

Raphael Blumenfeld

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

96
papers

1,545
citations

20
h-index

37
g-index

101
ext. papers

1,657
ext. citations

4.2
avg. IF

4.73
L-index

#	Paper	IF	Citations
96	Stress field in granular systems: loop forces and potential formulation. <i>Physical Review Letters</i> , 2002 , 88, 115505	7.4	124
95	Breakdown of multifractal behavior in diffusion-limited aggregates. <i>Physical Review Letters</i> , 1989 , 62, 2977-2980	7.4	112
94	Fracture surfaces: A critical review of fractal studies and a novel morphological analysis of scanning tunneling microscopy measurements. <i>Progress in Materials Science</i> , 1994 , 38, 425-474	42.2	92
93	Multi-basin dynamics of a protein in a crystal environment. <i>Physica D: Nonlinear Phenomena</i> , 1997 , 107, 225-239	3.3	76
92	Granular entropy: explicit calculations for planar assemblies. <i>Physical Review Letters</i> , 2003 , 90, 114303	7.4	73
91	Resistance fluctuations in randomly diluted networks. <i>Physical Review B</i> , 1987 , 35, 3524-3535	3.3	72
90	On granular stress statistics: compactivity, angoricity, and some open issues. <i>Journal of Physical Chemistry B</i> , 2009 , 113, 3981-7	3.4	65
89	Strongly nonlinear composite dielectrics: A perturbation method for finding the potential field and bulk effective properties. <i>Physical Review B</i> , 1991 , 44, 7378-7386	3.3	60
88	Comment on "Experimental measurements of the roughness of brittle cracks". <i>Physical Review Letters</i> , 1993 , 71, 204	7.4	53
87	Series analysis of randomly diluted nonlinear resistor networks. <i>Physical Review B</i> , 1986 , 34, 3424-3428	3.3	52
86	Exact calculation to second order of the effective dielectric constant of a strongly nonlinear inhomogeneous composite. <i>Physical Review B</i> , 1989 , 40, 1987-1989	3.3	48
85	Stresses in isostatic granular systems and emergence of force chains. <i>Physical Review Letters</i> , 2004 , 93, 108301	7.4	46
84	Interdependence of the volume and stress ensembles and equipartition in statistical mechanics of granular systems. <i>Physical Review Letters</i> , 2012 , 109, 238001	7.4	34
83	Loose dusts, Mittag-Leffler statistics, mass fractal lacunarity, and perceived dimension. <i>Physical Review E</i> , 1997 , 56, 112-118	2.4	33
82	Archimedes' law explains penetration of solids into granular media. <i>Nature Communications</i> , 2018 , 9, 1101	17.4	32
81	Exact results on exponential screening in two-dimensional diffusion-limited aggregation. <i>Physical Review A</i> , 1991 , 44, 828-831	2.6	27
80	Universal scaling of the stress field at the vicinity of a wedge crack in two dimensions and oscillatory self-similar corrections to scaling. <i>Physical Review Letters</i> , 1990 , 65, 1784-1787	7.4	27

79	Granular matter and the marginal rigidity state. <i>Journal of Physics Condensed Matter</i> , 2005 , 17, S2481-S2487	4.8	26
78	An Einstein Model of Brittle Crack Propagation. <i>Physical Review Letters</i> , 1997 , 78, 78-81	7.4	24
77	Isostaticity and controlled force transmission in the cytoskeleton: A model awaiting experimental evidence. <i>Biophysical Journal</i> , 2006 , 91, 1970-83	2.9	22
76	Coarse-graining procedure to generate and analyze heterogeneous materials: Theory. <i>Physical Review E</i> , 1993 , 48, 4492-4500	2.4	20
75	Comment on "Nonlinear susceptibilities of granular matter". <i>Physical Review B</i> , 1991 , 43, 13682-13683	3.3	20
74	Structural characterization and statistical properties of two-dimensional granular systems. <i>Physical Review E</i> , 2008 , 77, 041304	2.4	18
73	Universal structural characteristics of planar granular packs. <i>Physical Review Letters</i> , 2014 , 112, 098003	7.4	17
72	Dynamic Structure Factor of a Deterministic Fractal. <i>Europhysics Letters</i> , 1988 , 7, 249-253	1.6	16
71	Stress in planar cellular solids and isostatic granular assemblies: coarse-graining the constitutive equation. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004 , 336, 361-368	3.3	15
70	Theory of Strains in Auxetic Materials. <i>Journal of Superconductivity and Novel Magnetism</i> , 2012 , 25, 565-574	7.4	14
69	Probe for morphology and hierarchical correlations in scale-invariant structures. <i>Physical Review E</i> , 1993 , 47, 2298-2302	2.4	14
68	Stresses in two-dimensional isostatic granular systems: exact solutions. <i>New Journal of Physics</i> , 2007 , 9, 160-160	2.9	13
67	Topological Analysis of Foams and Tetrahedral Structures. <i>Advanced Engineering Materials</i> , 2009 , 11, 169-176	3.5	12
66	Auxetic strains: insight from iso-auxetic materials. <i>Molecular Simulation</i> , 2005 , 31, 867-871	2	12
65	Distribution of the logarithms of currents in percolating resistor networks. I. Theory. <i>Physical Review B</i> , 1993 , 47, 5756-5769	3.3	12
64	Current distributions in a two-dimensional random-resistor network. <i>Journal of Statistical Physics</i> , 1992 , 67, 113-121	1.5	12
63	Series analysis of randomly diluted nonlinear networks with negative nonlinearity exponent. <i>Physical Review B</i> , 1987 , 36, 3950-3952	3.3	12
62	Support of modified Archimedes law theory in granular media. <i>Soft Matter</i> , 2019 , 15, 3008-3017	3.6	11

61	da Vinci fluids, catch-up dynamics and dense granular flow. <i>European Physical Journal E</i> , 2010 , 32, 333-8	1.5	11
60	Fundamental structural characteristics of planar granular assemblies: Self-organization and scaling away friction and initial state. <i>Physical Review E</i> , 2017 , 95, 032905	2.4	10
59	Failure of the Volume Function in Granular Statistical Mechanics and an Alternative Formulation. <i>Physical Review Letters</i> , 2016 , 116, 148001	7.4	10
58	Transformation of general curve evolution to a modified BelavinBolyakov equation. <i>Journal of Mathematical Physics</i> , 1997 , 38, 5878-5888	1.2	10
57	Analysis of stresses in two-dimensional isostatic granular systems. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2008 , 387, 6263-6276	3.3	10
56	Stress transmission in planar disordered solid foams. <i>Journal of Physics A</i> , 2003 , 36, 2399-2411		10
55	Nonequilibrium brittle fracture propagation: Steady state, oscillations, and intermittency. <i>Physical Review Letters</i> , 1996 , 76, 3703-3706	7.4	9
54	Formulating a first-principles statistical theory of growing surfaces in two-dimensional Laplacian fields. <i>Physical Review E</i> , 1994 , 50, 2952-2962	2.4	9
53	Nonlinear dielectrics: Electrostatics of random media and propagation of electromagnetic waves in a homogeneous slab. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1989 , 157, 428-436	3.3	9
52	Stress chain solutions in two-dimensional isostatic granular systems: fabric-dependent paths, leakage, and branching. <i>Physical Review Letters</i> , 2008 , 101, 098001	7.4	8
51	Statistical-mechanical characteristics of dense planar granular systems. <i>Granular Matter</i> , 2012 , 14, 277-282		7
50	Plug flow formation and growth in Da Vinci fluids. <i>Granular Matter</i> , 2011 , 13, 241-245	2.6	7
49	Onset of scale-invariant pattern in growth processes: the cracking problem. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1991 , 177, 407-415	3.3	7
48	Negative moments of currents in percolating resistor networks. <i>Physical Review B</i> , 1989 , 40, 7318-7320	3.3	7
47	Force-based three-dimensional model predicts mechanical drivers of cell sorting. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2019 , 286, 20182495	4.4	6
46	Blumenfeld and Edwards Reply:. <i>Physical Review Letters</i> , 2007 , 99,	7.4	6
45	Blumenfeld and Aharony reply. <i>Physical Review Letters</i> , 1990 , 64, 1843	7.4	6
44	Vertical dynamics of a horizontally oscillating active object in a two-dimensional granular medium. <i>Physical Review E</i> , 2016 , 94, 062906	2.4	6

43	Dynamics of fracture propagation in the mesoscale: Theory. <i>Theoretical and Applied Fracture Mechanics</i> , 1998 , 30, 209-223	3-7	5
42	Pulling a Chain's Leg: The Pullout Dynamics of Entangled Chains. <i>Macromolecules</i> , 2000 , 33, 1082-1088	5-5	5
41	Distribution of the logarithms of currents in percolating resistor networks. II. Series expansions. <i>Physical Review B</i> , 1993 , 47, 5770-5782	3-3	5
40	Fluid flow in a random porous medium: A network model and effective medium approximation. <i>Journal of Applied Physics</i> , 1987 , 62, 1616-1621	2-5	5
39	On entropic characterization of granular materials. <i>World Scientific Lecture Notes in Complex Systems</i> , 2007 , 43-53		5
38	Cell surface fluctuations regulate early embryonic lineage sorting		5
37	Bending back stress chains and unique behaviour of granular matter in cylindrical geometries. <i>Granular Matter</i> , 2017 , 19, 1	2-6	4
36	Friction-Controlled Entropy-Stability Competition in Granular Systems. <i>Physical Review Letters</i> , 2020 , 125, 268005	7-4	4
35	Two-dimensional Laplacian growth as a system of creating and annihilating particles. <i>Physical Review E</i> , 1995 , 51, 3434-3443	2-4	3
34	Phase coherence oscillation of holes in La _{2-x} (Sr) _x CuO ₄ , dynamics of single holes in the CuO plane and the typical pairing time. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1990 , 168, 705-713	3-3	3
33	Structural evolution of granular systems: theory. <i>Granular Matter</i> , 2020 , 22, 1	2-6	3
32	Theory-based design of sintered granular composites triples three-phase boundary in fuel cells. <i>Physical Review E</i> , 2017 , 96, 052903	2-4	2
31	Microstructural characteristics of planar granular solids 2013 ,		2
30	Exact multi-twist solutions to the Belavin-Polyakov equation and applications to magnetic systems. <i>Journal of Physics A</i> , 2000 , 33, 2459-2468		2
29	Two-dimensional Laplacian growth can be mapped onto Hamiltonian dynamics. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1994 , 186, 317-322	2-3	2
28	Novel flux solutions in nonlinear conducting continuum systems with negative dynamic resistance. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1990 , 168, 697-704	3-3	2
27	Disorder Criterion and Explicit Solution for the Disc Random Packing Problem. <i>Physical Review Letters</i> , 2021 , 127, 118002	7-4	2
26	Stress Transmission and Isostatic States of Non-Rigid Particulate Systems. <i>The IMA Volumes in Mathematics and Its Applications</i> , 2005 , 235-246	0-5	2

25	The unusual problem of upscaling isostaticity theory for granular matter. <i>Granular Matter</i> , 2020 , 22, 1	2.6	1
24	Equally probable positive and negative Poisson's ratios in disordered planar systems. <i>Soft Matter</i> , 2018 , 14, 6554-6560	3.6	1
23	Affine and topological structural entropies in granular statistical mechanics: Explicit calculations and equation of state. <i>Physical Review E</i> , 2017 , 95, 052905	2.4	1
22	Blumenfeld et al. Reply. <i>Physical Review Letters</i> , 2017 , 119, 039802	7.4	1
21	Modifying continuous-time random walks to model finite-size particle diffusion in granular porous media. <i>Granular Matter</i> , 2017 , 19, 1	2.6	1
20	Granular statistical mechanics: Volume-stress phase space, equipartition and equations of state 2013 ,		1
19	Planar Curve Representation of Many-Body Systems and Dynamics. <i>Physical Review Letters</i> , 1997 , 78, 1203-1206	7.4	1
18	On the twist excitations in a classical anisotropic antiferromagnetic chain. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1997 , 237, 69-72	2.3	1
17	Hierarchical structure of domain walls in magnetic layers. <i>Phase Transitions</i> , 1999 , 69, 237-245	1.3	1
16	The functional form of the $T_c(x)$ line in the phase diagram of high temperature superconductors. <i>Physica C: Superconductivity and Its Applications</i> , 1991 , 178, 119-124	1.3	1
15	Ball and Blumenfeld reply. <i>Physical Review Letters</i> , 1992 , 68, 2254	7.4	1
14	Dynamic structure factor of fractals. <i>Physica D: Nonlinear Phenomena</i> , 1989 , 38, 93-97	3.3	1
13	Universality and superuniversality of multifractals in nonlinear resistor networks. <i>Journal of Statistical Physics</i> , 1989 , 56, 233-241	1.5	1
12	Pairing of holes via vortex/antivortex attraction in doped $\text{La}_{2-x}(\text{Sr})_x\text{CuO}_4$. <i>Journal De Physique</i> , 1990 , 51, 2229-2233		1
11	Mechanical Behaviors of Sandy Sediments Bearing Pore-Filling Methane Hydrate under Different Intermediate Principal Stress. <i>International Journal of Geomechanics</i> , 2021 , 21, 04021043	3.1	1
10	Locomotion of Self-Excited Vibrating and Rotating Objects in Granular Environments. <i>Applied Sciences (Switzerland)</i> , 2021 , 11, 2054	2.6	1
9	Stress-strain rate relation in plug-free flow of dense granular fluids: A first-principles derivation. <i>Physical Review E</i> , 2018 , 98,	2.4	1
8	QUANTIFYING MORPHOLOGY OF SCALE-INVARIANT STRUCTURES BEYOND THE FRACTAL DIMENSION. <i>Fractals</i> , 1993 , 01, 985-991	3.2	

- 7 Characterizing Fractal and Hierarchical Morphologies Beyond the Fractal Dimension. *Materials Research Society Symposia Proceedings*, **1994**, 367, 367
- 6 A Theory for Growing Interfaces in Laplacian Fields: A Many-Body Formulation and Statistical Analysis. *Materials Research Society Symposia Proceedings*, **1994**, 367, 53
- 5 ONSET OF SCALING BEHAVIOUR IN 2D SLOW CRACKING. *Modern Physics Letters B*, **1991**, 05, 1567-1573 1.6
- 4 Explicitly exact solutions for waves in a family of nonlinear media. *Physica D: Nonlinear Phenomena*, **1993**, 66, 7-13 3.3
- 3 Toward a Theory of Growing Surfaces: Mapping Two-Dimensional Laplacian Growth Onto Hamiltonian Dynamics and Statistics. *Institute for Nonlinear Science*, **1996**, 225-237
- 2 Statistical properties of cell stresses in 2D granular solids. *EPJ Web of Conferences*, **2021**, 249, 02006 0.3
- 1 Structural characteristics of ordered clusters in packs of ellipses. *EPJ Web of Conferences*, **2021**, 249, 06004 0.3