Richard D James

List of Publications by Year
in descending order

88 papers	5,301 citations	147801 31 h-index	82547 72 g-index
90 all docs	90 docs citations	90 times ranked	3032 citing authors

#	Article	IF	Citations
1	Combinatorial search of thermoelastic shape-memory alloys with extremely small hysteresis width. Nature Materials, 2006, 5, 286-290.	27.5	551
2	A theorem on geometric rigidity and the derivation of nonlinear plate theory from three-dimensional elasticity. Communications on Pure and Applied Mathematics, 2002, 55, 1461-1506.	3.1	493
3	Enhanced reversibility and unusual microstructure of a phase-transforming material. Nature, 2013, 502, 85-88.	27.8	337
4	A Hierarchy of Plate Models Derived from Nonlinear Elasticity by Gamma-Convergence. Archive for Rational Mechanics and Analysis, 2006, 180, 183-236.	2.4	316
5	Identification of Quaternary Shape Memory Alloys with Nearâ€Zero Thermal Hysteresis and Unprecedented Functional Stability. Advanced Functional Materials, 2010, 20, 1917-1923.	14.9	304
6	Energy barriers and hysteresis in martensitic phase transformations. Acta Materialia, 2009, 57, 4332-4352.	7.9	243
7	APPLIED PHYSICS: The Material Is the Machine. Science, 2005, 307, 53-54.	12.6	230
8	A constrained theory of magnetoelasticity. Journal of the Mechanics and Physics of Solids, 2002, 50, 283-320.	4.8	175
9	The Direct Conversion of Heat to Electricity Using Multiferroic Alloys. Advanced Energy Materials, 2011, 1, 97-104.	19.5	162
10	The propagation of phase boundaries in elastic bars. Archive for Rational Mechanics and Analysis, 1980, 73, 125-158.	2.4	149
11	Micromagnetics of very thin films. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 1997, 453, 213-223.	2.1	145
12	Finite deformation by mechanical twinning. Archive for Rational Mechanics and Analysis, 1981, 77, 143-176.	2.4	138
13	Hysteresis and unusual magnetic properties in the singular Heusler alloy Ni45Co5Mn40Sn10. Applied Physics Letters, 2010, 97, .	3.3	138
14	Phase engineering and supercompatibility of shape memory alloys. Materials Today, 2018, 21, 265-277.	14.2	122
15	Study of the cofactor conditions: Conditions of supercompatibility between phases. Journal of the Mechanics and Physics of Solids, 2013, 61, 2566-2587.	4.8	116
16	Transmission electron microscopy study of phase compatibility in low hysteresis shape memory alloys. Philosophical Magazine, 2010, 90, 177-195.	1.6	111
17	Occurrence of ferromagnetic shape memory alloys (invited). Journal of Applied Physics, 2000, 87, 4707-4711.	2.5	102
18	Objective molecular dynamics. Journal of the Mechanics and Physics of Solids, 2007, 55, 2206-2236.	4.8	95

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19	A scheme for the passage from atomic to continuum theory for thin films, nanotubes and nanorods. Journal of the Mechanics and Physics of Solids, 2000, 48, 1519-1540.	4.8	91
20	Co-existent phases in the one-dimensional static theory of elastic bars. Archive for Rational Mechanics and Analysis, 1979, 72, 99-140.	2.4	84
21	Objective structures. Journal of the Mechanics and Physics of Solids, 2006, 54, 2354-2390.	4.8	83
22	A theory of magnetostriction oriented towards applications. Journal of Applied Physics, 1997, 81, 5706-5708.	2.5	61
23	The formation of filamentary voids in solids. Journal of the Mechanics and Physics of Solids, 1991, 39, 783-813.	4.8	48
24	Determination of the stretch tensor for structural transformations. Journal of the Mechanics and Physics of Solids, 2016, 93, 34-43.	4.8	41
25	The designs and deformations of rigidly and flat-foldable quadrilateral mesh origami. Journal of the Mechanics and Physics of Solids, 2020, 142, 104018.	4.8	39
26	Nonequilibrium molecular dynamics for bulk materials and nanostructures. Journal of the Mechanics and Physics of Solids, 2010, 58, 145-163.	4.8	38
27	Engineering SrSnO₃ Phases and Electron Mobility at Room Temperature Using Epitaxial Strain. ACS Applied Materials & Interfaces, 2018, 10, 43802-43808.	8.0	37
28	Periodic Inclusionâ€"Matrix Microstructures with Constant Field Inclusions. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2007, 38, 781-787.	2.2	36
29	The equilibrium and post-buckling behavior of an elastic curve governed by a non-convex energy. Journal of Elasticity, 1981, 11, 239-269.	1.9	35
30	Exceptional Resilience of Small-Scale Au₃₀Cu₂₅Zn₄₅ under Cyclic Stress-Induced Phase Transformation. Nano Letters, 2016, 16, 7621-7625.	9.1	34
31	Thermodynamics of energy conversion via first order phase transformation in low hysteresis magnetic materials. Energy and Environmental Science, 2013, 6, 1315.	30.8	33
32	Novel TiNiCuNb shape memory alloys with excellent thermal cycling stability. Journal of Alloys and Compounds, 2019, 782, 343-347.	5.5	33
33	Helical Miura origami. Physical Review E, 2020, 101, 033002.	2.1	31
34	Elasticity theory for self-assembled protein lattices with application to the martensitic phase transition in bacteriophage T4 tail sheath. Physical Review E, 2006, 73, 011917.	2.1	30
35	Breaching the work output limitation of ferromagnetic shape memory alloys. Applied Physics Letters, 2008, 93, .	3.3	29
36	Ferromagnetic shape memory flapper. Sensors and Actuators A: Physical, 2009, 150, 277-279.	4.1	29

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37	Prediction of microstructure in monoclinic LaNbO4 by energy minimization. Acta Materialia, 1997, 45, 4271-4281.	7.9	26
38	Ferromagnetic shape memory flapper for remotely actuated propulsion systems. Smart Materials and Structures, 2013, 22, 085030.	3.5	25
39	A spectral scheme for Kohnâ€“Sham density functional theory of clusters. Journal of Computational Physics, 2015, 287, 226-253.	3.8	24
40	Inverse design of deployable origami structures that approximate a general surface. International Journal of Solids and Structures, 2022, 234-235, 111224.	2.7	24
41	Origami-inspired thin-film shape memory alloy devices. Scientific Reports, 2021, 11, 10988.	3.3	22
42	Synthesis of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msup><mml:mrow><mml:mi>Î±</mml:mi></mml:mrow><mml:mrow><mml:mo>â€²</mml:mo><m mathvariant="normal">N</mml:mi></mml:mrow><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub></mml:mrow></mml: Anisotropic Magnet by t. Physical Review Applied, 2016, 6, .	3.8	20
43	Correlation between phase compatibility and efficient energy conversion in Zr-doped Barium Titanate. Scientific Reports, 2020, 10, 3496.	3.3	18
44	Pressurized Shape Memory Thin Films. Journal of Elasticity, 2000, 59, 399-436.	1.9	17
45	Design of viscometers corresponding to a universal molecular simulation method. Journal of Fluid Mechanics, 2012, 691, 461-486.	3.4	17
46	Taming the temperamental metal transformation. Science, 2015, 348, 968-969.	12.6	17
47	Self-Similar Profiles for Homoenergetic Solutions of the Boltzmann Equation: Particle Velocity Distribution and Entropy. Archive for Rational Mechanics and Analysis, 2019, 231, 787-843.	2.4	17
48	New materials from theory: trends in the development of active materials. International Journal of Solids and Structures, 2000, 37, 239-250.	2.7	16
49	Directional-dependent thickness and bending rigidity of phosphorene. Physical Review B, 2016, 94, .	3.2	16
50	Magnetic alloys break the rules. Nature, 2015, 521, 298-299.	27.8	15
51	Branching of twins in shape memory alloys revisited. Journal of the Mechanics and Physics of Solids, 2020, 141, 103961.	4.8	15
52	Energy Conversion by Phase Transformation in the Small-Temperature-Difference Regime. Annual Review of Materials Research, 2020, 50, 283-318.	9.3	14
53	Tuning crystallographic compatibility to enhance shape memory in ceramics. Physical Review Materials, 2019, 3, .	2.4	14
54	In-situ characterization of highly reversible phase transformation by synchrotron X-ray Laue microdiffraction. Applied Physics Letters, 2016, 108, .	3.3	13

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55	Direct Conversion of Heat to Electricity Using First-Order Phase Transformations in Ferroelectrics. Physical Review Applied, 2019, 12, .	3.8	13
56	Strain Relaxation via Phase Transformation in High-Mobility SrSnO₃ Films. ACS Applied Electronic Materials, 2021, 3, 1127-1132.	4.3	13
57	Exploding and weeping ceramics. Nature, 2021, 599, 416-420.	27.8	13
58	A weak compatibility condition for precipitation with application to the microstructure of PbTeâ€“Sb2Te3 thermoelectrics. Acta Materialia, 2011, 59, 6124-6132.	7.9	11
59	Zig-zag twins and helical phase transformations. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20150208.	3.4	11
60	Long-Time Asymptotics for Homoenergetic Solutions of the Boltzmann Equation: Collision-Dominated Case. Journal of Nonlinear Science, 2019, 29, 1943-1973.	2.1	11
61	Origami and materials science. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2021, 379, 20200113.	3.4	11
62	A relation between the jump in temperature across a propagating phase boundary and the stability of solid phases. Journal of Elasticity, 1983, 13, 357-378.	1.9	10
63	Materials from mathematics. Bulletin of the American Mathematical Society, 2019, 56, 1-28.	1.5	10
64	Design of soft magnetic materials. Npj Computational Materials, 2022, 8, .	8.7	10
65	9 T high magnetic field annealing effects on FeN bulk sample. Journal of Applied Physics, 2014, 115, 17A758.	2.5	9
66	Incompatible Sets of Gradients and Metastability. Archive for Rational Mechanics and Analysis, 2015, 218, 1363-1416.	2.4	9
67	Braggâ€“von Laue diffraction generalized to twisted X-rays. Acta Crystallographica Section A: Foundations and Advances, 2016, 72, 190-196.	0.1	9
68	Phase transformations and compatibility in helical structures. Journal of the Mechanics and Physics of Solids, 2019, 131, 74-95.	4.8	9
69	Long time asymptotics for homoenergetic solutions of the Boltzmann equation. Hyperbolic-dominated case. Nonlinearity, 2020, 33, 3781-3815.	1.4	9
70	Self-Assembled Periodic Nanostructures Using Martensitic Phase Transformations. Nano Letters, 2021, 21, 1246-1252.	9.1	9
71	A tool to predict coercivity in magnetic materials. Acta Materialia, 2021, 208, 116697.	7.9	8
72	A solution to the permalloy problemâ€”A micromagnetic analysis with magnetostriction. Applied Physics Letters, 2021, 118, .	3.3	7

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73	Deformation of Shape-Memory Materials. Materials Research Society Symposia Proceedings, 1991, 246, 81.	0.1	6
74	Thermodynamics and Energy Conversion in Heusler Alloys. Springer Series in Materials Science, 2016, , 269-291.	0.6	6
75	Epitaxial SrTiO ₃ films with dielectric constants exceeding 25,000. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	7.1	6
76	Micromagnetics of Galfenol. Journal of Nonlinear Science, 2019, 29, 415-460.	2.1	5
77	Hybrid molecular beam epitaxy growth of BaTiO3 films. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2021, 39, .	2.1	5
78	Special Microstructures and Twin Features in Ti₅₀Ni_{50-X}(Pd,Au)_X at Small Hysteresis. Solid State Phenomena, 0, 172-174, 105-110.	0.3	4
79	Objective molecular dynamics of dissociating nitrogen under high temperature conditions. , 2021, , .		4
80	Bounds on the Energy of a Soft Cubic Ferromagnet with Large Magnetostriction. Journal of Nonlinear Science, 2020, 30, 3367-3388.	2.1	3
81	Magnetic Phase Competition in Off-Stoichiometric Martensitic Heusler Alloys: The Ni $$_{50-x}$$ 50 - x Co $$_{x}$$ x Mn $$_{25+y}$$ 25 + y Sn $$_{25-y}$$ 25 - y System. Springer Series in Materials Science, 2016, , 193-216.	0.6	3
82	Investigation of the breakdown of Navier-Stokes equation using Objective Molecular Dynamics. , 2022, , .		3
83	Quantitative analysis of compatible microstructure by electron backscatter diffraction. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2021, 379, 20200112.	3.4	2
84	Origins of the transformability of nickel-titanium shape memory alloys. Physical Review Materials, 2020, 4, .	2.4	2
85	SYMMETRY, INVARIANCE AND THE STRUCTURE OF MATTER. , 2019, , .		1
86	Energy Conversion by Multiferroic Phase Transformation. , 2012, , .		0
87	3D Microstructures of Sb₂Te₃Precipitates in PbTe Matrix with Prediction by a Weak Compatibility Condition. , 0, , 125-130.		0
88	Tem Investigation of Microstructures in Low-Hysteresis Ti50Ni50-xPdxAlloys with Special Lattice Parameters. , 0, , 145-152.		0