

# Katia Bertoldi

## List of Publications by Citations

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92  
papers

7,194  
citations

40  
h-index

84  
g-index

97  
ext. papers

9,115  
ext. citations

13.8  
avg, IF

6.63  
L-index

#	Paper	IF	Citations
92	Pneumatic Networks for Soft Robotics that Actuate Rapidly. <i>Advanced Functional Materials</i> , <b>2014</b> , 24, 2163-2170	15.6	763
91	SOFT ROBOTICS. A 3D-printed, functionally graded soft robot powered by combustion. <i>Science</i> , <b>2015</b> , 349, 161-5	33.3	608
90	Flexible mechanical metamaterials. <i>Nature Reviews Materials</i> , <b>2017</b> , 2,	73.3	551
89	Topological Phononic Crystals with One-Way Elastic Edge Waves. <i>Physical Review Letters</i> , <b>2015</b> , 115, 104302	7.4	452
88	Multistable Architected Materials for Trapping Elastic Strain Energy. <i>Advanced Materials</i> , <b>2015</b> , 27, 4296-301	24	391
87	Harnessing buckling to design tunable locally resonant acoustic metamaterials. <i>Physical Review Letters</i> , <b>2014</b> , 113, 014301	7.4	351
86	Dielectric Elastomer Based "Grippers" for Soft Robotics. <i>Advanced Materials</i> , <b>2015</b> , 27, 6814-9	24	282
85	Mechanical Programming of Soft Actuators by Varying Fiber Angle. <i>Soft Robotics</i> , <b>2015</b> , 2, 26-32	9.2	262
84	Kirigami skins make a simple soft actuator crawl. <i>Science Robotics</i> , <b>2018</b> , 3,	18.6	248
83	A three-dimensional actuated origami-inspired transformable metamaterial with multiple degrees of freedom. <i>Nature Communications</i> , <b>2016</b> , 7, 10929	17.4	219
82	Rational design of reconfigurable prismatic architected materials. <i>Nature</i> , <b>2017</b> , 541, 347-352	50.4	166
81	Stable propagation of mechanical signals in soft media using stored elastic energy. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2016</b> , 113, 9722-7	11.5	162
80	Buckling-Induced Kirigami. <i>Physical Review Letters</i> , <b>2017</b> , 118, 084301	7.4	134
79	Harnessing Multiple Folding Mechanisms in Soft Periodic Structures for Tunable Control of Elastic Waves. <i>Advanced Functional Materials</i> , <b>2014</b> , 24, 4935-4942	15.6	130
78	Harnessing instabilities for design of soft reconfigurable auxetic/chiral materials. <i>Soft Matter</i> , <b>2013</b> , 9, 8198	3.6	128
77	Effects of geometric and material nonlinearities on tunable band gaps and low-frequency directionality of phononic crystals. <i>Physical Review B</i> , <b>2013</b> , 88,	3.3	122
76	Amplifying the response of soft actuators by harnessing snap-through instabilities. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2015</b> , 112, 10863-8	11.5	120

75	Harnessing Deformation to Switch On and Off the Propagation of Sound. <i>Advanced Materials</i> , <b>2016</b> , 28, 1631-5	24	110
74	Hierarchical honeycomb auxetic metamaterials. <i>Scientific Reports</i> , <b>2015</b> , 5, 18306	4.9	93
73	Complex ordered patterns in mechanical instability induced geometrically frustrated triangular cellular structures. <i>Physical Review Letters</i> , <b>2014</b> , 112, 098701	7.4	92
72	Honeycomb phononic crystals with self-similar hierarchy. <i>Physical Review B</i> , <b>2015</b> , 92,	3.3	87
71	Harnessing Instabilities to Design Tunable Architected Cellular Materials. <i>Annual Review of Materials Research</i> , <b>2017</b> , 47, 51-61	12.8	85
70	Harnessing Buckling to Design Architected Materials that Exhibit Effective Negative Swelling. <i>Advanced Materials</i> , <b>2016</b> , 28, 6619-24	24	78
69	Discontinuous Buckling of Wide Beams and Metabeams. <i>Physical Review Letters</i> , <b>2015</b> , 115, 044301	7.4	66
68	Octopus Arm-Inspired Tapered Soft Actuators with Suckers for Improved Grasping. <i>Soft Robotics</i> , <b>2020</b> , 7, 639-648	9.2	65
67	Inflatable soft jumper inspired by shell snapping. <i>Science Robotics</i> , <b>2020</b> , 5,	18.6	63
66	Guided transition waves in multistable mechanical metamaterials. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2020</b> , 117, 2319-2325	11.5	63
65	Programming soft robots with flexible mechanical metamaterials. <i>Science Robotics</i> , <b>2019</b> , 4,	18.6	58
64	Osmotic collapse of a void in an elastomer: breathing, buckling and creasing. <i>Soft Matter</i> , <b>2010</b> , 6, 5770	3.6	57
63	Kirigami-Inspired Inflatables with Programmable Shapes. <i>Advanced Materials</i> , <b>2020</b> , 32, e2001863	24	55
62	Metamaterials with amplitude gaps for elastic solitons. <i>Nature Communications</i> , <b>2018</b> , 9, 3410	17.4	55
61	Locally resonant band gaps in periodic beam lattices by tuning connectivity. <i>Physical Review B</i> , <b>2015</b> , 91,	3.3	53
60	Structure, biomimetics, and fluid dynamics of fish skin surfaces*. <i>Physical Review Fluids</i> , <b>2016</b> , 1,	2.8	52
59	Propagation of pop ups in kirigami shells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2019</b> , 116, 8200-8205	11.5	51
58	Spontaneous and deterministic three-dimensional curling of pre-strained elastomeric bi-strips. <i>Soft Matter</i> , <b>2012</b> , 8, 6291	3.6	48

57	Mechanically robust lattices inspired by deep-sea glass sponges. <i>Nature Materials</i> , <b>2021</b> , 20, 237-241	27	46
56	Structural transition from helices to hemihelices. <i>PLoS ONE</i> , <b>2014</b> , 9, e93183	3.7	44
55	Architected Materials with Ultra-Low Porosity for Vibration Control. <i>Advanced Materials</i> , <b>2016</b> , 28, 5943-84	8.4	43
54	Programmable Hierarchical Kirigami. <i>Advanced Functional Materials</i> , <b>2020</b> , 30, 1906711	15.6	40
53	Multistable inflatable origami structures at the metre scale. <i>Nature</i> , <b>2021</b> , 592, 545-550	50.4	40
52	Dimpled elastic sheets: a new class of non-porous negative Poisson's ratio materials. <i>Scientific Reports</i> , <b>2015</b> , 5, 18373	4.9	40
51	Reconfigurable soft body trajectories using unidirectionally stretchable composite laminae. <i>Nature Communications</i> , <b>2019</b> , 10, 3464	17.4	38
50	Bioinspired kirigami metasurfaces as assistive shoe grips. <i>Nature Biomedical Engineering</i> , <b>2020</b> , 4, 778-786	6.9	35
49	A Biologically Inspired, Functionally Graded End Effector for Soft Robotics Applications. <i>Soft Robotics</i> , <b>2017</b> , 4, 317-323	9.2	33
48	Motion microscopy for visualizing and quantifying small motions. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2017</b> , 114, 11639-11644	11.5	31
47	Harnessing Viscous Flow to Simplify the Actuation of Fluidic Soft Robots. <i>Soft Robotics</i> , <b>2020</b> , 7, 1-9	9.2	31
46	Characterization of a Mechanically Tunable Gyroid Photonic Crystal Inspired by the Butterfly <i>Parides Sesostris</i> . <i>Advanced Optical Materials</i> , <b>2016</b> , 4, 99-105	8.1	29
45	Harnessing transition waves to realize deployable structures. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2020</b> , 117, 4015-4020	11.5	27
44	Harnessing fluid-structure interactions to design self-regulating acoustic metamaterials. <i>Journal of Applied Physics</i> , <b>2014</b> , 115, 034907	2.5	25
43	Harnessing Geometric Frustration to Form Band Gaps in Acoustic Channel Lattices. <i>Physical Review Letters</i> , <b>2017</b> , 118, 084302	7.4	21
42	Liquid-induced topological transformations of cellular microstructures. <i>Nature</i> , <b>2021</b> , 592, 386-391	50.4	21
41	Anomalous Collisions of Elastic Vector Solitons in Mechanical Metamaterials. <i>Physical Review Letters</i> , <b>2019</b> , 122, 044101	7.4	20
40	Focusing and Mode Separation of Elastic Vector Solitons in a 2D Soft Mechanical Metamaterial. <i>Physical Review Letters</i> , <b>2019</b> , 123, 024101	7.4	19

39	Peridynamic Modeling of Ruptures in Biomembranes. <i>PLoS ONE</i> , <b>2016</b> , 11, e0165947	3.7	17
38	Microfluidic fabrication and micromechanics of permeable and impermeable elastomeric microbubbles. <i>Langmuir</i> , <b>2015</b> , 31, 3489-93	4	14
37	Additive Manufacturing of Nanostructures That Are Delicate, Complex, and Smaller than Ever. <i>Small</i> , <b>2019</b> , 15, e1902370	11	13
36	Manipulating acoustic wave reflection by a nonlinear elastic metasurface. <i>Journal of Applied Physics</i> , <b>2018</b> , 123, 124901	2.5	13
35	Tensile Instability in a Thick Elastic Body. <i>Physical Review Letters</i> , <b>2016</b> , 117, 094301	7.4	13
34	Some Remarks on the Effect of Interphases on the Mechanical Response and Stability of Fiber-Reinforced Elastomers. <i>Journal of Applied Mechanics, Transactions ASME</i> , <b>2012</b> , 79,	2.7	13
33	Characterization, stability, and application of domain walls in flexible mechanical metamaterials. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2020</b> , 117, 31002-31009	11.5	13
32	Unfolding Textile-Based Pneumatic Actuators for Wearable Applications. <i>Soft Robotics</i> , <b>2021</b> ,	9.2	12
31	Universally bistable shells with nonzero Gaussian curvature for two-way transition waves. <i>Nature Communications</i> , <b>2021</b> , 12, 695	17.4	11
30	Frequency-doubling effect in acoustic reflection by a nonlinear, architected rotating-square metasurface. <i>Physical Review E</i> , <b>2019</b> , 99, 052209	2.4	10
29	Geometric charges and nonlinear elasticity of two-dimensional elastic metamaterials. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2020</b> , 117, 10195-10202	11.5	10
28	Elastic metamaterials for tuning circular polarization of electromagnetic waves. <i>Scientific Reports</i> , <b>2016</b> , 6, 28273	4.9	10
27	Navigating the landscape of nonlinear mechanical metamaterials for advanced programmability. <i>Physical Review B</i> , <b>2020</b> , 101,	3.3	9
26	A Combined Finite Element-Multiple Criteria Optimization Approach for Materials Selection of Gas Turbine Components. <i>Journal of Applied Mechanics, Transactions ASME</i> , <b>2012</b> , 79,	2.7	9
25	Mechanical Valves for On-Board Flow Control of Inflatable Robots. <i>Advanced Science</i> , <b>2021</b> , 8, e2101941	13.6	9
24	Self-regulated non-reciprocal motions in single-material microstructures.. <i>Nature</i> , <b>2022</b> , 605, 76-83	50.4	8
23	Programming nonreciprocity and reversibility in multistable mechanical metamaterials. <i>Nature Communications</i> , <b>2021</b> , 12, 3454	17.4	7
22	A Modeling Framework for Jamming Structures. <i>Advanced Functional Materials</i> , <b>2021</b> , 31, 2007554	15.6	7

21	Snapping of hinged arches under displacement control: Strength loss and nonreciprocity. <i>Physical Review E</i> , <b>2020</b> , 101, 053004	2.4	5
20	Microstructural design for mechanical-optical multifunctionality in the exoskeleton of the flower beetle. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2021</b> , 118,	11.5	5
19	Direct Laser Writing: Additive Manufacturing of Nanostructures That Are Delicate, Complex, and Smaller than Ever (Small 33/2019). <i>Small</i> , <b>2019</b> , 15, 1970173	11	4
18	Metamaterials: 3D Soft Metamaterials with Negative Poisson's Ratio (Adv. Mater. 36/2013). <i>Advanced Materials</i> , <b>2013</b> , 25, 5116-5116	24	4
17	Inverse Design of Inflatable Soft Membranes Through Machine Learning. <i>Advanced Functional Materials</i> , 2111610	15.6	4
16	A buckling-sheet ring oscillator for electronics-free, multimodal locomotion.. <i>Science Robotics</i> , <b>2022</b> , 7, eabg5812	18.6	4
15	Optimal turbine blade design enabled by auxetic honeycomb. <i>Smart Materials and Structures</i> , <b>2020</b> , 29, 125004	3.4	4
14	Controlling Liquid Crystal Orientations for Programmable Anisotropic Transformations in Cellular Microstructures. <i>Advanced Materials</i> , <b>2021</b> , 33, e2105024	24	4
13	Architected Multimaterial Lattices with Thermally Programmable Mechanical Response. <i>Advanced Functional Materials</i> , 2105128	15.6	4
12	A Soft, Modular, and Bi-stable Dome Actuator for Programmable Multi-Modal Locomotion <b>2020</b> ,		3
11	Deployable Structures Based on Buckling of Curved Beams Upon a Rotational Input. <i>Advanced Functional Materials</i> , <b>2021</b> , 31, 2101144	15.6	3
10	Mechanical and hydrodynamic analyses of helical strake-like ridges in a glass sponge. <i>Journal of the Royal Society Interface</i> , <b>2021</b> , 18, 20210559	4.1	3
9	Programmable Hierarchical Kirigami: Programmable Hierarchical Kirigami (Adv. Funct. Mater. 6/2020). <i>Advanced Functional Materials</i> , <b>2020</b> , 30, 2070039	15.6	2
8	Acoustic Switches: Harnessing Deformation to Switch On and Off the Propagation of Sound (Adv. Mater. 8/2016). <i>Advanced Materials</i> , <b>2016</b> , 28, 1630-1630	24	2
7	Inflatable Origami: Multimodal Deformation via Multistability. <i>Advanced Functional Materials</i> , 2201891	15.6	2
6	A Modular and Self-Contained Fluidic Engine for Soft Actuators. <i>Advanced Intelligent Systems</i> , 2100094	6	1
5	Stability of Lattice Materials <b>2017</b> , 139-153		0
4	Metamaterials: Kirigami-Inspired Inflatables with Programmable Shapes (Adv. Mater. 33/2020). <i>Advanced Materials</i> , <b>2020</b> , 32, 2070250	24	

- 3 Harnessing Mechanical Deformation to Reduce Spherical Aberration in Soft Lenses. *Physical Review Letters*, **2021**, 126, 084301 7.4
- 2 Deployable Structures Based on Buckling of Curved Beams Upon a Rotational Input (Adv. Funct. Mater. 35/2021). *Advanced Functional Materials*, **2021**, 31, 2170261 15.6
- 1 Curvilinear Kirigami Skins Let Soft Bending Actuators Slither Faster.. *Frontiers in Robotics and AI*, **2022**, 9, 872007 2.8