Katia Bertoldi

List of Publications by Year
in descending order

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92 papers	11,341 citations	43973 48 h-index	42291 92 g-index
97 all docs	97 docs citations	97 times ranked	8089 citing authors

#	Article	IF	Citations
1	Pneumatic Networks for Soft Robotics that Actuate Rapidly. Advanced Functional Materials, 2014, 24, 2163-2170.	7.8	1,125
2	Flexible mechanical metamaterials. Nature Reviews Materials, 2017, 2, .	23.3	1,006
3	A 3D-printed, functionally graded soft robot powered by combustion. Science, 2015, 349, 161-165.	6.0	802
4	Topological Phononic Crystals with One-Way Elastic Edge Waves. Physical Review Letters, 2015, 115, 104302.	2.9	643
5	Multistable Architected Materials for Trapping Elastic Strain Energy. Advanced Materials, 2015, 27, 4296-4301.	11.1	624
6	Harnessing Buckling to Design Tunable Locally Resonant Acoustic Metamaterials. Physical Review Letters, 2014, 113, 014301.	2.9	474
7	Kirigami skins make a simple soft actuator crawl. Science Robotics, 2018, 3, .	9.9	409
8	Dielectric Elastomer Based â€œGrippersâ€•for Soft Robotics. Advanced Materials, 2015, 27, 6814-6819.	11.1	383
9	Mechanical Programming of Soft Actuators by Varying Fiber Angle. Soft Robotics, 2015, 2, 26-32.	4.6	382
10	A three-dimensional actuated origami-inspired transformable metamaterial with multiple degrees of freedom. Nature Communications, 2016, 7, 10929.	5.8	312
11	Stable propagation of mechanical signals in soft media using stored elastic energy. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 9722-9727.	3.3	254
12	Rational design of reconfigurable prismatic architected materials. Nature, 2017, 541, 347-352.	13.7	236
13	Buckling-Induced Kirigami. Physical Review Letters, 2017, 118, 084301.	2.9	182
14	Amplifying the response of soft actuators by harnessing snap-through instabilities. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 10863-10868.	3.3	181
15	Harnessing instabilities for design of soft reconfigurable auxetic/chiral materials. Soft Matter, 2013, 9, 8198.	1.2	174
16	Multistable inflatable origami structures at the metre scale. Nature, 2021, 592, 545-550.	13.7	174
17	Octopus Arm-Inspired Tapered Soft Actuators with Suckers for Improved Grasping. Soft Robotics, 2020, 7, 639-648.	4.6	171
18	Harnessing Multiple Folding Mechanisms in Soft Periodic Structures for Tunable Control of Elastic Waves. Advanced Functional Materials, 2014, 24, 4935-4942.	7.8	167

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19	Effects of geometric and material nonlinearities on tunable band gaps and low-frequency directionality of phononic crystals. Physical Review B, 2013, 88, .	1.1	145
20	Mechanically robust lattices inspired by deep-sea glass sponges. Nature Materials, 2021, 20, 237-241.	13.3	144
21	Guided transition waves in multistable mechanical metamaterials. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 2319-2325.	3.3	141
22	Hierarchical honeycomb auxetic metamaterials. Scientific Reports, 2016, 5, 18306.	1.6	140
23	Harnessing Deformation to Switch On and Off the Propagation of Sound. Advanced Materials, 2016, 28, 1631-1635.	11.1	140
24	Inflatable soft jumper inspired by shell snapping. Science Robotics, 2020, 5, .	9.9	128
25	Programming soft robots with flexible mechanical metamaterials. Science Robotics, 2019, 4, .	9.9	118
26	Kirigamiâ€inspired Inflatables with Programmable Shapes. Advanced Materials, 2020, 32, e2001863.	11.1	117
27	Harnessing Buckling to Design Architected Materials that Exhibit Effective Negative Swelling. Advanced Materials, 2016, 28, 6619-6624.	11.1	112
28	Complex Ordered Patterns in Mechanical Instability Induced Geometrically Frustrated Triangular Cellular Structures. Physical Review Letters, 2014, 112, 098701.	2.9	111
29	Harnessing Instabilities to Design Tunable Architected Cellular Materials. Annual Review of Materials Research, 2017, 47, 51-61.	4.3	110
30	Honeycomb phononic crystals with self-similar hierarchy. Physical Review B, 2015, 92, .	1.1	103
31	Metamaterials with amplitude gaps for elastic solitons. Nature Communications, 2018, 9, 3410.	5.8	94
32	Discontinuous Buckling of Wide Beams and Metabeams. Physical Review Letters, 2015, 115, 044301.	2.9	93
33	Propagation of pop ups in kirigami shells. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 8200-8205.	3.3	92
34	Liquid-induced topological transformations of cellular microstructures. Nature, 2021, 592, 386-391.	13.7	82
35	Structure, biomimetics, and fluid dynamics of fish skin surfaces. Physical Review Fluids, 2016, 1, .	1.0	73
36	Reconfigurable soft body trajectories using unidirectionally stretchable composite laminae. Nature Communications, 2019, 10, 3464.	5.8	71

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37	Programmable Hierarchical Kirigami. Advanced Functional Materials, 2020, 30, 1906711.	7.8	70
38	Locally resonant band gaps in periodic beam lattices by tuning connectivity. Physical Review B, 2015, 91, .	1.1	66
39	Harnessing Viscous Flow to Simplify the Actuation of Fluidic Soft Robots. Soft Robotics, 2020, 7, 1-9.	4.6	65
40	Osmotic collapse of a void in an elastomer: breathing, buckling and creasing. Soft Matter, 2010, 6, 5770.	1.2	63
41	Self-regulated non-reciprocal motions in single-material microstructures. Nature, 2022, 605, 76-83.	13.7	63
42	Bioinspired kirigami metasurfaces as assistive shoe grips. Nature Biomedical Engineering, 2020, 4, 778-786.	11.6	61
43	Structural Transition from Helices to Hemihelices. PLoS ONE, 2014, 9, e93183.	1.1	57
44	Spontaneous and deterministic three-dimensional curling of pre-strained elastomeric bi-strips. Soft Matter, 2012, 8, 6291.	1.2	56
45	Architected Materials with Ultraâ€Low Porosity for Vibration Control. Advanced Materials, 2016, 28, 5943-5948.	11.1	56
46	Motion microscopy for visualizing and quantifying small motions. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 11639-11644.	3.3	55
47	Harnessing transition waves to realize deployable structures. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 4015-4020.	3.3	53
48	Dimpled elastic sheets: a new class of non-porous negative Poissonâ€™s ratio materials. Scientific Reports, 2016, 5, 18373.	1.6	51
49	Characterization of a Mechanically Tunable Gyroid Photonic Crystal Inspired by the Butterfly Parides Sesostris. Advanced Optical Materials, 2016, 4, 99-105.	3.6	44
50	Architected Multimaterial Lattices with Thermally Programmable Mechanical Response. Advanced Functional Materials, 2022, 32, 2105128.	7.8	44
51	A Biologically Inspired, Functionally Graded End Effector for Soft Robotics Applications. Soft Robotics, 2017, 4, 317-323.	4.6	41
52	Unfolding Textile-Based Pneumatic Actuators for Wearable Applications. Soft Robotics, 2022, 9, 163-172.	4.6	38
53	Focusing and Mode Separation of Elastic Vector Solitons in a 2D Soft Mechanical Metamaterial. Physical Review Letters, 2019, 123, 024101.	2.9	37
54	Universally bistable shells with nonzero Gaussian curvature for two-way transition waves. Nature Communications, 2021, 12, 695.	5.8	37

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55	Harnessing fluid-structure interactions to design self-regulating acoustic metamaterials. Journal of Applied Physics, 2014, 115, 034907.	1.1	34
56	Programming nonreciprocity and reversibility in multistable mechanical metamaterials. Nature Communications, 2021, 12, 3454.	5.8	34
57	Characterization, stability, and application of domain walls in flexible mechanical metamaterials. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 31002-31009.	3.3	32
58	Anomalous Collisions of Elastic Vector Solitons in Mechanical Metamaterials. Physical Review Letters, 2019, 122, 044101.	2.9	31
59	Inflatable Origami: Multimodal Deformation via Multistability. Advanced Functional Materials, 2022, 32, .	7.8	30
60	A Modeling Framework for Jamming Structures. Advanced Functional Materials, 2021, 31, 2007554.	7.8	27
61	Manipulating acoustic wave reflection by a nonlinear elastic metasurface. Journal of Applied Physics, 2018, 123, .	1.1	26
62	Inverse Design of Inflatable Soft Membranes Through Machine Learning. Advanced Functional Materials, 2022, 32, .	7.8	26
63	Harnessing Geometric Frustration to Form Band Gaps in Acoustic Channel Lattices. Physical Review Letters, 2017, 118, 084302.	2.9	25
64	A buckling-sheet ring oscillator for electronics-free, multimodal locomotion. Science Robotics, 2022, 7, eabg5812.	9.9	25
65	Microstructural design for mechanicalâ€“optical multifunctionality in the exoskeleton of the flower beetle Torynorrhina flammea. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	23
66	Peridynamic Modeling of Ruptures in Biomembranes. PLoS ONE, 2016, 11, e0165947.	1.1	22
67	Navigating the landscape of nonlinear mechanical metamaterials for advanced programmability. Physical Review B, 2020, 101, .	1.1	22
68	Controlling Liquid Crystal Orientations for Programmable Anisotropic Transformations in Cellular Microstructures. Advanced Materials, 2021, 33, e2105024.	11.1	22
69	Geometric charges and nonlinear elasticity of two-dimensional elastic metamaterials. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 10195-10202.	3.3	21
70	Tensile Instability in a Thick Elastic Body. Physical Review Letters, 2016, 117, 094301.	2.9	20
71	Frequency-doubling effect in acoustic reflection by a nonlinear, architected rotating-square metasurface. Physical Review E, 2019, 99, 052209.	0.8	20
72	Mechanical Valves for Onâ€Board Flow Control of Inflatable Robots. Advanced Science, 2021, 8, e2101941.	5.6	20

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73	Microfluidic Fabrication and Micromechanics of Permeable and Impermeable Elastomeric Microbubbles. Langmuir, 2015, 31, 3489-3493.	1.6	17
74	Additive Manufacturing of Nanostructures That Are Delicate, Complex, and Smaller than Ever. Small, 2019, 15, e1902370.	5.2	17
75	Mechanical and hydrodynamic analyses of helical strake-like ridges in a glass sponge. Journal of the Royal Society Interface, 2021, 18, 20210559.	1.5	16
76	Some Remarks on the Effect of Interphases on the Mechanical Response and Stability of Fiber-Reinforced Elastomers. Journal of Applied Mechanics, Transactions ASME, 2012, 79, .	1.1	15
77	Elastic metamaterials for tuning circular polarization of electromagnetic waves. Scientific Reports, 2016, 6, 28273.	1.6	14
78	A Combined Finite Element-Multiple Criteria Optimization Approach for Materials Selection of Gas Turbine Components. Journal of Applied Mechanics, Transactions ASME, 2012, 79, .	1.1	12
79	Deployable Structures Based on Buckling of Curved Beams Upon a Rotational Input. Advanced Functional Materials, 2021, 31, 2101144.	7.8	9
80	Metamaterials: 3D Soft Metamaterials with Negative Poisson's Ratio (Adv. Mater. 36/2013). Advanced Materials, 2013, 25, 5116-5116.	11.1	8
81	A Modular and Selfâ€Contained Fluidic Engine for Soft Actuators. Advanced Intelligent Systems, 2022, 4, 2100094.	3.3	8
82	Snapping of hinged arches under displacement control: Strength loss and nonreciprocity. Physical Review E, 2020, 101, 053004.	0.8	7
83	A Soft, Modular, and Bi-stable Dome Actuator for Programmable Multi-Modal Locomotion. , 2020, , .		7
84	Optimal turbine blade design enabled by auxetic honeycomb. Smart Materials and Structures, 2020, 29, 125004.	1.8	6
85	Direct Laser Writing: Additive Manufacturing of Nanostructures That Are Delicate, Complex, and Smaller than Ever (Small 33/2019). Small, 2019, 15, 1970173.	5.2	4
86	Curvilinear Kirigami Skins Let Soft Bending Actuators Slither Faster. Frontiers in Robotics and AI, 2022, 9, 872007.	2.0	4
87	Acoustic Switches: Harnessing Deformation to Switch On and Off the Propagation of Sound (Adv.) Tj ETQq1 1 0.784314 rgBT /Overlock	11.1	2
88	Programmable Hierarchical Kirigami: Programmable Hierarchical Kirigami (Adv. Funct. Mater. 6/2020). Advanced Functional Materials, 2020, 30, 2070039.	7.8	2
89	Harnessing Mechanical Deformation to Reduce Spherical Aberration in Soft Lenses. Physical Review Letters, 2021, 126, 084301.	2.9	2
90	Deployable Structures Based on Buckling of Curved Beams Upon a Rotational Input (Adv. Funct. Mater.) Tj ETQq0 0 0 rgBT /Overlock 10	7.8	1

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91	Nonlnear elastic metasurface design achieving acoustic wave scatering control. , 2018, , .		0
92	Metamaterials: Kirigamiâ€Inspired Inflatables with Programmable Shapes (Adv. Mater. 33/2020). Advanced Materials, 2020, 32, 2070250.	11.1	0