Robert A Guyer

List of Publications by Year in descending order

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46984 53190 8,120 163 47 85 citations h-index g-index papers 176 176 176 3425 docs citations times ranked citing authors all docs

#	Article	IF	CITATIONS
1	Solution of the Linearized Phonon Boltzmann Equation. Physical Review, 1966, 148, 766-778.	2.7	707
2	Nonlinear Mesoscopic Elasticity: Evidence for a New Class of Materials. Physics Today, 1999, 52, 30-36.	0.3	496
3	Thermal Conductivity, Second Sound, and Phonon Hydrodynamic Phenomena in Nonmetallic Crystals. Physical Review, 1966, 148, 778-788.	2.7	465
4	Second Sound in Solid Helium. Physical Review Letters, 1966, 16, 789-791.	2.9	345
5	Hysteresis, Discrete Memory, and Nonlinear Wave Propagation in Rock: A New Paradigm. Physical Review Letters, 1995, 74, 3491-3494.	2.9	287
6	Excitations in Quantum Crystals (A Survey of NMR Experiments in Solid Helium). Reviews of Modern Physics, 1971, 43, 532-600.	16.4	260
7	Universal Slow Dynamics in Granular Solids. Physical Review Letters, 2000, 85, 1020-1023.	2.9	206
8	On the quasi-analytic treatment of hysteretic nonlinear response in elastic wave propagation. Journal of the Acoustical Society of America, 1997, 101, 1885-1898.	0.5	148
9	Modeling the Maximum Spreading of Liquid Droplets Impacting Wetting and Nonwetting Surfaces. Langmuir, 2016, 32, 1299-1308.	1.6	134
10	Dispersion Relation for Second Sound in Solids. Physical Review, 1964, 133, A1411-A1417.	2.7	123
11	Earthquake-like behaviour of soft Î ³ -ray repeaters. Nature, 1996, 382, 518-520.	13.7	121
12	Observations of nonlinear elastic wave behavior in sandstone. Journal of the Acoustical Society of America, 1993, 94, 3387-3391.	0.5	117
13	Nonlinear resonant ultrasound spectroscopy (NRUS) applied to damage assessment in bone. Journal of the Acoustical Society of America, 2005, 118, 3946-3952.	0.5	117
14	Interaction Dynamics of Elastic Waves with a Complex Nonlinear Scatterer through the Use of a Time Reversal Mirror. Physical Review Letters, 2007, 98, 104301.	2.9	115
15	Hysteresis and the Dynamic Elasticity of Consolidated Granular Materials. Physical Review Letters, 1999, 82, 3280-3283.	2.9	114
16	Phase Separation in Films ofHe3-He4Mixtures. Physical Review Letters, 1981, 46, 1461-1464.	2.9	111
17	Double sine-Gordon chain. Physical Review B, 1983, 27, 474-494.	1.1	108
18	Water Adsorption in Wood Microfibril-Hemicellulose System: Role of the Crystalline–Amorphous Interface. Biomacromolecules, 2015, 16, 2972-2978.	2.6	107

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19	Acoustic emission and microslip precursors to stickâ€slip failure in sheared granular material. Geophysical Research Letters, 2013, 40, 5627-5631.	1.5	105
20	Brownian Motion of Coupled Nonlinear Oscillators: Thermalized Solitons and Nonlinear Response to External Forces. Physical Review Letters, 1978, 40, 206-210.	2.9	103
21	Role of hydrogen bonding in hysteresis observed in sorption-induced swelling of soft nanoporous polymers. Nature Communications, 2018, 9, 3507.	5.8	101
22	Imaging the Sublimation Dynamics of Colloidal Crystallites. Science, 2006, 314, 795-798.	6.0	91
23	Tunneling and Exchange in Quantum Solids. Physical Review, 1969, 188, 445-468.	2.7	86
24	Quantitative implementation of Preisach-Mayergoyz space to find static and dynamic elastic moduli in rock. Journal of Geophysical Research, 1997, 102, 5281-5293.	3.3	82
25	A new theoretical paradigm to describe hysteresis, discrete memory and nonlinear elastic wave propagation in rock. Nonlinear Processes in Geophysics, 1996, 3, 89-101.	0.6	76
26	Review paper: Solid 3He: A magnet in search of a Hamiltonian. Journal of Low Temperature Physics, 1978, 30, 1-50.	0.6	74
27	Slow elastic dynamics in a resonant bar of rock. Geophysical Research Letters, 1998, 25, 1585-1588.	1.5	72
28	Impact of Moisture Adsorption on Structure and Physical Properties of Amorphous Biopolymers. Macromolecules, 2015, 48, 2793-2800.	2.2	72
29	Time-reversal methods in geophysics. Physics Today, 2010, 63, 31-35.	0.3	71
30	Molecular Mechanism of Moisture-Induced Transition in Amorphous Cellulose. ACS Macro Letters, 2014, 3, 1037-1040.	2.3	71
31	Thermal Conductivity of Oriented Single Crystals of Hexagonal Close-Packed Helium 4. Physical Review, 1969, 185, 356-373.	2.7	70
32	A set of measures for the systematic classification of the nonlinear elastic behavior of disparate rocks. Journal of Geophysical Research: Solid Earth, 2015, 120, 1587-1604.	1.4	70
33	Superfluid Films in Porous Media. Physical Review Letters, 1988, 60, 2054-2057.	2.9	64
34	SolidHe3magnetism: A review of experiments. Physical Review A, 1974, 9, 1452-1455.	1.0	58
35	Third sound in layered superfluids: H↓ onHe4. Physical Review B, 1982, 25, 5749-5755.	1.1	58
36	Diffusion on the Sierpiński gaskets: A random walker on a fractally structured object. Physical Review A, 1984, 29, 2751-2755.	1.0	58

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37	Estimating Fault Friction From Seismic Signals in the Laboratory. Geophysical Research Letters, 2018, 45, 1321-1329.	1.5	57
38	Modeling of Stickâ€Slip Behavior in Sheared Granular Fault Gouge Using the Combined Finiteâ€Discrete Element Method. Journal of Geophysical Research: Solid Earth, 2018, 123, 5774-5792.	1.4	56
39	The sine-Gordon chain: Equilibrium statistical mechanics. Physical Review A, 1978, 17, 1205-1217.	1.0	55
40	Diffusive motion on a fractal; Gnm(t). Physical Review A, 1985, 32, 2324-2335.	1.0	55
41	The sine-Gordon chain. II. Nonequilibrium statistical mechanics. Physical Review A, 1978, 17, 1774-1791.	1.0	54
42	Conductivity in percolation networks with broad distributions of resistances. Physical Review B, 1986, 33, 4818-4825.	1.1	54
43	Magnetization evolution in connected pore systems. Physical Review B, 1991, 44, 7344-7355.	1.1	54
44	Mass Fluctuation Waves. Physical Review Letters, 1970, 24, 660-663.	2,9	52
45	Vacancy waves. Journal of Low Temperature Physics, 1972, 8, 427-447.	0.6	52
46	Microslips as precursors of large slip events in the stickâ€slip dynamics of sheared granular layers: A discrete element model analysis. Geophysical Research Letters, 2013, 40, 4194-4198.	1.5	50
47	Thermal Conductivity in Isotopic Mixtures of Solid Helium. Physical Review, 1966, 142, 79-85.	2.7	48
48	Determination of elastic moduli of rock samples using resonant ultrasound spectroscopy. Journal of the Acoustical Society of America, 2002, 111, 1667-1674.	0.5	48
49	Decoupling Nonclassical Nonlinear Behavior of Elastic Wave Types. Physical Review Letters, 2016, 116, 115501.	2.9	46
50	Acoustic Attenuation in Dielectric Solids. Physical Review, 1966, 148, 789-797.	2.7	45
51	Interaction of Atomic Hydrogen with the Surface of LiquidHe4. Physical Review Letters, 1979, 42, 1754-1757.	2.9	44
52	Magnetization isotherms and pore-space geometry. Physical Review B, 1993, 48, 3683-3688.	1.1	43
53	Hygromorphic behaviour of cellular material: hysteretic swelling and shrinkage of wood probed by phase contrast X-ray tomography. Philosophical Magazine, 2012, 92, 3680-3698.	0.7	43
54	Capillary condensation, invasion percolation, hysteresis, and discrete memory. Physical Review B, 1996, 54, 18-21.	1,1	41

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55	Tremor source location using time reversal: Selecting the appropriate imaging field. Geophysical Research Letters, 2009, 36, .	1.5	41
56	On the micromechanics of slip events in sheared, fluidâ€saturated fault gouge. Geophysical Research Letters, 2017, 44, 6101-6108.	1.5	41
57	Superfluidity in Quantum Crystals. Physical Review Letters, 1971, 26, 174-177.	2.9	40
58	Three-dimensional discrete element modeling of triggered slip in sheared granular media. Physical Review E, 2014, 89, 042204.	0.8	40
59	Slow dynamics of consolidated granular systems: Multi-scale relaxation. Applied Physics Letters, 2017, 111, .	1.5	39
60	Superfluid films on a cylindrical surface. Journal of Low Temperature Physics, 1989, 74, 231-261.	0.6	36
61	Water Diffusion in Amorphous Hydrophilic Systems: A Stop and Go Process. Langmuir, 2015, 31, 10843-10849.	1.6	35
62	Multiple Exchange in the Quantum Crystals. Physical Review A, 1973, 7, 1105-1130.	1.0	34
63	Poroelastic model for adsorption-induced deformation of biopolymers obtained from molecular simulations. Physical Review E, 2015, 92, 022605.	0.8	33
64	On the role of fluids in stickâ€slip dynamics of saturated granular fault gouge using a coupled computational fluid dynamicsâ€discrete element approach. Journal of Geophysical Research: Solid Earth, 2017, 122, 3689-3700.	1.4	33
65	From Stress Chains to Acoustic Emission. Physical Review Letters, 2019, 123, 048003.	2.9	32
66	Third Sound on Substrates Patterned with Periodic and Random Disorder: Evidence for Classical Wave Localization. Physical Review Letters, 1988, 61, 1286-1289.	2.9	31
67	Brittle and ductile friction and the physics of tectonic tremor. Geophysical Research Letters, 2011, 38, n/a-n/a.	1.5	30
68	Vibration-induced slip in sheared granular layers and the micromechanics of dynamic earthquake triggering. Europhysics Letters, 2011, 96, 14001.	0.7	30
69	3He-CMN boundary resistance. Journal of Low Temperature Physics, 1973, 10, 157-165.	0.6	29
70	Commensurability in One Dimension atTâ‰0. Physical Review Letters, 1979, 42, 718-722.	2.9	29
71	Largest current in a random resistor network. Physical Review B, 1987, 36, 2142-2146.	1.1	29
72	Electrical conductivity and magnetic field decay in neutron stars. Astrophysical Journal, 1975, 202, 238.	1.6	29

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73	Acoustically induced slip in sheared granular layers: Application to dynamic earthquake triggering. Geophysical Research Letters, 2015, 42, 9750-9757.	1.5	28
74	Machine Learning Reveals the State of Intermittent Frictional Dynamics in a Sheared Granular Fault. Geophysical Research Letters, 2019, 46, 7395-7403.	1.5	27
75	Are megaquakes clustered?. Geophysical Research Letters, 2012, 39, .	1.5	26
76	Hydrodynamic modes of superfluid helium adsorbed on Nuclepore. Physical Review B, 1986, 33, 4664-4668.	1.1	25
77	Quantum-crystal alloys I: Mass-fluctuation waves. Physical Review B, 1975, 11, 3374-3392.	1.1	24
78	Vacancy-Induced Ferromagnetism: The Registered Phase ofHe3on Grafoil. Physical Review Letters, 1977, 39, 1091-1094.	2.9	23
79	Third Sound in Layered Films: H↓ -He4andHe3-He4. Physical Review Letters, 1981, 47, 349-352.	2.9	23
80	Nuclear Relaxation in SolidHe3at Low Temperatures. Physical Review, 1967, 163, 181-185.	2.7	22
81	Density-functional theory of thin films of self-bound fermions. Physical Review B, 1989, 40, 7417-7420.	1.1	22
82	Three component time reversal: Focusing vector components using a scalar source. Journal of Applied Physics, 2009, 106, 113504.	1.1	22
83	He3films and the Ruderman-Kittel-Kasuya-Yosida interaction. Physical Review Letters, 1990, 64, 1919-1923.	2.9	21
84	Phonon gas: A lattice Boltzmann description. Physical Review E, 1994, 50, 4596-4608.	0.8	21
85	Cohesionâ€Induced Stabilization in Stickâ€Slip Dynamics of Weakly Wet, Sheared Granular Fault Gouge. Journal of Geophysical Research: Solid Earth, 2018, 123, 2115-2126.	1.4	21
86	Dynamically triggered slip leading to sustained fault gouge weakening under laboratory shear conditions. Geophysical Research Letters, 2016, 43, 1559-1565.	1.5	20
87	Dynamic induced softening in frictional granular materials investigated by discrete-element-method simulation. Physical Review E, 2017, 96, 062901.	0.8	20
88	The Spatiotemporal Evolution of Granular Microslip Precursors to Laboratory Earthquakes. Geophysical Research Letters, 2020, 47, e2020GL088404.	1.5	20
89	Effect of boundary vibration on the frictional behavior of a dense sheared granular layer. Acta Mechanica, 2014, 225, 2227-2237.	1.1	19
90	Simulation of crack induced nonlinear elasticity using the combined finite-discrete element method. Ultrasonics, 2019, 98, 51-61.	2.1	18

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91	Vacancy motion in solid helium. Journal of Low Temperature Physics, 1977, 28, 449-472.	0.6	17
92	Spin-polarized hydrogen-helium film system: A surface "polaron". Physical Review B, 1982, 25, 4570-4582.	1.1	17
93	Time reversal of continuous-wave, steady-state signals in elastic media. Applied Physics Letters, 2009, 94, 111908.	1.5	17
94	Simulating stickâ€slip failure in a sheared granular layer using a physicsâ€based constitutive model. Journal of Geophysical Research: Solid Earth, 2017, 122, 295-307.	1.4	16
95	Superfluidity in neutron stars. III - Relaxation processes between the superfluid and the crust. Astrophysical Journal, 1978, 222, 991.	1.6	16
96	(He3)2Molecules in SolidHe4. Physical Review Letters, 1975, 35, 1007-1010.	2.9	15
97	Ground state of isotopic fermion-boson mixtures. Physical Review B, 1980, 22, 142-153.	1.1	15
98	Large currents in random resistor networks. Physical Review B, 1989, 39, 9236-9239.	1.1	15
99	Linear and nonlinear modulus surfaces in stress space, from stress-strain measurements on Berea sandstone. Nonlinear Processes in Geophysics, 2003, 10, 589-597.	0.6	15
100	Solid neutron matter. Physical Review D, 1975, 11, 2696-2723.	1.6	14
101	Structure of a compressible superfluid. Physical Review B, 1981, 24, 2874-2877.	1.1	14
102	Probing the interior of a solid volume with time reversal and nonlinear elastic wave spectroscopy. Journal of the Acoustical Society of America, 2011, 130, EL258-EL263.	0.5	14
103	Molecular Simulation of Sorption-Induced Deformation in Atomistic Nanoporous Materials. Langmuir, 2019, 35, 7751-7758.	1.6	14
104	On the specific heat of solid3He. Journal of Low Temperature Physics, 1972, 6, 251-256.	0.6	13
105	Phase Separation in Two-DimensionalHe3-He4Mixtures. Physical Review Letters, 1984, 53, 795-797.	2.9	13
106	Random walking on a fractal. Physical Review A, 1984, 30, 1112-1114.	1.0	13
107	Magnetization evolution in connected pore systems. II. Pulsed-field-gradient NMR and pore-space geometry. Physical Review B, 1993, 48, 5997-6006.	1.1	13
108	Spatial-temporal variation of low-frequency earthquake bursts near Parkfield, California. Geophysical Journal International, 2015, 202, 914-919.	1.0	13

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109	Moisture-induced crossover in the thermodynamic and mechanical response of hydrophilic biopolymer. Cellulose, 2020, 27, 89-99.	2.4	13
110	Energy current imaging method for time reversal in elastic media. Applied Physics Letters, 2009, 95, 021907.	1.5	12
111	Mass-Fluctuation Waves in SolidHe3-He4Mixtures. Physical Review Letters, 1974, 33, 283-287.	2.9	11
112	Dynamics of nonlinear systems: The heavy damping limit. Physical Review B, 1980, 21, 4484-4499.	1.1	11
113	Korteweg-de Vries solitons and helium films. Physical Review B, 1982, 25, 3117-3122.	1.1	11
114	Third sound and capillary condensation on a fractal surface. Physical Review B, 1986, 34, 6522-6524.	1.1	11
115	Synchronous low frequency earthquakes and implications for deep San Andreas Fault slip. Earth and Planetary Science Letters, 2015, 424, 132-139.	1.8	11
116	Quantification of Nanopore Networks: Application to Amorphous Polymers. Journal of Physical Chemistry C, 2016, 120, 28144-28151.	1.5	11
117	Exchange operator. Physical Review A, 1974, 10, 1785-1799.	1.0	10
118	Equations of state of a single polymer chain. Physical Review A, 1985, 32, 3661-3664.	1.0	9
119	Comment on â€~â€~Exact solution for diffusion in a random potential''. Physical Review Letters, 1990, 64, 494-494.	2.9	9
120	Attention Network Forecasts Timeâ€toâ€Failure in Laboratory Shear Experiments. Journal of Geophysical Research: Solid Earth, 2021, 126, e2021JB022195.	1.4	9
121	NMR in Nondilute SolidHe3-He4Mixtures. Physical Review A, 1972, 5, 2541-2544.	1.0	8
122	Critical Superflow in a Random Network. Physical Review Letters, 1979, 43, 1163-1167.	2.9	8
123	Diffusion on a one-dimensional disordered lattice: A renormalization-group approach. Physical Review A, 1984, 29, 2114-2124.	1.0	8
124	Fluid configurations in partially saturated porous media. Physical Review B, 1991, 43, 808-815.	1.1	8
125	A Poromechanical Model for Sorption Hysteresis in Nanoporous Polymers. Journal of Physical Chemistry B, 2020, 124, 8690-8703.	1.2	8
126	Disentangling Heat and Moisture Effects on Biopolymer Mechanics. Macromolecules, 2020, 53, 1527-1535.	2.2	8

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127	Theory of exchange via double-occupation states in crystallineHe3. Physical Review B, 1975, 11, 1045-1052.	1.1	7
128	Modeling dynamic triggering of tectonic tremor using a brittleâ€ductile friction model. Geophysical Research Letters, 2013, 40, 5075-5079.	1.5	7
129	Specific Heat Anomaly in SolidHe3. Physical Review Letters, 1970, 24, 810-811.	2.9	6
130	Commensurability in one dimension atTâ‰0: The role of kinks. Physical Review B, 1979, 20, 4748-4755.	1.1	6
131	Structure and Modes of a Superfluid Atmosphere. Physical Review Letters, 1983, 51, 1765-1767.	2.9	6
132	Conductivity fluctuations and the amplitude of the long-time tail. Physical Review B, 1986, 34, 7816-7822.	1.1	6
133	Porosity fluctuations, tortuosity fluctuations, and other types of fluctuations: Long-time tails and localization in porous media. Physical Review B, 1988, 37, 5713-5722.	1.1	6
134	Swelling of cellular solids: From conventional to re-entrant honeycombs. Applied Physics Letters, 2013, 102, .	1.5	6
135	Plate motion in sheared granular fault system. Earth and Planetary Science Letters, 2020, 548, 116481.	1.8	6
136	A 3D Full Stress Tensor Model for Oklahoma. Journal of Geophysical Research: Solid Earth, 2021, 126, e2020JB021113.	1.4	6
137	Probing the Damage Zone at Parkfield. Geophysical Research Letters, 2021, 48, e2021GL093518.	1.5	6
138	Kirkwood-Monroe approximation for quantum solids. Physical Review B, 1978, 18, 3189-3196.	1.1	5
139	One-dimensional harmonic liquid: A Fokker-Planck description of fluctuations from the nonequilibrium steady state. Physical Review A, 1982, 26, 1062-1077.	1.0	5
140	Sticking of H↓ to helium surfaces. Physical Review B, 1983, 27, 1629-1634.	1.1	5
141	Damping in coupled, layered helium films. Physical Review B, 1985, 31, 2713-2718.	1.1	5
142	Distribution of large currents in finite-size random resistor networks. Physical Review B, 1995, 51, 6711-6714.	1.1	5
143	Nonlinear softening of unconsolidated granular earth materials. Journal of Geophysical Research: Solid Earth, 2017, 122, 6998-7008.	1.4	5
144	Magnetic ordering in a normal Fermi liquid at absolute zero. Physical Review B, 1978, 18, 3521-3529.	1.1	4

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145	A model for the solid3He magnet?. Journal of Low Temperature Physics, 1982, 47, 321-328.	0.6	4
146	Lattice Boltzmann description of magnetization in porous media. Physical Review B, 2000, 62, 3674-3688.	1.1	4
147	Do Fluids Modify the Stick-Slip Behavior of Sheared Granular Media?. , 2017, , .		4
148	Solid Helium. Scientific American, 1967, 217, 84-95.	1.0	3
149	Sine-Gordon chain as a model for a two-dimensional interface. Physical Review B, 1979, 20, 4375-4381.	1.1	3
150	Overdamped soliton motion. Physical Review B, 1981, 23, 5880-5889.	1.1	3
151	The structure and modes of a compressible superfluid film. Journal of Low Temperature Physics, 1986, 64, 409-428.	0.6	3
152	Capillary condensation refrigerator. Physical Review B, 1993, 47, 11591-11594.	1.1	3
153	Magnetization evolution in connected pore systems. III. Fluid flow. Physical Review B, 1993, 48, 6007-6013.	1.1	3
154	Superfluid Avalanches. Journal of Low Temperature Physics, 1998, 111, 841-861.	0.6	3
155	Magnetic ordering in a normal Fermi liquid. II. Strongly polarized systems and the melting curve ofHe3. Physical Review B, 1980, 21, 3917-3928.	1.1	2
156	Conductivity of the randomly disordered sine-Gordon chain. Physical Review B, 1981, 23, 3573-3576.	1.1	2
157	Hydrodynamic modes of H↓. Physical Review B, 1982, 25, 5707-5710.	1.1	1
158	Self-Avoiding Walks on a Crumpled Fractal. Physical Review Letters, 1986, 57, 3121-3121.	2.9	1
159	Comment on the Article by H. D. Weymann. American Journal of Physics, 1969, 37, 231-231.	0.3	O
160	Spin-lattice models for the solid 3He magnet. Journal of Low Temperature Physics, 1980, 39, 63-78.	0.6	0
161	Linear and nonlinear elastic properties of dense granular packings: a DEM exploration. EPJ Web of Conferences, 2017, 140, 15033.	0.1	0
162	Hysteretic Elastic Systems. Proceedings of Meetings on Acoustics, 2010, , .	0.3	0

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163	Using time-reversal to locate non-volcanic tremor and to fulfill the monitoring objectives of the nuclear-test ban treaty. Proceedings of Meetings on Acoustics, 2010, , .	0.3	0