CURRICULUM VITAE – Laura Vergani

PERSONAL DATA

NATIONALITY:	Italian
AFFILIATION	Department of Mechanical Engineering, Politecnico di Milano
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EDUCATION

Master of Science in Mechanical Engineering, Politecnico di Milano

WORK EXPERIENCES

- Research and Development Engineer, Worthington S.p.A., Milan, Italy
- Researcher, Mechanical Department, Politecnico di Milano (1983)
- Associate Professor, Mechanical Department, Politecnico di Milano (1998)
- Full Professor, Mechanical Department, Politecnico di Milano (2001)

ACADEMIC AND EDITORIAL ACTIVITIES, PROFESSIONAL MEMBERSHIPS

- President of AIAS (Italian Association of Experimental Mechanics) (2010-2015)
- President of Società Italiana di Progettazione Meccanica e Costruzione di Macchine (2015-2016)
- Executive Board of ASP (Alta Scuola Politecnica) (2013-2019)
- Editorial Board of Journal of strain analysis for engineering design
- Editorial board of Materials (MDPI)
- Member of IGF (Italian Association of Fracture Mechanics)

ORGANIZATION OF CONFERENCES

- Chair of 1st Conference Conference on Materials, Mimicking Manufacturing from and fo Bio application (BIOMM), Milan, June 2018.
- Co-Chair of The 30th International Conference on Surface Modification Technologies (SMT30), Milano, june 29-July 1, 2016
- Co-Chair of the XVII International Colloquium “Mechanical Fatigue of Metals” (ICMFM17), Verbania, June 25-27, 2014.
- Co-chair of the International Conference on the mechanical behavior of Materials 11 (ICM 11), Lake Como, June 5-9, 2011
- Chair of XXXIV Convegno AIAS (Italian Association of Experimental Mechanics), Milan, september 2005

RESEARCH TOPICS

- Multiscale mechanical behaviour and characterization of bones, damage mechanisms of bones.
- Composite Materials: behaviour in sour condition; fatigue damage of polymeric composites; experimental characterization; models of damage.
- Biomimetic Materials: multiscale approach; experimental characterization.
- Hydrogen embrittlement: experimental characterization of hydrogen pre-charged specimens; multi-scale models of embrittlement mechanisms.
- Surface treatment: numerical and analytical models, experimental fatigue investigation

BiBLIOMETRIC DATA

Google Scholar 23/12/2020:
Citations: 2146 by 190 documents
h-index: 25

MOST RELEVANT PUBLICATIONS

- C. Colombo, M. Sansone, L. Patriarca, L. Vergani, Rapid estimation of fatigue limit for C45 steel by thermography and digital image correlation, The Journal of Strain Analysis for Engineering Design, 0309324720975284, (2020).
- C Colombo, CA Biffi, J Fiocchi, D Scaccabarozzi, B Saggin, A Tuissi, L. Vergani, Modulating the damping capacity of SLMed AlSi10Mg trough stress-relieving thermal treatments, Theoretical and Applied Fracture Mechanics 107, 102537, (2020).
- J Fiocchi, CA Biffi, C Colombo, LM Vergani, A Tuissi, Ad Hoc Heat Treatments for Selective Laser Melted Alsi10mg Alloy Aimed at Stress-Relieving and Enhancing Mechanical Performances, JOM, 72 (3), 1118-1127, (2020).
- F. Libonati, AE Velwock, F. El Louizi, C. Colombo, L. Vergani, Squeeze-winding: A new manufacturing route for biomimetic fiber-reinforced structures, Composites Part A: Applied Science and Manufacturing 132, 105839 (2020).
- MJ Mirzaali, F Libonati, C Böhm, L Rinaudo, BM Cesana, FM Ulivieri, L Vergani, Fatigue-caused damage in trabecular bone from clinical, morphological and mechanical perspectives, International Journal of Fatigue (2020).
- C Messina, LP Piodi, L.Rinaudo, C Buonomenna, L M Sconfienza, L Vergani, F M Ulivieri, Reproducibility of DXA-based bone strain index and the influence of body mass: an in vivo study, La radiologia medica, pp. 1-6, (2019)
- C Messina, LP Piodi, L Rinaudo, I Emili, F Porro, C Buonomenna, LM Sconfienza, L Vergani, FM Ulivieri, Bone strain index reproducibility and soft tissue thickness influence: a dual x-ray photon absorptiometry phantom study, European Radiology Experimental, (2019) volume 3.
- C Colombo, T Bhujangrao, F Libonati, L Vergani, Effect of delamination on the fatigue life of GFRP: A thermographic and numerical study, Composite Structures, (2019), 218, pp 152-16.
- F Libonati, AE Vellwock, F Ielmini, D Abliz, G Ziegmann, L Vergani, Bone-inspired enhanced fracture toughness of de novo fiber reinforced composites, Scientific reports 9 (1), 1-12, (2019).
- C Colombo, F Libonati, L Rinaudo, M Bellazzi, FM Ulivieri, L Vergani, A new finite element based parameter to predict bone fracture, PLoS One 14 (12), (2019)
- Giorgia Gobbi, Chiara Colombo, Stefano Miccoli, Laura Vergani, A fully coupled implementation of hydrogen embrittlement in FE analysis, Advances in Engineering Software, Vol 135, (2019)
- Chiara Colombo, Carlo Alberto Biffi, Jacopo Fiocchi, Ausonio Tuissi, Laura Vergani Effect of optimized heat treatments on the tensile behavior and residual stresses of selective laser melted AlSi10Mg samples, Key Engineering Materials, Vol 813, pp 364-369 (2019)
- MJ Mirzaali, A. Caracciolo, H. Pahvalani, S Janbaz, L Vergani, AA Zadpoor, Multi-material 3D printed mechanical metamaterials: Rational design of elastic properties through spatial distribution of hard and soft phases, Applied Physics letters, Vol. 113, Issue 24, 10 december 2018, Article Number 241903.
- MJ Mirzaali, S Janbaz, M Strano, L V ergani, AA Zadpoor, Shape-matching soft mechanical metamaterials, Scientific reports, Vol.8 (1), p.965, (2018)
- Mirzaali, M.J., Libonati, F., Ferrario, D., (...), Strano, M., Vergani, L., Determinants of bone damage: an ex- vivo study on porcine veretebrae, PLoS ONE, 13(8): e0202210
- Hedayati, R., Mirzaali, M.J., Vergani, L., Zadpoor, A.A., Action-at-a- distance metamaterials: distributed local actuation trough far-field global forces, APL Materials, 2018, 6(3), 036101
- C. Colombo, L. Vergani, Optimization of filament winding parameters for the design of a composite pipe, Composite part B: engineering, 2018, 148, pp 207-216.

- C. Colombo, M. Harhash, H. Palkowski, L. Vergani, Thermographic stepwise assessment of impact damage in sandwich panels, Composite Structures, Vol. 184, pp. 279-287, (2018)
- A. E Vellwock, L. Vergani, F. Libonati, A multiscale XFEM approach to investigate the fracture behavior of bio-inspired composite materials, Composites Part B: Engineering, (2018)
- G. Gobbi, C.Colombo, S. Miccoli, L. Vergani, A weakly coupled implementation of hydrogen embrittlement in FE analysis, Finite Elements in Analysis and Design, Vol. 141, pp.17-25, (2018)
- F. Libonati, V.Cipriano, L. Vergani, M. J Buehler, Computational Framework to Predict Failure and Performance of Bone-Inspired Materials, ACS Biomaterials Science & Engineering, Vol. 3 (12), pp.3236- 3243, (2017)
- MJ Mirzaali, M Habibi, S Janbaz, L.Vergani, AA Zadpoor, Crumpling-based soft metamaterials: the effects of sheet pore size and porosity, Vol.7(1), p.13028, (2017)
- MJ Mirzaali, R Hedayati, P Vena, L Vergani, M Strano, AA Zadpoor, Rational design of soft mechanical metamaterials: Independent tailoring of elastic properties with randomness, Applied Physics Letters, Vol. 111(5), p. 051903, (2017)
- M. J Mirzaali, V. Mussi, P. Vena, F. Libonati, L.Vergani, M. Strano, Mimicking the loading adaptation of bone microstructure with aluminum foams, Materials & Design, Vol. 106, pp. 207-218, (2017)
- G.Gobbi, C. Colombo, L. Vergani, Sensitivity analysis of a 2D cohesive model for hydrogen embrittlement of AISI 4130, Engineering Fracture Mechanics, Vol. 167, pp.101-111
- F. Libonati, G.X. Gu, L. Vergani, M. Buehler, Bone-Inspired Materials by Design: Toughness Amplification Observed Using 3D Printing and Testing, Advanced Engineering materials,18 (8), pp. 1354-1363, (2016)
- F. Libonati, L. Vergani, Understanding the structure-property relationship in cortical bone to design a biomimetic composite, Composite Structures, 139, pp. 188-198, (2016)
- C. Colombo, L.Vergani, A micromechanical approach to evaluate the post-impact residual stiffness of woven composites, Journal of Composite Materials, 50 (7), pp. 971-984, (2016)
- C. Colombo, G. Fumagalli, F. Bolzoni, G. Gobbi, L. Vergani, Fatigue behaviour of hydrogen pre-charged low-alloy Cr-Mo steel, International Journal of Fatigue, Vol. 83, pp. 2-9 (2015)
- C. Colombo, A. Carradò, H. Palkowski, L. Vergani, Impact behaviour of 3-layered metal-polymer-metal sandwich panels, Composite Structures, Vol. 133, pp.140-147, (2015)
- F. Libonati, A. Nair, L. Vergani, M. Buehler, Mechanics of collagen-hydroxyapatite model nanocomposites, Mechanics Research communications, Vol. 58, pp. 17-23, (2014).
- F. Libonati, C. Colombo, L. Vergani, Design and characterization of a biomimetic composite inspired to human bone, Fatigue and Fracture of Engineering Materials and Structures, Vol. 37, Issue 7, pp. 772-781 (2014)
- C. Colombo, L. Vergani, Influence of delamination om fatigue properties of a fiberglass composite, Composite Structures, Vol. 107, Issue 1, pp. 325-333 (2014).
- P. Fassina, F. Brunella, L. Lazzari, G. Re, L. Vergani, A. Sciuccati, Effect of hydrogen and low temperature on fatigue crack growth of pipeline steels. *Engineering fracture mechanics*, vol. 103, p. 10-25, (2013).
- F. Libonati, L. Vergani, Damage assessment of composite materials by means of thermographic analyses, *Composites part B: Engineering*, Vol. 50, p. 82-90, (2013)
- F. Libonati, A. Nair, L. Vergani, M. Buehler, Fracture mechanics of hydroxyapatite single crystals under geometric confinement, *Journal of the Mechanical Behavior of Biomedical Materials*, Vol 20, p. 184-191 (2013)
- P. Fassina, F. Bolzoni, G. Fumagalli, L. Lazzari, L. Vergani, A. Sciuccati, Influence of hydrogen and low temperature on mechanical behaviour of two pipeline steels . *Engineering fracture mechanics*, vol. 81, p. 43-55, (2012).

- C. Colombo, L. Vergani, Multi-axial fatigue life estimation of unidirectional GFRP composite, *International Journal of Fatigue*, vol. 33, p. 1032-1039, (2011).
- C. Colombo, L. Vergani, M. Burman, Static and Fatigue Characterization of new fibre reinforced composites, Composite Structures, Vol. 94, Issue 3, pp. 1165-1174, (2012).
- C. Colombo, Y. Du, M.N. James, E. A. Patterson, L. Vergani, On crack tip shielding due to plasticity-induced closure during an overload, Fatigue and fracture of Engineering Materials and Structures, Vol.33, Issue 12, PP. 766-777, (2010)
- C.Colombo, L. Vergani, A numerical and experimental study of crack tip shielding in presence of overloads, Engineering Fracture Mechanics, Vol. 77, Issue 11, pp. 1644-1655, (2010).
- C. Colombo, L. Vergani, Experimental and Numerical Analysis of a bus component in composite material, Composite Structures, Vol. 92, Issue 7, pp.1706-1715, (2010).
- M. Guagliano, M. Sangirardi, L. Vergani, Experimental analysis of surface cracks in rails under rolling contact loading, Wear, Vol. 265, Issue 9-109, pp.1380-1386 (2008).
- C. Colombo, M. Guagliano, L. Vergani, a Numerical analysis of flat internal cracks under mixed mode loading, Theoretical and Applied Fracture Mechanics, Vol. 50, Issue 1, pp.66-73, (2008).
- M. Guagliano, L. Vergani, M. Vimercati, Sub-surface crack propagation analysis in hypoid gears, Engineering Fracture Mechanics, Vol. 75, Issue 3-4, pp. 417-426, (2008).
- M. Guagliano, L. Vergani, M. Vimercati, Determination of a stress intensity factors for three-dimensional subsurface cracks in hypoid gears, Engineering Fracture Mechanics, Vol.73, Issue 14, pp.1947-1958, (2006).
- M. Guagliano, M. Sangirardi, L. Vergani, Photoelastic methods to determine K_I, K_{II} and K_{III} of internal cracks subjected to mixed mode loading, International Journal of Fatigue, Vol. 28, Issue 5-6, pp.576-582 (2006).
- M.Guagliano, L. Vergani, Experimental and Numerical analysis of sub-surface cracks in railway wheels, Vol.72, Issue 2, pp. 255-269, (2005).
- M.Guagliano, L. Vergani, An approach for prediction of fatigue strength of shot peened components, Engineering Fracture Mechanics, Vol 71, Issue 4-6, pp 501-512, (2004)

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196