (Italy), March 30–April 2.
1. **Misseroni D.** (2014) 'Tensile buckling, multiple bifurcations and Eshelby-like forces in elastic structures.' *'6th International Workshop of Young Researchers on the Mechanics of Materials and Structures'*, Trieste (Italy), October 22–24.

Invited Seminars

19. **Misseroni D.** (2025) 'XXXXXX.' Westlake University, Hangzhou (China), Mar 7.
18. **Misseroni D.** (2025) 'Controlling the folding sequence of origami assemblies through frustration.' SICSA, University of Houston, Houston (USA), WEBINAR, Feb 26.
17. **Misseroni D.** (2024) 'Origami Metamaterials and Kresling Structures: Theoretical and Experimental Insights.' University of Southampton, Southampton (UK), Nov 6.
16. **Misseroni D.** (2024) 'Origami Metamaterials with Adjustable Mechanical Properties.' Sandia Laboratory Federal Credit Union, Albuquerque, New Mexico (USA), WEBINAR, Oct 8.
15. **Misseroni D.** (2024) 'The Fusion of Origami Art and Engineering Innovation.' Physics Colloquia, Department of Physics, Trento (Italy), Sep 25.
14. **Misseroni D.** (2024) 'Origami-Inspired Metamaterials and Structures: Theory, Simulations and Experimental Validation.' AIMETA 2024 – Associazione Italiana di Meccanica Teorica e Applicata, Napoli (Italy), Sep 2-6.
13. **Misseroni D.** (2024) 'Theoretical Insights and Experimental Validation of Origami Metamaterials.' Department of Aeronautics and Astronautics, Kyoto University, (Japan), Jul 11.
12. **Misseroni D.** (2024) 'Origami Metamaterials and Structures: Theoretical Insights and Experimental Validation.' Japan Agency for Marine-Earth Science and Technology, Yokohama, (Japan), Jul 9.
11. **Misseroni D.** (2024) 'Experiments on Origami Metamaterials.' Indian Institute of Technology, Madras (India), Mar 28.

10. **Misseroni D.** (2023) ‘Reprogrammable Frustration, Multistability, and Tunable Auxeticity in Origami Metamaterials.’ Extreme Mechanics Letters (EML) webinar, Nov 28.

9. **Misseroni D.** (2023) ‘Manufacturing and testing of origami metamaterials.’ Manufacturing Initiative (PAMI) - Spring 2023 Series, Princeton Materials Institute, Princeton University (USA), May 4.

8. **Misseroni D.** (2023) ‘Reprogrammable frustration and tunable auxeticity in Origami metamaterials.’ New Jersey Institute of Technology, Newark (USA), May 3.

7. **Misseroni D.** (2023) ‘Cloaking & Invisibility in lattice structures and plates.’ Princeton Advanced School of Civil and Environmental Engineering, Princeton University (USA), April 7.

6. **Misseroni D.** (2020) ‘Multidirectional cloak & micro-structured medium with large isotropic negative thermal expansion’ School of Civil and Environmental Engineering, Georgia Institute of Technology (USA), February 22.

5. **Misseroni D.** (2018) ‘Numerical and experimental proof of the destabilization paradox by using a new flutter machine’ IMT - School for Advanced Studies, Lucca (Italy), June 4.

4. **Misseroni D.** (2017) ‘Metamaterials, configurational mechanics & soft robotics: cutting-edge structural mechanics.’ Acropoli, DICAM - University of Trento, Trento (Italy), November 15.

3. **Misseroni D.** (2017) ‘Elastic structures releasing energy.’ International Centre for Applied Mechanics at Xi’an Jiaotong University, Xi’an (China), August 23.

2. **Misseroni D.** (2017) ‘Experimental proof of dissipative instabilities induced by dry friction.’ Department of Mechanical, Chemical and Material engineering, University of Cagliari, Cagliari (Italy), March 17.

1. **Misseroni D.** (2014). ‘Experiments on the invisibility cloak.’ Imperial College, Faculty of Natural Sciences, Department of Mathematics, London (UK), December 3.

Conference participation as a speaker

13. **Misseroni D.** (2024). Origami-Inspired Metamaterials and Structures: Theory, Simulations and Experimental Validation.’ AIMETA 2024 – Associazione Italiana di Meccanica Teorica e Applicata, Napoli (Italy), Sep 2-6.

12. **Misseroni D.** (2024). ‘Exploring multistability in 3d printed Kresling structures: influence of crease geometry and viscosity,’ ICTAM - The International Congress in Theoretical and Applied Mechanics, Daegu (Republic of Korea), August 25–30.

11. **Misseroni D.** (Pratapa P.P, Liu K, and Paulino G.H.) (2023). ‘Reprogrammable frustration and tunable mechanical properties in origami metamaterials.’ AIDDA - Italian Association of Aeronautics and Astronautics - *XXVII International Congress*, Galway (Ireland), September 4–7.

10. **Misseroni D.** (Pratapa P.P, Liu K, and Paulino G.H.) (2022). ‘Poisson’s ratio experiments on deployable origami metamaterials.’ *11th European Solid Mechanics Conference*, Galway (Ireland), July 4–8.

9. **Misseroni D.** (2021). ‘Cloaking of multiple interacting voids.’ *25th International Congress of Theoretical and Applied Mechanics*, Milan (Italy), August 22–27.

8. **Misseroni D.** (2019). ‘Omnidirectional flexural invisibility of multiple interacting voids.’ *Caltech Engineering Mechanics Institute Conference - EMI 2019*, Pasadena (USA), June 18–21.

7. **Misseroni D.** (2018). 'Buckling under tensile dead load, effects of the constraint's curvature and multiple bifurcations.' *The Thirteenth International Conference on Computational Structures Technology*, Barcelona (Spain), September 4–6.

6. **Misseroni D.** (2018). 'Reinforcing and scattering reduction for flexural vibrations in a rectangular lattice.' *13th World Congress on Computational Mechanics (WCCMXIII)*, New York (US), July 22–27.

5. **Misseroni D.** (2018). 'Invisibility cloak for structured plates.' *10th European Solid Mechanics Conference*, Bologna (Italy), July 2–6.

4. **Misseroni D.** (Movchan A.B) (2016). 'Cloaking of flexural vibrations in a structured plate.' *XXI National Conference of Computational Mechanics and VIII Meeting of the AIMETA Materials Group (GIMC - GMA 2016)*, IMT Lucca (Italy), June 27–29.

3. **Misseroni D.** (Bigoni D., Bosi F., and Dal Corso F.) (2015). 'Effects of configurational forces on elastic structures: torsional locomotion and self-encapsulation of an elastic rod.' *XXII AIMETA Conference - The Italian Association of Theoretical and Applied Mechanics*, Genova (Italy), September 14–17.

2. **Misseroni D.** (Bigoni D., and Noselli G.) (2015). 'Buckling and nonlinear behaviour of an elastic rod sliding along a smooth and curved profile.' *9th European Solid Mechanics Conference*, Madrid (Spain), July 6–10.

1. **Misseroni D.** (Movchan A.B., Movchan N.V., and Bigoni D.) (2014). 'Experimental and analytical insights on fracture trajectories in brittle materials with voids.' *International CAE Conference*, Pacengo del Garda (Italy), October 27–28.

Workshop participation as a speaker

7. **Misseroni D.** (2022). 'Experiments on origami metamaterials with tunable Poisson's ratio.' Workshop 'State of the art and challenges in the modelling and design of ultra-lightweight structures', Trento (Italy), May 12.

6. **Misseroni D.** (2018). 'Experimental and numerical proof of dissipative instabilities induced by dry friction.' *Workshop 'State of the art and challenges in the dynamics and stability of structures'*, Trento (Italy), January 26.

5. **Misseroni D.**, Movchan A.B. and Movchan N.V. (2016). 'Cloaking of flexural vibrations in a structured plate: Numerical and Experimental proof-of-concept.' *International Workshop'Advances in Mechanical Metamaterials'*, Trento (Italy), October 10–11.

4. **Misseroni D.** (2015). 'Fracture trajectories in ceramic material containing voids: analytical prediction and its experimental validation.' *CERMODEL2015 Congress on Modelling and Simulation meet Innovation in Ceramics Technology*, Trento (Italy), July 1–3.

3. **Misseroni D.** (2015). 'Ultrasonic tests on green bodies: forming pressure and evolution of the elastic characteristics.' *State of the art and challenges in thermal and mechanical modelling of ceramic materials*, Trento (Italy), March 20.

2. **Misseroni D.** (Bigoni D., and Noselli G.) (2014). 'S-shape constraints for elastic rods: tensile buckling in tension and multiple bifurcations.' *International workshop 'Multiscale modelling in ceramics' within the International Congress APM 2014 Advanced Problems in Mechanics'*, St Petersburg (Russia), June 30–July 5.

1. **Misseroni D.** (Bigoni D., Noselli G., and Zaccaria D.) (2013). 'Surprising Instabilities of Simple Elastic Structures.' *CERMODEL2013 Congress on Modelling and Simulation meet Innovation in Ceramics Technology*, Trento (Italy), July 10–12.

Supervision of PhD students and postdoctoral fellows

Postdocs students at DICAM, University of Trento, Italy

- Anandaroop Lahiri, 'Origami-architected metamaterials'
- Guozhan Xia, 'Design of self-foldable origami structures'
- Samantha Mora, 'Design of deployable and inflatable structural systems'
- Alessandro Fortunati, 'Design and development of innovative acoustic metamaterials.'

PhD students at DICAM, University of Trento, Italy

- Wang Shuhong, 'Homogenization-based modelling of origami-based metamaterials' (expected PhD defence April 2028)
- Sveva Juliano, 'Homogenization of origami metamaterials' (expected PhD defence April 2028)
- Toofani Arman, 'Bio-inspired origami structures' (expected PhD defence April 2028)
- Mohammad-Javad Beigrezaee, 'Optimal design of hierarchical micro-structured materials for wave propagation control' (expected PhD defence April 2025).
- Samantha C. Mora Hidalgo, 'Design of high-performance micro-structured materials by using the 3D printing technique' (expected PhD defence April 2023).
- Elena Missale, 'Study of friction forces in rubber materials' (defended on January 2022).
- Mirko Tommasini, 'Flutter instability in structural mechanics: theory and experimental evidence' (defended on April 11, 2018).
- Costanza Armanini, 'Snap-through instabilities in elastic structures due to movable constraints' (defended on April 11, 2018).
- Federico Bosi, (currently senior lecturer at UCL, London, UK), 'Eshelby-like forces in elastic structures: Theory, Experiments and Applications' (defended on December 12, 2014).
- Summer Shahzad (currently post-doc at Aalto University, Helsinki, Finland), 'Stress singularity, annihilation, and invisibility induced by polygonal inclusions in linear elasticity' (defended on April 21, 2016).

Undergraduate Students at DICAM, University of Trento, Italy

Master's thesis of 31 students
Aliraj A., Bertè M., Biasin G., Bonati M., Brunelli E., Cantarella F., Carraro S., Castaldini F., Ceschin M., Dalla Chiusa T., Dal Ri G., D'Urso G., Dusini F., Filippini D., Gottardo G., Magaraggia F., Miele, D., Migliorini G., Mischi G., Passuello M., Perotti G., Prezzi I., Rossetto A, Scarpari A., Tommasini M., Tosi. G, Vender N., Vernesoni L., Zambon S., Zampiccoli E.

Bachelor's thesis of 37 students
Aganetti M., Bonomi E., Bortoluzzi D., Braghini M., Calliari N., Callovi F., Cappellari S., Carteri M., Caspani V.F., Castellani F., Castellucci A., Chino L., Ciman L., Del Monego L., Della Rosa M., Ferigato M., Ferrari L., Fezzi M., Gava G., Giovannini F., Guarnieri A., Iannotta G., Marcondes F., Menegoni M., Nardin M., Piglialepre R., Pizzato G., Ramanzini M., Roggia F., Ruatti J., Santorum A., Scamperle M., Signoretto L., Simoni R., Tommasini M., Viero D., Vinco Z.

Editorial responsibilities and referee activity

- Guest Editor of the research topic collection “Intelligent Design for Sustainable and Autonomous Construction” for the Journal of Engineering Structures.
- Extreme Mechanics Letters - Early Career Advisory Board (EML-ECAB)
- Guest Editor of the research topic collection "Cutting-edge metastructures: micro-architected and active metamaterials" for Frontiers in Materials, Mechanics of Materials section
- Reviewer for the National Science Center, Poland
- Research Quality Assessment (VQR 2015-2019) evaluator
- Reviewer for **37** international journals
  ACS Applied Materials & Interfaces, Acta Biomaterialia, Applied Mathematical Modelling, Engineering Structures, EPJ Applied Metamaterials, European Journal of Mechanics/A Solids, Experimental Mechanics, Extreme Mechanics Letters, International Journal of Fracture, International Journal of Mechanical Sciences, International Journal of Mechanics and Materials in Design, International Journal of Non-Linear Mechanics, International Journal of Smart and Nano Materials, International Journal of Solids and Structures, Journal of Building Engineering, Journal of Engineering Mechanics, Journal of Manufacturing and Materials Processing, Journal of Mechanics of Materials and Structures, Journal of Pressure Vessel Technology, Journal of Sound and Vibration, Journal of the European Ceramic Society, Journal of the Mechanics and Physics of Solids, Materials & Design, Materials Research Express, Mathematics, Meccanica, Mechanics Research Communication, Mechanism and Machine Theory, Optics and Lasers in Engineering, Philosophical Transactions of the Royal Society A, Proceedings of the National Academy of Sciences, Proceedings of the National Academy of Sciences nexus, Proceedings of the Royal Society A, Shock and Vibrations, Smart Materials and Structures, Symmetry, Theoretical and Applied Fracture Mechanics

Outreach activities

- *Materiali etremi ispirati dall’arte degli origami*, Wired Next Fest 2024, Rovereto (Italy) — *29/09/2024*
- Demo and Hands on - Notte dei Ricercatori “BRIGHT-NIGHT2024,” Lucca, Italy — *27/09/2024*
- Seminar to ERC applicants. *Title: Origami Engineering*, University of Trento, DICAM, Italy — *19/06/2024*
- Demo and Hands on - Notte dei Ricercatori **“Researchers’ Night,”** MUSE Trento, Italy — *29/09/2023*
- Seminar to undergraduate students. Title: *Origami Engineering* University of Trento, DICAM, Italy — *12/19/2023*
- Seminar to undergraduate students. Title: *Dynamics of architected materials.* University of Trento, DICAM, Italy — *12/20/2023*
- Exhibition at the **“SHARPER Night,”** MUSE Trento, Italy
  Impariamo dalla natura a progettare i materiali del futuro – Leggere come l’aria, resistenti come la pietra: alla scoperta delle strutture gonfiabili — *09/24/2021*
- Exhibition at the **“FOCUS Live,”** MUSE Trento, Italy
  Tutti a bordo della “Torsional Gun” — *10/18-20/2019*
- *Demo* e *Hands on* - Notte dei Ricercatori **“Researchers’ Night,”** Palazzo delle Albere, Trento - *Ponti da deformare e strutture che tremano* — *09/28/2018*

- Seminar to undergraduate students within an event organized by the "Opera Universitaria di Trento" together with the UNITIN association. Title: *Metamaterials, configurational mechanics & soft robotics: cutting-edge structural mechanics*. University of Trento, Italy — *11/15/2017*
- Exhibition at the **"Researchers' Night,"** MUSE Trento, Italy — *09/29/2017*
  Freccette torsionali: Riuscirai a fare centro solamente ruotando le mani?
- Exhibition at the **"Researchers' Night,"** Trento, Italy — *09/25/2015*
  L'arte di costruire: tra luce e colori segui i percorsi dei carichi
- The 'Elastica arm scale' is exhibited at the "**Museo della Bilancia"** Campogalliano, Modena, Italy — *2015-Present*
- Exhibition at the **"Researcher's Night,"** Trento, Italy
  Deformami un po': Come la teoria può prevedere la deformata di una struttura — *09/28/2012*
- Exhibition at the "**Researcher's Night,"** Trento, Italy — *09/23/2011*
  Chiave di volta: Costruiamo insieme un arco

Languages

Italian: Mother tongue

English: Advanced — *CEF level: C1*

Curriculum Vitae updated on March 8, 2025

Diego Misseroni

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