Joseph N. Grima

List of Publications by Year
in descending order

133 papers	8,037 citations	41344 49 h-index	51608 86 g-index
135 all docs	135 docs citations	135 times ranked	2878 citing authors

#	Article	IF	Citations
1	Auxetic behavior from rotating squares. Journal of Materials Science Letters, 2000, 19, 1563-1565.	0.5	613
2	Elastic constants of 3-, 4- and 6-connected chiral and anti-chiral honeycombs subject to uniaxial in-plane loading. Composites Science and Technology, 2010, 70, 1042-1048.	7.8	470
3	A novel mechanism for generating auxetic behaviour in reticulated foams: missing rib foam model. Acta Materialia, 2000, 48, 4349-4356.	7.9	343
4	Auxetic behaviour from rotating rigid units. Physica Status Solidi (B): Basic Research, 2005, 242, 561-575.	1.5	311
5	Tailoring Graphene to Achieve Negative Poisson's Ratio Properties. Advanced Materials, 2015, 27, 1455-1459.	21.0	275
6	Auxetic behavior from rotating triangles. Journal of Materials Science, 2006, 41, 3193-3196.	3.7	259
7	Hierarchical Auxetic Mechanical Metamaterials. Scientific Reports, 2015, 5, 8395.	3.3	226
8	Novel honeycombs with auxetic behaviour. Acta Materialia, 2005, 53, 2439-2445.	7.9	215
9	On the potential of connected stars as auxetic systems. Molecular Simulation, 2005, 31, 925-935.	2.0	202
10	On the properties of auxetic metaâ€tetrachiral structures. Physica Status Solidi (B): Basic Research, 2008, 245, 511-520.	1.5	194
11	Auxetic Perforated Mechanical Metamaterials with Randomly Oriented Cuts. Advanced Materials, 2016, 28, 385-389.	21.0	153
12	Perforated Sheets Exhibiting Negative Poisson's Ratios. Advanced Engineering Materials, 2010, 12, 460-464.	3.5	152
13	On the auxetic properties of rotating rhombi and parallelograms: A preliminary investigation. Physica Status Solidi (B): Basic Research, 2008, 245, 521-529.	1.5	144
14	Auxetic behaviour from rotating semi-rigid units. Physica Status Solidi (B): Basic Research, 2007, 244, 866-882.	1.5	141
15	Hexagonal Honeycombs with Zero Poisson's Ratios and Enhanced Stiffness. Advanced Engineering Materials, 2010, 12, 855-862.	3.5	140
16	A Novel Process for the Manufacture of Auxetic Foams and for Their reâ€conversion to Conventional Form. Advanced Engineering Materials, 2009, 11, 533-535.	3.5	121
17	Auxetic metamaterials exhibiting giant negative Poisson's ratios. Physica Status Solidi - Rapid Research Letters, 2015, 9, 425-430.	2.4	118
18	Negative linear compressibility of hexagonal honeycombs and related systems. Scripta Materialia, 2011, 65, 565-568.	5.2	113

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19	Smart metamaterials with tunable auxetic and other properties. Smart Materials and Structures, 2013, 22, 084016.	3.5	111
20	Negative Poisson's ratios in cellular foam materials. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2006, 423, 214-218.	5.6	109
21	Natrolite: A zeolite with negative Poissonâ€™s ratios. Journal of Applied Physics, 2007, 101, 086102.	2.5	107
22	Auxetic behaviour from rotating rhombi. Physica Status Solidi (B): Basic Research, 2008, 245, 2395-2404.	1.5	101
23	Negative Poissonâ€™s ratios in tendons: An unexpected mechanical response. Acta Biomaterialia, 2015, 24, 201-208.	8.3	100
24	Materials that push back. Nature Materials, 2012, 11, 565-566.	27.5	99
25	Negative compressibility. Physica Status Solidi - Rapid Research Letters, 2008, 2, 236-238.	2.4	94
26	Auxetic behaviour from connected different-sized squares and rectangles. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2011, 467, 439-458.	2.1	90
27	Planar auxeticity from elliptic inclusions. Composites Part B: Engineering, 2016, 94, 379-388.	12.0	90
28	On the Auxetic Properties of `Rotating Rectangles' with Different Connectivity. Journal of the Physical Society of Japan, 2005, 74, 2866-2867.	1.6	88
29	Three-dimensional cellular structures with negative Poisson's ratio and negative compressibility properties. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 3121-3138.	2.1	85
30	A threeâ€dimensional rotating rigid units network exhibiting negative Poisson's ratios. Physica Status Solidi (B): Basic Research, 2012, 249, 1330-1338.	1.5	85
31	A realistic generic model for antiâ€tetrachiral systems. Physica Status Solidi (B): Basic Research, 2013, 250, 2012-2019.	1.5	85
32	A system with adjustable positive or negative thermal expansion. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2007, 463, 1585-1596.	2.1	81
33	On the auxetic properties of generic rotating rigid triangles. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 810-830.	2.1	81
34	Unimode metamaterials exhibiting negative linear compressibility and negative thermal expansion. Smart Materials and Structures, 2016, 25, 025009.	3.5	76
35	Influence of translational disorder on the mechanical properties of hexachiral honeycomb systems. Composites Part B: Engineering, 2015, 80, 84-91.	12.0	72
36	An Alternative Explanation for the Negative Poisson's Ratios in Auxetic Foams. Journal of the Physical Society of Japan, 2005, 74, 1341-1342.	1.6	62

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37	On the origin of auxetic behaviour in the silicate Î±-cristobalite. Journal of Materials Chemistry, 2005, 15, 4003.	6.7	62
38	On rotating rigid parallelograms and their potential for exhibiting auxetic behaviour. Physica Status Solidi (B): Basic Research, 2009, 246, 2033-2044.	1.5	62
39	Auxetic behaviour in non-crystalline materials having star or triangular shaped perforations. Journal of Non-Crystalline Solids, 2010, 356, 1980-1987.	3.1	62
40	An alternative explanation for the negative Poisson's ratios in Î±-cristobalite. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2006, 423, 219-224.	5.6	61
41	Modelling of hexagonal honeycombs exhibiting zero Poisson's ratio. Physica Status Solidi (B): Basic Research, 2011, 248, 52-59.	1.5	59
42	Honeycomb composites with auxetic out-of-plane characteristics. Composite Structures, 2013, 106, 150-159.	5.8	59
43	On the properties of real finite-sized planar and tubular stent-like auxetic structures. Physica Status Solidi (B): Basic Research, 2014, 251, 321-327.	1.5	58
44	Auxetic behaviour from stretching connected squares. Journal of Materials Science, 2008, 43, 5962-5971.	3.7	55
45	A generalised three-dimensional tethered-nodule model for auxetic materials. Journal of Materials Science, 2011, 46, 372-384.	3.7	54
46	Modeling auxetic foams through semi-rigid rotating triangles. Physica Status Solidi (B): Basic Research, 2014, 251, 297-306.	1.5	52
47	3D composite metamaterial with magnetic inclusions exhibiting negative stiffness and auxetic behaviour. Materials and Design, 2020, 187, 108403.	7.0	52
48	Trussâ€type systems exhibiting negative compressibility. Physica Status Solidi (B): Basic Research, 2008, 245, 2405-2414.	1.5	51
49	Networked calix[4]arene polymers with unusual mechanical properties. Chemical Communications, 2005, , 4065.	4.1	50
50	On the suitability of hexagonal honeycombs as stent geometries. Physica Status Solidi (B): Basic Research, 2014, 251, 328-337.	1.5	50
51	Modelling the deformation mechanisms, structure-property relationships and applications of auxetic nanomaterials. Physica Status Solidi (B): Basic Research, 2005, 242, 499-508.	1.5	48
52	A review of the state-of-the-art in air filtration technologies as may be applied to cold storage warehouses. Trends in Food Science and Technology, 2016, 50, 175-185.	15.1	47
53	Modelling of the mechanical and mass transport properties of auxetic molecular sieves: an idealised organic (polymeric honeycomb) hostâ€“guest system. Molecular Simulation, 2005, 31, 897-905.	2.0	45
54	Smart hexagonal truss systems exhibiting negative compressibility through constrained angle stretching. Smart Materials and Structures, 2013, 22, 084015.	3.5	45

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55	Negative and positive stiffness in auxetic magneto-mechanical metamaterials. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20180003.	2.1	43
56	On the properties of auxetic rotating stretching squares. Physica Status Solidi (B): Basic Research, 2009, 246, 2045-2054.	1.5	40
57	Blocked Shape Memory Effect in Negative Poissonâ€™s Ratio Polymer Metamaterials. ACS Applied Materials & Interfaces, 2016, 8, 20319-20328.	8.0	37
58	Connected Triangles Exhibiting Negative Poisson's Ratios and Negative Thermal Expansion. Journal of the Physical Society of Japan, 2007, 76, 025001.	1.6	35
59	An analytical and finite element study on the mechanical properties of irregular hexachiral honeycombs. Smart Materials and Structures, 2018, 27, 105016.	3.5	35
60	On the effect of the Poisson's ratio (positive and negative) on the stability of pressure vessel heads. Physica Status Solidi (B): Basic Research, 2009, 246, 2025-2032.	1.5	34
61	Negative linear compressibility from rotating rigid units. Physica Status Solidi (B): Basic Research, 2016, 253, 1410-1418.	1.5	34
62	Modelling of the mechanical and mass transport properties of auxetic molecular sieves: an idealised inorganic (zeolitic) hostâ€“guest system. Molecular Simulation, 2005, 31, 889-896.	2.0	33
63	Molecular networks with a near zero Poisson's ratio. Physica Status Solidi (B): Basic Research, 2011, 248, 111-116.	1.5	31
64	On the atomic level deformations in the auxetic zeolite natrolite. Physica Status Solidi (B): Basic Research, 2008, 245, 502-510.	1.5	30
65	Auxetic Behavior and Other Negative Thermomechanical Properties from Rotating Rigid Units. Physica Status Solidi - Rapid Research Letters, 2022, 16, .	2.4	27
66	Adjustable and negative thermal expansion from multilayered systems. Physica Status Solidi - Rapid Research Letters, 2010, 4, 133-135.	2.4	26
67	Composites with needle-like inclusions exhibiting negative thermal expansion: A preliminary investigation. Composites Science and Technology, 2010, 70, 2248-2252.	7.8	26
68	On the effect of heat and solvent exposure on the microstructure properties of auxetic foams: A preliminary study. Physica Status Solidi (B): Basic Research, 2011, 248, 39-44.	1.5	26
69	Auxetic Materials and Related Systems. Physica Status Solidi (B): Basic Research, 2014, 251, 263-266.	1.5	26
70	On the Effect of the Mode of Connection between the Node and the Ligaments in Antiâ€Tetrachiral Systems. Advanced Engineering Materials, 2015, 17, 189-198.	3.5	25
71	Auxetics and other systems of â€œnegativeâ€•characteristics. Physica Status Solidi (B): Basic Research, 2015, 252, 1421-1425.	1.5	24
72	Maximizing negative thermal expansion via rigid unit modes: a geometry-based approach. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150188.	2.1	24

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73	Giant Auxetic Behaviour in Engineered Graphene. Annalen Der Physik, 2018, 530, 1700330.	2.4	24
74	Mechanism of sternotomy dehiscence. Interactive Cardiovascular and Thoracic Surgery, 2014, 19, 617-621.	1.1	23
75	On the mechanical properties and auxetic potential of various organic networked polymers. Molecular Simulation, 2008, 34, 1149-1158.	2.0	22
76	On the effect of hydrostatic pressure on the auxetic character of NAT-type silicates. Journal of Non-Crystalline Solids, 2009, 355, 1307-1312.	3.1	22
77	Unusual Thermoelastic Properties of Methanol Monohydrate. Science, 2011, 331, 687-688.	12.6	21
78	On the Structural and Mechanical Properties of Poly(Phenylacetylene) Trussâ€Like Hexagonal Hierarchical Nanonetworks. Physica Status Solidi (B): Basic Research, 2017, 254, 1700190.	1.5	21
79	On the role of rotating tetrahedra for generating auxetic behavior in NAT and related systems. Journal of Non-Crystalline Solids, 2008, 354, 4214-4220.	3.1	20
80	Modelling and testing of a foldable macrostructure exhibiting auxetic behaviour. Physica Status Solidi (B): Basic Research, 2011, 248, 117-122.	1.5	20
81	Is there a biomechanical cause for spontaneous pneumothorax?. European Journal of Cardio-thoracic Surgery, 2014, 45, 1011-1016.	1.4	20
82	On the Compressibility Properties of the Wineâ€Rackâ€Like Carbon Allotropes and Related Poly(phenylacetylene) Systems. Physica Status Solidi (B): Basic Research, 2019, 256, 1800572.	1.5	20
83	Nonâ€porous grooved singleâ€material auxetics. Physica Status Solidi (B): Basic Research, 2015, 252, 1559-1564.	1.5	18
84	Colossal magnetocaloric effect in magneto-auxetic systems. Smart Materials and Structures, 2015, 24, 085027.	3.5	18
85	Smart Honeycomb â€œMechanical Metamaterialsâ€•with Tunable Poisson's Ratios. Physica Status Solidi (B): Basic Research, 2020, 257, 1900707.	1.5	17
86	Reconfigurable magneto-mechanical metamaterials guided by magnetic fields. Composite Structures, 2022, 280, 114921.	5.8	17
87	Preface: phys. stat. sol. (b) 245/11. Physica Status Solidi (B): Basic Research, 2008, 245, 2369-2372.	1.5	16
88	Anomalous elastic properties in stishovite. RSC Advances, 2015, 5, 8974-8980.	3.6	15
89	Out-of-plane doming behaviour from constrained auxetics. Smart Materials and Structures, 2018, 27, 015020.	3.5	15
90	Empirical modelling using dummy atoms (EMUDA): an alternative approach for studying â€œauxeticâ€• structures. Molecular Simulation, 2005, 31, 915-924.	2.0	14

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91	Auxetic Materials and Related Systems. Physica Status Solidi (B): Basic Research, 2012, 249, 1313-1314.	1.5	14
92	Negative Linear Compressibility and Auxeticity in Boron Arsenate. Annalen Der Physik, 2020, 532, 1900550.	2.4	14
93	On the behaviour of bi-material strips when subjected to changes in external hydrostatic pressure. Scripta Materialia, 2009, 60, 65-67.	5.2	13
94	Negative thermal expansion from disc, cylindrical, and needle shaped inclusions. Physica Status Solidi (B): Basic Research, 2013, 250, 2051-2056.	1.5	13
95	On the mechanical properties of centroâ€symmetric honeycombs with Tâ€shaped joints. Physica Status Solidi (B): Basic Research, 2013, 250, 2002-2011.	1.5	13
96	Advances in the study of the deformation mechanism of stishovite. Physica Status Solidi (B): Basic Research, 2015, 252, 1486-1491.	1.5	13
97	Self-induced global rotation of chiral and other mechanical metamaterials. International Journal of Solids and Structures, 2020, 191-192, 212-219.	2.7	13
98	Placement of trans-sternal wires according to an ellipsoid pressure vessel model of sternal forces. Interactive Cardiovascular and Thoracic Surgery, 2012, 14, 283-287.	1.1	12
99	Giant response. Nature Materials, 2013, 12, 182-183.	27.5	12
100	On the effect of solvent molecules on the structure and mechanical properties of organic polyphenylacetylene auxetic reâ€entrant network polymers. Physica Status Solidi (B): Basic Research, 2013, 250, 2030-2037.	1.5	12
101	Auxetics and other systems of â€œnegativeâ€•characteristics. Physica Status Solidi (B): Basic Research, 2016, 253, 1241-1242.	1.5	12
102	Auxetic metamaterials inspired from wine-racks. Journal of Materials Science, 2018, 53, 5079-5091.	3.7	12
103	Controllable Hierarchical Mechanical Metamaterials Guided by the Hinge Design. Materials, 2021, 14, 758.	2.9	12
104	Modelling of auxetic networked polymers built from calix[4]arene building blocks. Molecular Simulation, 2005, 31, 907-913.	2.0	11
105	A forceâ€field based analysis of the deformation mechanism in Î±â€cristobalite. Physica Status Solidi (B): Basic Research, 2015, 252, 1479-1485.	1.5	11
106	The Push Drill Mechanism as a Novel Method to Create 3D Mechanical Metamaterial Structures. Physica Status Solidi - Rapid Research Letters, 2020, 14, 2000125.	2.4	11
107	Removing Auxetic Properties in f.c.c. Hard Sphere Crystals by Orthogonal Nanochannels with Hard Spheres of Another Diameter. Materials, 2022, 15, 1134.	2.9	11
108	Development of novel poly(phenylacetylene) network polymers and their mechanical behaviour. Physica Status Solidi (B): Basic Research, 2014, 251, 375-382.	1.5	10

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109	Carbon allotropes exhibiting negative linear compressibility. Physica Status Solidi (B): Basic Research, 2015, 252, 1656-1663.	1.5	10
110	External rib structure can be predicted using mathematical models: An anatomical study with application to understanding fractures and intercostal muscle function. Clinical Anatomy, 2015, 28, 512-519.	2.7	9
111	Nano networks exhibiting negative linear compressibility. Physica Status Solidi (B): Basic Research, 2016, 253, 1419-1427.	1.5	9
112	The Auxetic Behavior of a General Starâ€4 Structure. Physica Status Solidi (B): Basic Research, 2021, 258, 2100158.	1.5	9
113	Auxetic Cellular Materials and Structures. , 2005, , 489.		8
114	Space Dependent Mean Field Approximation Modelling. Journal of Statistical Physics, 2014, 154, 1508-1515.	1.2	8
115	Tuning the Mechanical Properties of the Antiâ€Tetrachiral System Using Nonuniform Ligament Thickness. Physica Status Solidi (B): Basic Research, 2020, 257, 1900507.	1.5	8
116	Shearing Deformations of Î²-Cristobalite-Like Boron Arsenate. Symmetry, 2021, 13, 977.	2.2	8
117	Cancellation of Auxetic Properties in F.C.C. Hard Sphere Crystals by Hybrid Layer-Channel Nanoinclusions Filled by Hard Spheres of Another Diameter. Materials, 2021, 14, 3008.	2.9	8
118	Foams as 3D perforated systems: An analysis of their Poisson's ratios under compression. Physica Status Solidi (B): Basic Research, 2014, 251, 2233-2238.	1.5	7
119	A biomechanical hypothesis for the pathophysiology of apical lung disease. Medical Hypotheses, 2016, 92, 88-93.	1.5	7
120	A hypothesis for reactivation of pulmonary tuberculosis: How thoracic wall shape affects the epidemiology of tuberculosis. Clinical Anatomy, 2015, 28, 614-620.	2.7	6
121	Edge Effects of a Hexagonal Honeycomb on the Poisson's Ratio and Young's Modulus. Physica Status Solidi (B): Basic Research, 2020, 257, 1900511.	1.5	6
122	On the behaviour of natrolite under hydrostatic pressure. Journal of Non-Crystalline Solids, 2010, 356, 1881-1887.	3.1	5
123	Modeling of thermal expansion coefficients of composites with disc shaped inclusions and related systems. Physica Status Solidi (B): Basic Research, 2013, 250, 2057-2061.	1.5	5
124	Blisters and Calluses from Rowing: Prevalence, Perceptions and Pain Tolerance. Medicina (Lithuania), 2022, 58, 77.	2.0	5
125	Auxetic behavior obtained through the large deformations of variants of the rectangular grid. Mechanics of Advanced Materials and Structures, 2023, 30, 262-271.	2.6	5
126	Auxetic Materials and Related Systems. Physica Status Solidi (B): Basic Research, 2013, 250, 1959-1962.	1.5	4

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127	Internal rib structure can be predicted using mathematical models: An anatomic study comparing the chest to a shell dome with application to understanding fractures. Clinical Anatomy, 2015, 28, 1008-1016.	2.7	4
128	On the Design of Multimaterial Honeycombs and Structures with Tâ€Shaped Joints Having Tunable Thermal and Compressibility Properties. Physica Status Solidi (B): Basic Research, 2020, 257, 1900633.	1.5	4
129	Tuning the Mechanical Properties of the Antiâ€Tetrachiral System Using Nonuniform Ligament Thickness. Physica Status Solidi (B): Basic Research, 2020, 257, 2070039.	1.5	2
130	Molecular-Level Deformations in Auxetic Organic Networked Polymers. ACS Symposium Series, 2010, , 197-214.	0.5	1
131	A novel method of personnel cooling in an operating theatre environment. Interactive Cardiovascular and Thoracic Surgery, 2014, 19, 687-689.	1.1	1
132	The Push Drill Mechanism as a Novel Method to Create 3D Mechanical Metamaterial Structures. Physica Status Solidi - Rapid Research Letters, 2020, 14, 2070032.	2.4	1
133	The Auxetic Behavior of a General Starâ€4 Structure. Physica Status Solidi (B): Basic Research, 2021, 258, .	1.5	1