

Massimo Ruzzene

List of Publications by Year in descending order

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118
papers

6,830
citations

61984

43
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60623

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122
docs citations

122
times ranked

3140
citing authors

#	ARTICLE	IF	CITATIONS
1	Dynamics of Phononic Materials and Structures: Historical Origins, Recent Progress, and Future Outlook. <i>Applied Mechanics Reviews</i> , 2014, 66, .	10.1	1,141
2	Edge waves in plates with resonators: an elastic analogue of the quantum valley Hall effect. <i>New Journal of Physics</i> , 2017, 19, 025001.	2.9	271
3	Piezoelectric resonator arrays for tunable acoustic waveguides and metamaterials. <i>Journal of Applied Physics</i> , 2012, 112, .	2.5	252
4	Nonreciprocity in acoustic and elastic materials. <i>Nature Reviews Materials</i> , 2020, 5, 667-685.	48.7	243
5	Frequency-wavenumber domain analysis of guided wavefields. <i>Ultrasonics</i> , 2011, 51, 452-466.	3.9	238
6	Design of tunable acoustic metamaterials through periodic arrays of resonant shunted piezos. <i>New Journal of Physics</i> , 2011, 13, 113010.	2.9	221
7	Observation of topological valley modes in an elastic hexagonal lattice. <i>Physical Review B</i> , 2017, 96, .	3.2	218
8	Internally resonating lattices for bandgap generation and low-frequency vibration control. <i>Journal of Sound and Vibration</i> , 2013, 332, 6562-6579.	3.9	193
9	A Perturbation Approach for Predicting Wave Propagation in One-Dimensional Nonlinear Periodic Structures. <i>Journal of Vibration and Acoustics, Transactions of the ASME</i> , 2010, 132, .	1.6	187
10	Metamaterial-inspired structures and concepts for elastoacoustic wave energy harvesting. <i>Smart Materials and Structures</i> , 2013, 22, 065004.	3.5	179
11	A general theory for bandgap estimation in locally resonant metastructures. <i>Journal of Sound and Vibration</i> , 2017, 406, 104-123.	3.9	176
12	Auxetic compliant flexible PU foams: static and dynamic properties. <i>Physica Status Solidi (B): Basic Research</i> , 2005, 242, 681-694.	1.5	146
13	Experimental Observation of Topologically Protected Helical Edge Modes in Patterned Elastic Plates. <i>Physical Review X</i> , 2018, 8, .	8.9	136
14	Broadband plate-type acoustic metamaterial for low-frequency sound attenuation. <i>Applied Physics Letters</i> , 2012, 101, .	3.3	119
15	Wave propagation in elastic metamaterial beams and plates with interconnected resonators. <i>International Journal of Solids and Structures</i> , 2018, 139-140, 105-120.	2.7	118
16	Wave Propagation in Auxetic Tetrachiral Honeycombs. <i>Journal of Vibration and Acoustics, Transactions of the ASME</i> , 2010, 132, .	1.6	116
17	Helical edge states and topological phase transitions in phononic systems using bi-layered lattices. <i>Journal of Applied Physics</i> , 2016, 119, .	2.5	103
18	Band transition and topological interface modes in 1D elastic phononic crystals. <i>Scientific Reports</i> , 2018, 8, 6806.	3.3	102

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19	An investigation of electroelastic bandgap formation in locally resonant piezoelectric metastructures. <i>Smart Materials and Structures</i> , 2017, 26, 055029.	3.5	98
20	Multiple scales analysis of wave-wave interactions in a cubically nonlinear monoatomic chain. <i>Nonlinear Dynamics</i> , 2011, 63, 193-203.	5.2	97
21	Directional and band-gap behavior of periodic auxetic lattices. <i>Physica Status Solidi (B): Basic Research</i> , 2005, 242, 665-680.	1.5	94
22	Edge States and Topological Pumping in Spatially Modulated Elastic Lattices. <i>Physical Review Letters</i> , 2019, 123, 034301.	7.8	89
23	Wave propagation in undulated structural lattices. <i>International Journal of Solids and Structures</i> , 2016, 97-98, 431-444.	2.7	85
24	Valley-based splitting of topologically protected helical waves in elastic plates. <i>Physical Review B</i> , 2019, 100, .	3.2	85
25	Vibration control of plates through hybrid configurations of periodic piezoelectric shunts. <i>Journal of Intelligent Material Systems and Structures</i> , 2012, 23, 1169-1177.	2.5	82
26	Wave Propagation Control in Beams Through Periodic Multi-Branch Shunts. <i>Journal of Intelligent Material Systems and Structures</i> , 2011, 22, 1567-1579.	2.5	76
27	The hexachiral prismatic wingbox concept. <i>Physica Status Solidi (B): Basic Research</i> , 2008, 245, 570-577.	1.5	75
28	Experimental Observation of Nonreciprocal Band Gaps in a Space-Time-Modulated Beam Using a Shunted Piezoelectric Array. <i>Physical Review Applied</i> , 2020, 13, .	3.8	73
29	Sparse wavefield reconstruction and source detection using Compressed Sensing. <i>Ultrasonics</i> , 2016, 67, 94-104.	3.9	71
30	Wave attenuation and trapping in 3D printed cantilever-in-mass metamaterials with spatially correlated variability. <i>Scientific Reports</i> , 2019, 9, 5617.	3.3	66
31	A Bloch-based procedure for dispersion analysis of lattices with periodic time-varying properties. <i>Journal of Sound and Vibration</i> , 2017, 406, 363-377.	3.9	63
32	Amplitude-dependent topological edge states in nonlinear phononic lattices. <i>Physical Review E</i> , 2018, 97, 032209.	2.1	63
33	Instantaneous and local wavenumber estimations for damage quantification in composites. <i>Structural Health Monitoring</i> , 2015, 14, 193-204.	7.5	62
34	Design and Analysis of Piezoelectric Metamaterial Beams With Synthetic Impedance Shunt Circuits. <i>IEEE/ASME Transactions on Mechatronics</i> , 2018, 23, 2144-2155.	5.8	58
35	Bistable attachments for wideband nonlinear vibration attenuation in a metamaterial beam. <i>Nonlinear Dynamics</i> , 2020, 102, 1285-1296.	5.2	56
36	Experimental Observation of Temporal Pumping in Electromechanical Waveguides. <i>Physical Review Letters</i> , 2021, 126, 095501.	7.8	56

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37	Mechanical properties of auxetic tubular truss-like structures. <i>Physica Status Solidi (B): Basic Research</i> , 2008, 245, 584-590.	1.5	53
38	Structural and Acoustic Behavior of Chiral Truss-Core Beams. <i>Journal of Vibration and Acoustics, Transactions of the ASME</i> , 2006, 128, 616-626.	1.6	51
39	Dramatic bandwidth enhancement in nonlinear metastructures via bistable attachments. <i>Applied Physics Letters</i> , 2019, 114, .	3.3	49
40	Edge states and topological pumping in stiffness-modulated elastic plates. <i>Physical Review B</i> , 2020, 101, .	3.2	48
41	Weakly nonlinear wave interactions in multi-degree of freedom periodic structures. <i>Wave Motion</i> , 2014, 51, 886-904.	2.0	45
42	Hybrid dispersive media with controllable wave propagation: A new take on smart materials. <i>Journal of Applied Physics</i> , 2015, 118, .	2.5	45
43	Structural-Acoustic Optimization of Sandwich Panels. <i>Journal of Vibration and Acoustics, Transactions of the ASME</i> , 2007, 129, 330-340.	1.6	44
44	Digitally Programmable Resonant Elastic Metamaterials. <i>Physical Review Applied</i> , 2020, 13, .	3.8	44
45	Topological Edge States in Quasiperiodic Locally Resonant Metastructures. <i>Physical Review Applied</i> , 2020, 13, .	3.8	41
46	Topological bands and localized vibration modes in quasiperiodic beams. <i>New Journal of Physics</i> , 2019, 21, 093017.	2.9	40
47	Simulation and Measurement of Ultrasonic Waves in Elastic Plates Using Laser Vibrometry. <i>AIP Conference Proceedings</i> , 2005, .	0.4	38
48	Coherent virtual absorption of elastodynamic waves. <i>Science Advances</i> , 2019, 5, eaaw3255.	10.3	37
49	Nonreciprocal piezoelectric metamaterial framework and circuit strategies. <i>Physical Review B</i> , 2020, 102, .	3.2	36
50	Strain rate dependence of stiffness and Poisson's ratio of auxetic open cell PU foams. <i>Physica Status Solidi (B): Basic Research</i> , 2007, 244, 955-965.	1.5	35
51	A continuum model for nonlinear lattices under large deformations. <i>International Journal of Solids and Structures</i> , 2016, 96, 300-319.	2.7	34
52	Effect of large deformation pre-loads on the wave properties of hexagonal lattices. <i>Smart Materials and Structures</i> , 2016, 25, 054010.	3.5	31
53	Exceptional points and enhanced sensitivity in PT-symmetric continuous elastic media. <i>Journal of the Mechanics and Physics of Solids</i> , 2021, 149, 104325.	4.8	30
54	Unusual behaviour of wave propagation in auxetic structures: P-waves on free surface and S-waves in chiral lattices with piezoelectrics. <i>Physica Status Solidi (B): Basic Research</i> , 2012, 249, 1339-1346.	1.5	27

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55	Baseline-free guided wave imaging via adaptive source removal. Structural Health Monitoring, 2012, 11, 472-481.	7.5	24
56	Fast wavenumber measurement for accurate and automatic location and quantification of defect in composite. Structural Health Monitoring, 2016, 15, 223-234.	7.5	23
57	Propagation of solitons in a two-dimensional nonlinear square lattice. International Journal of Non-Linear Mechanics, 2018, 106, 188-204.	2.6	22
58	Exploring topology of 1D quasiperiodic metastructures through modulated LEGO resonators. Applied Physics Letters, 2021, 118, .	3.3	22
59	Closure to "Discussion of "Dynamics of Phononic Materials and Structures: Historical Origins, Recent Progress, and Future Outlook" (Hussein, M. I., Leamy, M. J., and Ruzzene, M., 2014, ASME Appl.) Tj ETQq 1 1 0.784314 rgB	1.7	21
60	Experimental identification of high order Lamb waves and estimation of the mechanical properties of a dry human skull. Ultrasonics, 2021, 113, 106343.	3.9	21
61	Tensile properties of shape memory alloy chiral honeycombs. Physica Status Solidi (B): Basic Research, 2008, 245, 2440-2444.	1.5	20
62	Role of nonlinearities in topological protection: Testing magnetically coupled fidget spinners. Physical Review B, 2019, 99, .	3.2	20
63	Topological gaps by twisting. Communications Physics, 2021, 4, .	5.3	20
64	Fabrication and Characterization of a Wavenumber-Spiral Frequency-Steerable Acoustic Transducer for Source Localization in Plate Structures. IEEE Transactions on Instrumentation and Measurement, 2013, 62, 2197-2204.	4.7	17
65	Analysis of Vibration and Wave Propagation in Cylindrical Grid-Like Structures. Shock and Vibration, 2004, 11, 311-331.	0.6	16
66	Configuration Optimization of Supercavitating Underwater Vehicles With Maneuvering Constraints. IEEE Journal of Oceanic Engineering, 2010, 35, 647-662.	3.8	16
67	Self-bending elastic waves and obstacle circumventing in wireless power transfer. Applied Physics Letters, 2017, 110, .	3.3	16
68	Piezoelectric superlattices as multi-field internally resonating metamaterials. AIP Advances, 2011, 1, .	1.3	15
69	Optical evaluation of the wave filtering properties of graded undulated lattices. Journal of Applied Physics, 2018, 123, 091706.	2.5	15
70	INCIDENT WAVE REMOVAL THROUGH FREQUENCY-WAVENUMBER FILTERING OF FULL WAVEFIELD DATA. , 2009, , .		13
71	Dynamics of Quasiperiodic Beams. Crystals, 2020, 10, 1144.	2.2	12
72	Acoustically manipulating internal structure of disk-in-sphere endoskeletal droplets. Nature Communications, 2022, 13, 987.	12.8	12

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73	Peridynamics as an analysis tool for wave propagation in graphene nanoribbons. Proceedings of SPIE, 2015, , .	0.8	11
74	Nonlocal elasticity in shape memory alloys modeled using peridynamics for solving dynamic problems. Nonlinear Dynamics, 2019, 97, 1911-1935.	5.2	11
75	Optical Measurement of In-plane Waves in Mechanical Metamaterials Through Digital Image Correlation. Scientific Reports, 2017, 7, 42437.	3.3	10
76	Experimental and Computational Investigation of Guided Waves in a Human Skull. Ultrasound in Medicine and Biology, 2021, 47, 787-798.	1.5	10
77	Radiation Characteristics of Cranial Leaky Lamb Waves. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2021, 68, 2129-2140.	3.0	10
78	Combined analytical and experimental approaches to rotor components stress predictions. Proceedings of the Institution of Mechanical Engineers, Part K: Journal of Multi-body Dynamics, 2011, 225, 322-330.	0.8	9
79	Mechanics and dynamics of two-dimensional quasicrystalline composites. Extreme Mechanics Letters, 2021, 44, 101220.	4.1	9
80	Dynamics of elastic hyperbolic lattices. Extreme Mechanics Letters, 2021, 49, 101491.	4.1	9
81	Response of Periodically Stiffened Shells to a Moving Projectile Propelled by an Internal Pressure Wave. Mechanics of Advanced Materials and Structures, 2006, 13, 267-284.	2.6	8
82	Non-local modeling and simulation of wave propagation and crack growth. AIP Conference Proceedings, 2014, , .	0.4	8
83	FREQUENCY-WAVENUMBER DOMAIN FILTERING FOR IMPROVED DAMAGE VISUALIZATION. , 2007, , 591-611.		8
84	Experimental demonstration of directional GW generation through wavenumber-spiral Frequency Steerable Acoustic Actuators. , 2012, , .		7
85	Dynamic reconfiguration of magneto-elastic lattices. Comptes Rendus - Mecanique, 2015, 343, 670-679.	2.1	7
86	Bridging-Coupling Phenomenon in Linear Elastic Metamaterials by Exploiting Locally Resonant Metachain Isomers. Physical Review Applied, 2020, 14, .	3.8	7
87	Moiré-Driven Topological Transitions and Extreme Anisotropy in Elastic Metasurfaces. Advanced Science, 2022, 9, e2200181.	11.2	7
88	Minimal Surface-Based Materials for Topological Elastic Wave Guiding. Advanced Functional Materials, 2022, 32, .	14.9	7
89	Out-of-Plane Elastic Waves in 2D Models of Solids: A Case Study for a Nonlocal Discretization Scheme with Reduced Numerical Dispersion. Mathematical Problems in Engineering, 2015, 2015, 1-15.	1.1	5
90	Topologically protected edge states in mechanical metamaterials. Advances in Applied Mechanics, 2019, 52, 147-181.	2.3	5

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91	Vibration-based elastic parameter identification of the diploÃ« and cortical tables in dry cranial bones. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 123, 104747.	3.1	5
92	BEAMFORMING OF WAVEFIELD DATA FROM EMBEDDED SOURCES FOR RAPID FOLLOW-UP INSPECTION OF INACCESSIBLE AREAS. , 2010, , .		4
93	Skull microstructure and mode conversion in transcranial ultrasound imaging. , 2021, , .		4
94	Photolithography-based realization of frequency steerable acoustic sensors on PVDF substrate. , 2012, , .		3
95	A nonlocal finite difference scheme for simulation of wave propagation in 2D models with reduced numerical dispersion. Proceedings of SPIE, 2014, , .	0.8	3
96	Prediction of UH-60A Blade Loads: Insight on Load Confluence Algorithm. AIAA Journal, 2014, 52, 2007-2018.	2.6	3
97	A study of deformation localization in nonlinear elastic square lattices under compression. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2018, 376, 20170140.	3.4	3
98	Phononic Crystals: Phononic Crystal with Adaptive Connectivity (Adv. Mater. 9/2014). Advanced Materials, 2014, 26, 1472-1472.	21.0	2
99	Structural Health and Strain Monitoring Sensing through Fourier-Based Transducers. Mechanics of Advanced Materials and Structures, 2015, 22, 67-76.	2.6	2
100	Optical measurement of guided waves. Journal of the Acoustical Society of America, 2017, 141, EL465-EL469.	1.1	2
101	Solving partial differential equations in computational mechanics via nonlocal numerical approaches. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2019, 99, e201800342.	1.6	2
102	Small-world disordered lattices: spectral gaps and diffusive transport. New Journal of Physics, 2022, 24, 073020.	2.9	2
103	STRUCTURAL DIAGNOSTICS OF BALLISTIC-LIKE DAMAGE VARIATION VIA WAVE PROPAGATION-BASED FILTERING TECHNIQUES. , 2010, , .		1
104	An improved beamforming technique for increased imaging resolution in GW-based SHM. , 2010, , .		1
105	Phased Array Ultrasonic Testing of Inconel 625 Produced by Selective Laser Melting. Journal of Nondestructive Evaluation, Diagnostics and Prognostics of Engineering Systems, 2021, 4, .	0.9	1
106	A Theoretical Framework for Core Material Properties Identification in Cellular Solids using Novelty Detection. Strain, 2004, 40, 5-12.	2.4	0
107	COMPARISON OF MODELING AND EXPERIMENTS OF LAMB WAVES AS APPLIED TO STRUCTURAL HEALTH MONITORING. , 2009, , .		0
108	DIFFUSE FIELD INTERFEROMETRY FOR EXPERIMENTAL GREENâ€™S FUNCTION ESTIMATION AND DAMAGE DETECTION. , 2009, , .		0

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109	Spectrogram remapping based imaging for spiral shaped frequency steerable acoustic transducers. , 2011, , .		0
110	Bulk wave FSAT for 2D optic fiber endoscopic echography. , 2013, , .		0
111	Orthogonal wideband (DC-10 GHz) microstrip-to-microstrip transition using flexible LCP interconnects. , 2014, , .		0
112	Orthogonal wideband (DC-10 GHz) microstrip-to-microstrip transition using flexible LCP interconnects. , 2014, , .		0
113	Guided wavefield reconstruction from sparse measurements. AIP Conference Proceedings, 2016, , .	0.4	0
114	Phase congruency for damage mapping in composites. AIP Conference Proceedings, 2016, , .	0.4	0
115	Topological edge modes and elastic wave pumping leveraging phononics waveguides. , 2019, , .		0
116	Edge States and Topological Pumping in Spatially Modulated Elastic Lattices. , 2019, , .		0
117	Radiation Characterization of Leaky Guided Waves in Monolithic and Sutured Cranial Bones. , 2021, , .		0
118	Mechanical Characterization of Cranial Sutures Using Guided Ultrasonic Waves. , 2021, , .		0