

Federico Bosia

List of Publications by Year in descending order

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119
papers

2,865
citations

218677

26
h-index

197818

49
g-index

126
all docs

126
docs citations

126
times ranked

2835
citing authors

#	ARTICLE	IF	CITATIONS
1	Modeling and simulation in tribology across scales: An overview. Tribology International, 2018, 125, 169-199.	5.9	335
2	Large scale mechanical metamaterials as seismic shields. New Journal of Physics, 2016, 18, 083041.	2.9	246
3	Coupling local resonance with Bragg band gaps in single-phase mechanical metamaterials. Extreme Mechanics Letters, 2017, 12, 30-36.	4.1	164
4	Proof of Concept for an Ultrasensitive Technique to Detect and Localize Sources of Elastic Nonlinearity Using Phononic Crystals. Physical Review Letters, 2017, 118, 214301.	7.8	128
5	Spider web-structured labyrinthine acoustic metamaterials for low-frequency sound control. New Journal of Physics, 2017, 19, 105001.	2.9	92
6	Structural reinforcement and failure analysis in composite nanofibers of graphene oxide and gelatin. Carbon, 2014, 78, 566-577.	10.3	81
7	Design and Fabrication of Bioinspired Hierarchical Dissipative Elastic Metamaterials. Physical Review Applied, 2018, 10, .	3.8	80
8	Spider web-inspired acoustic metamaterials. Applied Physics Letters, 2016, 109, .	3.3	79
9	Characterization of the response of fibre Bragg grating sensors subjected to a two-dimensional strain field. Smart Materials and Structures, 2003, 12, 925-934.	3.5	70
10	Accordion-like metamaterials with tunable ultra-wide low-frequency band gaps. New Journal of Physics, 2018, 20, 073051.	2.9	58
11	Spider silk reinforced by graphene or carbon nanotubes. 2D Materials, 2017, 4, 031013.	4.4	57
12	Evidence of Light Guiding in Ion-Implanted Diamond. Physical Review Letters, 2010, 105, 233903.	7.8	49
13	Multiscale Stochastic Simulations for Tensile Testing of Nanotube-Based Macroscopic Cables. Small, 2008, 4, 1044-1052.	10.0	48
14	Labyrinthine Acoustic Metamaterials with Space-Coiling Channels for Low-Frequency Sound Control. Acta Acustica United With Acustica, 2018, 104, 200-210.	0.8	45
15	Metamaterials-based sensor to detect and locate nonlinear elastic sources. Applied Physics Letters, 2015, 107, .	3.3	43
16	Hierarchical simulations for the design of supertough nanofibers inspired by spider silk. Physical Review E, 2010, 82, 056103.	2.1	39
17	Smart composites with embedded shape memory alloy actuators and fibre Bragg grating sensors: activation and control. Smart Materials and Structures, 2005, 14, 457-465.	3.5	37
18	Hierarchical fiber bundle model to investigate the complex architectures of biological materials. Physical Review E, 2012, 85, 011903.	2.1	37

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19	Topologically engineered 3D printed architectures with superior mechanical strength. <i>Materials Today</i> , 2021, 48, 72-94.	14.2	37
20	Deformation characteristics of composite laminates—part I: speckle interferometry and embedded Bragg grating sensor measurements. <i>Composites Science and Technology</i> , 2002, 62, 41-54.	7.8	36
21	Static and dynamic friction of hierarchical surfaces. <i>Physical Review E</i> , 2016, 94, 063003.	2.1	35
22	Investigating the role of hierarchy on the strength of composite materials: evidence of a crucial synergy between hierarchy and material mixing. <i>Nanoscale</i> , 2012, 4, 1200.	5.6	34
23	Finite element analysis of ion-implanted diamond surface swelling. <i>Nuclear Instruments & Methods in Physics Research B</i> , 2010, 268, 2991-2995.	1.4	32
24	Quantum Micro-Nano Devices Fabricated in Diamond by Femtosecond Laser and Ion Irradiation. <i>Advanced Quantum Technologies</i> , 2019, 2, 1900006.	3.9	31
25	Softening the ultra-stiff: Controlled variation of Young's modulus in single-crystal diamond by ion implantation. <i>Acta Materialia</i> , 2016, 116, 95-103.	7.9	30
26	Hierarchical auxetic and isotropic porous medium with extremely negative Poisson's ratio. <i>Extreme Mechanics Letters</i> , 2021, 48, 101405.	4.1	30
27	Grafting carbon nanotubes onto carbon fibres doubles their effective strength and the toughness of the composite. <i>Composites Science and Technology</i> , 2018, 166, 140-149.	7.8	29
28	Hybrid metamaterials combining pentamode lattices and phononic plates. <i>Applied Physics Letters</i> , 2018, 113, .	3.3	27
29	Splitting of photoluminescent emission from nitrogen-vacancy centers in diamond induced by ion-damage-induced stress. <i>New Journal of Physics</i> , 2013, 15, 043027.	2.9	26
30	Proof of concept of a frequency-preserving and time-invariant metamaterial-based nonlinear acoustic diode. <i>Scientific Reports</i> , 2019, 9, 9560.	3.3	26
31	Modification of the structure of diamond with MeV ion implantation. <i>Diamond and Related Materials</i> , 2011, 20, 774-778.	3.9	25
32	Spectroscopic measurement of the refractive index of ion-implanted diamond. <i>Optics Letters</i> , 2012, 37, 671.	3.3	25
33	Evolution of aerial spider webs coincided with repeated structural optimization of silk anchorages. <i>Evolution; International Journal of Organic Evolution</i> , 2019, 73, 2122-2134.	2.3	25
34	Self-similarity of waiting times in fracture systems. <i>Physical Review E</i> , 2009, 80, 026101.	2.1	24
35	A Hierarchical Lattice Spring Model to Simulate the Mechanics of 2-D Materials-Based Composites. <i>Frontiers in Materials</i> , 2015, 2, .	2.4	24
36	Mesoscopic modeling of Acoustic Emission through an energetic approach. <i>International Journal of Solids and Structures</i> , 2008, 45, 5856-5866.	2.7	23

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37	Dissipative Dynamics of Polymer Phononic Materials. <i>Advanced Functional Materials</i> , 2021, 31, 2103424.	14.9	23
38	Direct measurement and modelling of internal strains in ion-implanted diamond. <i>Journal of Physics Condensed Matter</i> , 2013, 25, 385403.	1.8	22
39	A 2-D model for friction of complex anisotropic surfaces. <i>Journal of the Mechanics and Physics of Solids</i> , 2018, 112, 50-65.	4.8	22
40	Phenomenological approach to mechanical damage growth analysis. <i>Physical Review E</i> , 2008, 78, 046103.	2.1	21
41	Polarized micro-Raman studies of femtosecond laser written stress-induced optical waveguides in diamond. <i>Applied Physics Letters</i> , 2018, 112, .	3.3	21
42	Application of a Laser-Based Time Reversal Algorithm for Impact Localization in a Stiffened Aluminum Plate. <i>Frontiers in Materials</i> , 2019, 6, .	2.4	20
43	A combined experimental/numerical study on the scaling of impact strength and toughness in composite laminates for ballistic applications. <i>Composites Part B: Engineering</i> , 2020, 195, 108090.	12.0	20
44	Experimental Observation of a Large Low-Frequency Band Gap in a Polymer Waveguide. <i>Frontiers in Materials</i> , 2018, 5, .	2.4	19
45	Band gap enhancement in periodic frames using hierarchical structures. <i>International Journal of Solids and Structures</i> , 2021, 216, 68-82.	2.7	19
46	Hierarchical multiple peeling simulations. <i>RSC Advances</i> , 2014, 4, 25447-25452.	3.6	18
47	Numerical implementation of multiple peeling theory and its application to spider web anchorages. <i>Interface Focus</i> , 2015, 5, 20140051.	3.0	18
48	Self-Healing of Hierarchical Materials. <i>Langmuir</i> , 2014, 30, 1123-1133.	3.5	17
49	Improving rubber concrete strength and toughness by plasma-induced life tire rubber surface modification. <i>Plasma Processes and Polymers</i> , 2021, 18, 2100081.	3.0	17
50	Through-the-thickness distribution of strains in laminated composite plates subjected to bending. <i>Composites Science and Technology</i> , 2004, 64, 71-82.	7.8	16
51	An experimental and numerical study on the mechanical properties of carbon nanotube-latex thin films. <i>Journal of the European Ceramic Society</i> , 2016, 36, 2255-2262.	5.7	16
52	Refractive index variation in a free-standing diamond thin film induced by irradiation with fully transmitted high-energy protons. <i>Scientific Reports</i> , 2017, 7, 385.	3.3	15
53	The influence of substrate roughness, patterning, curvature, and compliance in peeling problems. <i>Bioinspiration and Biomimetics</i> , 2018, 13, 026004.	2.9	15
54	Mapping the Local Spatial Charge in Defective Diamond by Means of N-V Sensors: A Self-Diagnostic Concept. <i>Physical Review Applied</i> , 2018, 10, .	3.8	15

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55	An experimental-numerical study of the adhesive static and dynamic friction of micro-patterned soft polymer surfaces. <i>Materials and Design</i> , 2019, 181, 107930.	7.0	15
56	Deformation characteristics of composite laminates”part II: an experimental/numerical study on equivalent single-layer theories. <i>Composites Science and Technology</i> , 2002, 62, 55-66.	7.8	14
57	Hierarchical large-scale elastic metamaterials for passive seismic wave mitigation. <i>EPJ Applied Metamaterials</i> , 2021, 8, 14.	1.5	14
58	Hierarchical Spring-Block Model for Multiscale Friction Problems. <i>ACS Biomaterials Science and Engineering</i> , 2017, 3, 2845-2852.	5.2	13
59	A theoretical-numerical model for the peeling of elastic membranes. <i>Journal of the Mechanics and Physics of Solids</i> , 2020, 136, 103733.	4.8	13
60	The role of hairs in the adhesion of octopus suckers: a hierarchical peeling approach. <i>Bioinspiration and Biomimetics</i> , 2020, 15, 035006.	2.9	13
61	Experimental full wavefield reconstruction and band diagram analysis in a single-phase phononic plate with internal resonators. <i>Journal of Sound and Vibration</i> , 2021, 503, 116098.	3.9	13
62	Knotted synthetic polymer or carbon nanotube microfibrils with enhanced toughness, up to 1400 J/g. <i>Carbon</i> , 2016, 102, 116-125.	10.3	12
63	Optimization of spider web-inspired phononic crystals to achieve tailored dispersion for diverse objectives. <i>Materials and Design</i> , 2021, 209, 109980.	7.0	12
64	Tuning friction with composite hierarchical surfaces. <i>Tribology International</i> , 2017, 115, 261-267.	5.9	11
65	Computational modeling of the mechanics of hierarchical materials. <i>MRS Bulletin</i> , 2016, 41, 694-699.	3.5	10
66	Unveiling a new shear stress transfer mechanism in composites with helically wound hierarchical fibers. <i>International Journal of Mechanical Sciences</i> , 2021, 192, 106135.	6.7	10
67	An analytical model for the mechanical deformation of locally graphitized diamond. <i>Diamond and Related Materials</i> , 2014, 48, 73-81.	3.9	9
68	Micro and nano-patterning of single-crystal diamond by swift heavy ion irradiation. <i>Diamond and Related Materials</i> , 2016, 69, 1-7.	3.9	9
69	A hybrid deterministic-probabilistic approach to model the mechanical response of helically arranged hierarchical strands. <i>Journal of the Mechanics and Physics of Solids</i> , 2017, 106, 338-352.	4.8	9
70	Attenuating surface gravity waves with mechanical metamaterials. <i>Physics of Fluids</i> , 2021, 33, .	4.0	9
71	<title>Characterization of embedded fiber Bragg grating sensors written in high-birefringent optical fibers subjected to transverse loading</title>. , 2002, , .		8
72	Preisach-Mayergoyz approach to fatigue-induced irreversibility. <i>Physical Review B</i> , 2006, 73, .	3.2	8

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73	Quantum Micro€Nano Devices Fabricated in Diamond by Femtosecond Laser and Ion Irradiation (Adv.) Tj ETQq1 1 0.784314 rgBT /Ov	3.9	8
74	Characterization of the recovery of mechanical properties of ion-implanted diamond after thermal annealing. <i>Diamond and Related Materials</i> , 2016, 63, 75-79.	3.9	7
75	Tuning the strain-induced resonance shift in silicon racetrack resonators by their orientation. <i>Optics Express</i> , 2018, 26, 4204.	3.4	7
76	Emergence of the interplay between hierarchy and contact splitting in biological adhesion highlighted through a hierarchical shear lag model. <i>Soft Matter</i> , 2018, 14, 5509-5518.	2.7	7
77	OBLIQUE ACOUSTIC AXES IN TRIGONAL CRYSTALS. <i>Journal of Computational Acoustics</i> , 2001, 09, 1147-1161.	1.0	6
78	Fatigue of self-healing hierarchical soft nanomaterials: The case study of the tendon in sportsmen. <i>Journal of Materials Research</i> , 2015, 30, 2-9.	2.6	6
79	Correlation between slip precursors and topological length scales at the onset of frictional sliding. <i>International Journal of Solids and Structures</i> , 2022, 243, 111525.	2.7	6
80	Size effects on the strength of nanotube bundles. <i>Measurement Science and Technology</i> , 2009, 20, 084028.	2.6	5
81	Evolutionary Algorithm Optimization of Staggered Biological or Biomimetic Composites Using the Random Fuse Model. <i>Physical Review Applied</i> , 2020, 13, .	3.8	5
82	Random fuse model in the presence of self-healing. <i>New Journal of Physics</i> , 2020, 22, 033005.	2.9	5
83	Systematic numerical investigation of the role of hierarchy in heterogeneous bio-inspired materials. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2013, 19, 34-42.	3.1	4
84	Evidence of friction reduction in laterally graded materials. <i>Beilstein Journal of Nanotechnology</i> , 2018, 9, 2443-2456.	2.8	4
85	Experimental and Numerical Study of the Effect of Surface Patterning on the Frictional Properties of Polymer Surfaces. <i>Journal of Tribology</i> , 2022, 144, .	1.9	4
86	Types of leaky SAW degeneracy in crystals. , 0, , .		3
87	Modeling of the residual stresses acting on a low-birefringence fiber Bragg grating sensor embedded in an epoxy matrix. , 2003, 5049, 506.		3
88	Scaling properties of nanotube-based macroscopic cables through multiscale numerical simulations. <i>IEEE Nanotechnology Magazine</i> , 2009, 3, 14-19.	1.3	3
89	<i>In silico</i> tensile tests and design of hierarchical graphene fibres and composites. <i>Physica Status Solidi (B): Basic Research</i> , 2013, 250, 1492-1495.	1.5	3
90	Micro-beam and pulsed laser beam techniques for the micro-fabrication of diamond surface and bulk structures. <i>Nuclear Instruments & Methods in Physics Research B</i> , 2015, 348, 191-198.	1.4	3

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91	Editorial: Advances in Mechanical Metamaterials. <i>Frontiers in Materials</i> , 2018, 5, .	2.4	3
92	Competition between delamination and tearing in multiple peeling problems. <i>Journal of the Royal Society Interface</i> , 2019, 16, 20190388.	3.4	3
93	Adhesion and plasticity in the dynamic response of rough surfaces in contact. <i>International Journal of Solids and Structures</i> , 2021, 216, 17-29.	2.7	3
94	Prey Impact Localization Enabled by Material and Structural Interaction in Spider Orb Webs. <i>Advanced Theory and Simulations</i> , 0, , 2100282.	2.8	3
95	Subharmonic generation in physical systems: An interaction-box approach. <i>Wave Motion</i> , 2006, 43, 689-699.	2.0	2
96	Space charge limited current (SCLC) as observed on diamond surface damaged by MeV ion implantation. <i>IOP Conference Series: Materials Science and Engineering</i> , 2010, 16, 012004.	0.6	2
97	Fractal and spider web-inspired labyrinthine acoustic metamaterials. , 2017, , .		2
98	Tuning of frictional properties in torsional contact by means of disk grading. <i>Friction</i> , 2022, 10, 787-802.	6.4	2
99	Leaky SAW branches coupled with oblique acoustic axes in trigonal crystals. , 0, , .		1
100	Effects of piezoelectricity on acoustic axes in crystals. <i>Annales De Chimie: Science Des Materiaux</i> , 2001, 26, 59-62.	0.4	1
101	Publisher's Note: Hierarchical simulations for the design of supertough nanofibers inspired by spider silk [<i>Phys. Rev. E</i> 82, 056103 (2010)]. <i>Physical Review E</i> , 2010, 82, .	2.1	1
102	Optimal Adhesion Control via Cooperative Hierarchy, Grading, Geometries and Non-linearity of Anchorages and Adhesive Pads. <i>Biologically-inspired Systems</i> , 2017, , 81-93.	0.2	1
103	Hierarchical bio-inspired dissipative metamaterials for low frequency attenuation. , 2017, , .		1
104	Tunable extremely wide low-frequency band gaps in accordion-like metamaterials. , 2018, , .		1
105	Editorial: Bioinspired wet and dry adhesion. <i>Bioinspiration and Biomimetics</i> , 2020, 15, 040401.	2.9	1
106	Robust substrate anchorages of silk lines with extensible nano-fibres. <i>Soft Matter</i> , 2021, 17, 7903-7913.	2.7	1
107	Creation of pure non-crystalline diamond nanostructures via room-temperature ion irradiation and subsequent thermal annealing. <i>Nanoscale Advances</i> , 2021, 3, 4156-4165.	4.6	1
108	Modelling Damage Progression by a Statistical Energy-Balance Algorithm. <i>Key Engineering Materials</i> , 2007, 347, 435-440.	0.4	0

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109	Through-the-Thickness Deformation of Composite Laminates Subjected to Bending. Journal of the Mechanical Behavior of Materials, 2009, 19, 167-176.	1.8	0
110	Modification of the electrical and optical Properties of Single Crystal Diamond with Focused MeV Ion Beams. Materials Research Society Symposia Proceedings, 2009, 1203, 1.	0.1	0
111	Publisher's Note: Hierarchical fiber bundle model to investigate the complex architectures of biological materials [Phys. Rev. E85, 011903 (2012)]. Physical Review E, 2012, 85, .	2.1	0
112	Bulk diamond optical waveguides fabricated by focused femtosecond laser pulses. , 2017, , .		0
113	Dissipative elastic metamaterials. , 2017, , .		0
114	How bio-inspiration enhances the potential of phononic crystals and metamaterials. , 2021, , .		0
115	Experimental Analysis of Composite Laminates Subjected to Bending. , 2000, , 355-362.		0
116	Numerical Analysis of the Anomalous Elastic Behavior of Hysteretic Media: Quasistatic, Dynamic, and Relaxation Experiments. , 2006, , 269-285.		0
117	Hierarchical Large-Scale Elastic Metamaterials as an Innovative Passive Isolation Strategy for Seismic Wave Mitigation. , 2020, , .		0
118	Tunable frequency band structure in photo-responsive elastic metamaterials. , 2020, , .		0
119	A 3D Griffith peeling model to unify and generalize single and double peeling theories. Meccanica, 2022, 57, 1125-1138.	2.0	0