

Mahmoud I Hussein

List of Publications by Year in descending order

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63
papers

4,167
citations

201674

27
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175258

52
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74
all docs

74
docs citations

74
times ranked

1994
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	Wave Motion in Periodic Flexural Beams and Characterization of the Transition Between Bragg Scattering and Local Resonance. <i>Journal of Applied Mechanics, Transactions ASME</i> , 2012, 79, .	2.2	245
3	Nanophononic Metamaterial: Thermal Conductivity Reduction by Local Resonance. <i>Physical Review Letters</i> , 2014, 112, 055505.	7.8	234
4	Metadamping: An emergent phenomenon in dissipative metamaterials. <i>Journal of Sound and Vibration</i> , 2013, 332, 4767-4774.	3.9	199
5	Dispersive elastodynamics of 1D banded materials and structures: analysis. <i>Journal of Sound and Vibration</i> , 2006, 289, 779-806.	3.9	188
6	Ultrawide phononic band gap for combined in-plane and out-of-plane waves. <i>Physical Review E</i> , 2011, 84, 065701.	2.1	166
7	Reduced Bloch mode expansion for periodic media band structure calculations. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2009, 465, 2825-2848.	2.1	163
8	Multiobjective evolutionary optimization of periodic layered materials for desired wave dispersion characteristics. <i>Structural and Multidisciplinary Optimization</i> , 2006, 31, 60-75.	3.5	145
9	Trampoline metamaterial: Local resonance enhancement by springboards. <i>Applied Physics Letters</i> , 2013, 103, 111901.	3.3	144
10	Inertial amplification of continuous structures: Large band gaps from small masses. <i>Journal of Applied Physics</i> , 2016, 119, .	2.5	126
11	Dispersive elastodynamics of 1D banded materials and structures: Design. <i>Journal of Sound and Vibration</i> , 2007, 307, 865-893.	3.9	121
12	Band structure of phononic crystals with general damping. <i>Journal of Applied Physics</i> , 2010, 108, .	2.5	121
13	Dispersion characteristics of a nonlinear elastic metamaterial. <i>AIP Advances</i> , 2014, 4, .	1.3	101
14	Theory of damped Bloch waves in elastic media. <i>Physical Review B</i> , 2009, 80, .	3.2	95
15	Physics of surface vibrational resonances: pillared phononic crystals, metamaterials, and metasurfaces. <i>Reports on Progress in Physics</i> , 2021, 84, 086502.	20.1	94
16	Inertial amplification band-gap generation by coupling a levered mass with a locally resonant mass. <i>International Journal of Mechanical Sciences</i> , 2021, 207, 106630.	6.7	61
17	Generalized Bloch's theorem for viscous metamaterials: Dispersion and effective properties based on frequencies and wavenumbers that are simultaneously complex. <i>Comptes Rendus Physique</i> , 2016, 17, 565-577.	0.9	55
18	Two orders of magnitude reduction in silicon membrane thermal conductivity by resonance hybridizations. <i>Physical Review B</i> , 2018, 97, .	3.2	52

#	ARTICLE	IF	CITATIONS
19	Viscous-to-viscoelastic transition in phononic crystal and metamaterial band structures. Journal of the Acoustical Society of America, 2015, 138, 3169-3180.	1.1	51
20	Spectral energy analysis of locally resonant nanophononic metamaterials by molecular simulations. Physical Review B, 2016, 93, .	3.2	50
21	Metadamping: Dissipation Emergence in Elastic Metamaterials. Advances in Applied Mechanics, 2018, , 115-164.	2.3	50
22	Generalized Bloch mode synthesis for accelerated calculation of elastic band structures. Journal of Computational Physics, 2018, 357, 183-205.	3.8	44
23	Plasticity size effects in voided crystals. Journal of the Mechanics and Physics of Solids, 2008, 56, 114-131.	4.8	43
24	Thermal transport size effects in silicon membranes featuring nanopillars as local resonators. Applied Physics Letters, 2016, 108, .	3.3	42
25	Thermal Conductivity Reduction in a Nanophononic Metamaterial versus a Nanophononic Crystal: A Review and Comparative Analysis. Advanced Functional Materials, 2020, 30, 1906718.	14.9	42
26	Wave dispersion under finite deformation. Wave Motion, 2013, 50, 374-388.	2.0	33
27	Analysis of Damped Bloch Waves by the Rayleigh Perturbation Method. Journal of Vibration and Acoustics, Transactions of the ASME, 2013, 135, .	1.6	28
28	Thermal characterization of nanoscale phononic crystals using supercell lattice dynamics. AIP Advances, 2011, 1, .	1.3	27
29	Nonlinear Bloch waves and balance between hardening and softening dispersion. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20180173.	2.1	25
30	Mode-enriched dispersion models of periodic materials within a multiscale mixed finite element framework. Finite Elements in Analysis and Design, 2006, 42, 602-612.	3.2	22
31	Bloch mode synthesis: Ultrafast methodology for elastic band-structure calculations. Physical Review E, 2014, 90, 063306.	2.1	22
32	Thermal conductivity prediction of nanoscale phononic crystal slabs using a hybrid lattice dynamics-continuum mechanics technique. AIP Advances, 2011, 1, .	1.3	21
33	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. J. Tj ETQm 1 0.784314 rgB	1.3	21
34	Anisotropic dissipation in lattice metamaterials. AIP Advances, 2016, 6, .	1.3	21
35	Metadamping in inertially amplified metamaterials: Trade-off between spatial attenuation and temporal attenuation. Journal of Sound and Vibration, 2022, 531, 116977.	3.9	18
36	Broadband and Intense Sound Transmission Loss by a Coupled-Resonance Acoustic Metamaterial. Physical Review Applied, 2021, 16, .	3.8	13

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37	Analysis of Periodicity Termination in Phononic Crystals. , 2011, , .		11
38	Preface to Special Topic: Selected Articles from Phononics 2011: The First International Conference on Phononic Crystals, Metamaterials and Optomechanics, 29 May-2 June 2011, Santa Fe, New Mexico, USA. AIP Advances, 2011, 1, .	1.3	10
39	Topologically evolved phononic material: breaking the world record in band gap size. , 2012, , .		10
40	Closed-form existence conditions for bandgap resonances in a finite periodic chain under general boundary conditions. Journal of the Acoustical Society of America, 2022, 151, 286-298.	1.1	10
41	Explicit dispersion relation for strongly nonlinear flexural waves using the homotopy analysis method. Nonlinear Dynamics, 2020, 99, 737-752.	5.2	9
42	Directional thermal channeling: A phenomenon triggered by tight packing of heat sources. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	9
43	Optimization of Phononic Crystals for the Simultaneous Attenuation of Out-of-Plane and In-Plane Waves. , 2011, , .		8
44	The finite-element time-domain method for elastic band-structure calculations. Computer Physics Communications, 2019, 238, 77-87.	7.5	8
45	State-space Bloch mode synthesis for fast band-structure calculations of non-classically damped phononic materials. Computer Methods in Applied Mechanics and Engineering, 2022, 396, 115018.	6.6	6
46	Coiled Phononic Crystal with Periodic Rotational Locking: Subwavelength Bragg Band Gaps. Physical Review Applied, 2022, 18, .	3.8	6
47	Theoretical band-gap bounds and coupling sensitivity for a waveguide with periodically attached resonating branches. Journal of Sound and Vibration, 2021, 514, 116428.	3.9	5
48	Damped Phononic Crystals and Acoustic Metamaterials. Springer Series in Solid-state Sciences, 2013, , 201-215.	0.3	5
49	Time-independent harmonics dispersion relation for time-evolving nonlinear waves. Science Advances, 2021, 7, eabl3695.	10.3	5
50	Hierarchical Design of Phononic Materials and Structures. , 2005, , 163.		4
51	Effects of "Finiteness" on Wave Propagation and Vibration in Elastic Periodic Structures. , 2004, , 437.		3
52	Preface to Special Topic: Selected Articles from Phononics 2013: The Second International Conference on Phononic Crystals/Metamaterials, Phonon Transport and Optomechanics, 2-7 June 2013, Sharm El-Sheikh, Egypt. AIP Advances, 2014, 4, .	1.3	3
53	Brillouin-zone characterization of piezoelectric material intrinsic energy-harvesting availability. Smart Materials and Structures, 2021, 30, 085022.	3.5	3
54	Preface to Special Topic: Selected Articles from Phononics 2015: The Third International Conference on Phononic Crystals/Metamaterials, Phonon Transport and Phonon Coupling, 31 May-5 June 2015, Paris, France. AIP Advances, 2016, 6, 121501.	1.3	2

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55	Band Structure Calculations by Modal Analysis. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2010, , 319-324.	0.2	2
56	Design Space Exploration of Multi-Phase Layered Phononic Materials via Natural Evolution. , 2006, , 155.		1
57	Analysis of Elastic Wave Propagation in Nonlinear Beams. , 2011, , .		1
58	Resonant Thermal Transport in Nanophononic Metamaterials. , 2020, , 953-973.		1
59	Microdynamics of Phononic Materials. , 2013, , .		1
60	Dispersion Relation for Generally Damped Periodic Materials. , 2010, , .		0
61	Thermal conductivity reduction by nanophononic metamaterials. , 2014, , .		0
62	Resonant Thermal Transport in Nanophononic Metamaterials. , 2018, , 1-21.		0
63	Editorial for the Special Issue on "Emerging Trends in Phononic Crystals" Crystals, 2021, 11, 911.	2.2	0