Raphael Blumenfeld

List of Publications by Year in Descending Order

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	Mechanical Behaviors of Sandy Sediments Bearing Pore-Filling Methane Hydrate under Different Intermediate Principal Stress. *International Journal of Geomechanics*, **2021**, 21, 04021043	3.1	1
95	Locomotion of Self-Excited Vibrating and Rotating Objects in Granular Environments. *Applied Sciences (Switzerland)*, **2021**, 11, 2054	2.6	1
94	Disorder Criterion and Explicit Solution for the Disc Random Packing Problem. *Physical Review Letters*, **2021**, 127, 118002	7.4	2
93	Statistical properties of cell stresses in 2D granular solids. *EPJ Web of Conferences*, **2021**, 249, 02006	0.3	
92	Structural characteristics of ordered clusters in packs of ellipses. *EPJ Web of Conferences*, **2021**, 249, 06004	0.3	
91	The unusual problem of upscaling isostaticity theory for granular matter. *Granular Matter*, **2020**, 22, 1	2.6	1
90	Friction-Controlled Entropy-Stability Competition in Granular Systems. *Physical Review Letters*, **2020**, 125, 268005	7.4	4
89	Structural evolution of granular systems: theory. *Granular Matter*, **2020**, 22, 1	2.6	3
88	Force-based three-dimensional model predicts mechanical drivers of cell sorting. *Proceedings of the Royal Society B: Biological Sciences*, **2019**, 286, 20182495	4.4	6
87	Support of modified Archimedes†law theory in granular media. *Soft Matter*, **2019**, 15, 3008-3017	3.6	11
86	Archimedes†law explains penetration of solids into granular media. *Nature Communications*, **2018**, 9, 1101	17.4	32
85	Equally probable positive and negative Poisson†s ratios in disordered planar systems. *Soft Matter*, **2018**, 14, 6554-6560	3.6	1
84	Stress-strain rate relation in plug-free flow of dense granular fluids: A first-principles derivation. *Physical Review E*, **2018**, 98,	2.4	1
83	Fundamental structural characteristics of planar granular assemblies: Self-organization and scaling away friction and initial state. *Physical Review E*, **2017**, 95, 032905	2.4	10
82	Affine and topogical structural entropies in granular statistical mechanics: Explicit calculations and equation of state. *Physical Review E*, **2017**, 95, 052905	2.4	1
81	Blumenfeld et´al. Reply. *Physical Review Letters*, **2017**, 119, 039802	7.4	1
80	Theory-based design of sintered granular composites triples three-phase boundary in fuel cells. *Physical Review E*, **2017**, 96, 052903	2.4	2

#	Reference	IF	Cites
79	Modifying continuous-time random walks to model finite-size particle diffusion in granular porous media. *Granular Matter*, **2017**, 19, 1	2.6	1
78	Bending back stress chains and unique behaviour of granular matter in cylindrical geometries. *Granular Matter*, **2017**, 19, 1	2.6	4
77	Failure of the Volume Function in Granular Statistical Mechanics and an Alternative Formulation. *Physical Review Letters*, **2016**, 116, 148001	7.4	10
76	Vertical dynamics of a horizontally oscillating active object in a two-dimensional granular medium. *Physical Review E*, **2016**, 94, 062906	2.4	6
75	Universal structural characteristics of planar granular packs. *Physical Review Letters*, **2014**, 112, 098003	7.4	17
74	Microstructural characteristics of planar granular solids **2013**,		2
73	Granular statistical mechanics: Volume-stress phase space, equipartition and equations of state **2013**,		1
72	Interdependence of the volume and stress ensembles and equipartition in statistical mechanics of granular systems. *Physical Review Letters*, **2012**, 109, 238001	7.4	34
71	Theory of Strains in Auxetic Materials. *Journal of Superconductivity and Novel Magnetism*, **2012**, 25, 565-571	1.5	14
70	Statistical-mechanical characteristics of dense planar granular systems. *Granular Matter*, **2012**, 14, 277-282	2.6	7
69	Plug flow formation and growth in Da Vinci fluids. *Granular Matter*, **2011**, 13, 241-245	2.6	7
68	da Vinci fluids, catch-up dynamics and dense granular flow. *European Physical Journal E*, **2010**, 32, 333-8	1.5	11
67	Topological Analysis of Foams and Tetrahedral Structures. *Advanced Engineering Materials*, **2009**, 11, 169-176	3.5	12
66	On granular stress statistics: compactity, angoricity, and some open issues. *Journal of Physical Chemistry B*, **2009**, 113, 3981-7	3.4	65
65	Structural characterization and statistical properties of two-dimensional granular systems. *Physical Review E*, **2008**, 77, 041304	2.4	18
64	Stress chain solutions in two-dimensional isostatic granular systems: fabric-dependent paths, leakage, and branching. *Physical Review Letters*, **2008**, 101, 098001	7.4	8
63	Analysis of stresses in two-dimensional isostatic granular systems. *Physica A: Statistical Mechanics and Its Applications*, **2008**, 387, 6263-6276	3.3	10
62	Stresses in two-dimensional isostatic granular systems: exact solutions. *New Journal of Physics*, **2007**, 9, 160-160	2.9	13

61   Blumenfeld and Edwards Reply:. *Physical Review Letters*, **2007**, 99,   7.4   6

60   On entropic characterization of granular materials. *World Scientific Lecture Notes in Complex Systems*, **2007**, 43-53   5

59   Isostaticity and controlled force transmission in the cytoskeleton: A model awaiting experimental evidence. *Biophysical Journal*, **2006**, 91, 1970-83   2.9   22

58   Auxetic strains—insight from iso-auxetic materials. *Molecular Simulation*, **2005**, 31, 867-871   2   12

57   Granular matter and the marginal rigidity state. *Journal of Physics Condensed Matter*, **2005**, 17, S2481-S2487   26

56   Stress Transmission and Isostatic States of Non-Rigid Particulate Systems. *The IMA Volumes in Mathematics and Its Applications*, **2005**, 235-246   0.5   2

55   Stress in planar cellular solids and isostatic granular assemblies: coarse-graining the constitutive equation. *Physica A: Statistical Mechanics and Its Applications*, **2004**, 336, 361-368   3.3   15

54   Stresses in isostatic granular systems and emergence of force chains. *Physical Review Letters*, **2004**, 93, 108301   7.4   46

53   Stress transmission in planar disordered solid foams. *Journal of Physics A*, **2003**, 36, 2399-2411   10

52   Granular entropy: explicit calculations for planar assemblies. *Physical Review Letters*, **2003**, 90, 114303   7.4   73

51   Stress field in granular systems: loop forces and potential formulation. *Physical Review Letters*, **2002**, 88, 115505   7.4   124

50   Exact multi-twist solutions to the Belavin-Polyakov equation and applications to magnetic systems. *Journal of Physics A*, **2000**, 33, 2459-2468   2

49   Pulling a Chain's Leg:´ The Pullout Dynamics of Entangled Chains. *Macromolecules*, **2000**, 33, 1082-1088   5.5   5

48   Hierarchical structure of domain walls in magnetic layers. *Phase Transitions*, **1999**, 69, 237-245   1.3   1

47   Dynamics of fracture propagation in the mesoscale: Theory. *Theoretical and Applied Fracture Mechanics*, **1998**, 30, 209-223   3.7   5

46   Planar Curve Representation of Many-Body Systems and Dynamics. *Physical Review Letters*, **1997**, 78, 1203-1206   7.4   1

45   Transformation of general curve evolution to a modified Belavin–Polyakov equation. *Journal of Mathematical Physics*, **1997**, 38, 5878-5888   1.2   10

44   An Einstein Model of Brittle Crack Propagation. *Physical Review Letters*, **1997**, 78, 78-81   7.4   24

43	Lévy dusts, Mittag-Leffler statistics, mass fractal lacunarity, and perceived dimension. *Physical Review E*, **1997**, 56, 112-118	2.4	33
42	On the twist excitations in a classical anisotropic antiferromagnetic chain. *Physics Letters, Section A: General, Atomic and Solid State Physics*, **1997**, 237, 69-72	2.3	1
41	Multi-basin dynamics of a protein in a crystal environment. *Physica D: Nonlinear Phenomena*, **1997**, 107, 225-239	3.3	76
40	Nonequilibrium brittle fracture propagation: Steady state, oscillations, and intermittency. *Physical Review Letters*, **1996**, 76, 3703-3706	7.4	9
39	Toward a Theory of Growing Surfaces: Mapping Two-Dimensional Laplacian Growth Onto Hamiltonian Dynamics and Statistics. *Institute for Nonlinear Science*, **1996**, 225-237		
38	Two-dimensional Laplacian growth as a system of creating and annihilating particles. *Physical Review E*, **1995**, 51, 3434-3443	2.4	3
37	Formulating a first-principles statistical theory of growing surfaces in two-dimensional Laplacian fields. *Physical Review E*, **1994**, 50, 2952-2962	2.4	9
36	Two-dimensional Laplacian growth can be mapped onto Hamiltonian dynamics. *Physics Letters, Section A: General, Atomic and Solid State Physics*, **1994**, 186, 317-322	2.3	2
35	Fracture surfaces: A critical review of fractal studies and a novel morphological analysis of scanning tunneling microscopy measurements. *Progress in Materials Science*, **1994**, 38, 425-474	42.2	92
34	Characterizing Fractal and Hierarchical Morphologies Beyond the Fractal Dimension. *Materials Research Society Symposia Proceedings*, **1994**, 367, 367		
33	A Theory for Growing Interfaces in Laplacian Fields: A Many-Body Formulation and Statistical Analysis. *Materials Research Society Symposia Proceedings*, **1994**, 367, 53		
32	Distribution of the logarithms of currents in percolating resistor networks. I. Theory. *Physical Review B*, **1993**, 47, 5756-5769	3.3	12
31	QUANTIFYING MORPHOLOGY OF SCALE-INVARIANT STRUCTURES BEYOND THE FRACTAL DIMENSION. *Fractals*, **1993**, 01, 985-991	3.2	
30	Comment on "Experimental measurements of the roughness of brittle cracks". *Physical Review Letters*, **1993**, 71, 204	7.4	53
29	Probe for morphology and hierarchical correlations in scale-invariant structures. *Physical Review E*, **1993**, 47, 2298-2302	2.4	14
28	Distribution of the logarithms of currents in percolating resistor networks. II. Series expansions. *Physical Review B*, **1993**, 47, 5770-5782	3.3	5
27	Coarse-graining procedure to generate and analyze heterogeneous materials: Theory. *Physical Review E*, **1993**, 48, 4492-4500	2.4	20
26	Explicitly exact solutions for waves in a family of nonlinear media. *Physica D: Nonlinear Phenomena*, **1993**, 66, 7-13	3.3	

25   Ball and Blumenfeld reply. *Physical Review Letters*, **1992**, 68, 2254   7.4   1

24   Current distributions in a two-dimensional random-resistor network. *Journal of Statistical Physics*, **1992**, 67, 113-121   1.5   12

23   The functional form of the Tc(x) line in the phase diagram of high temperature superconductors. *Physica C: Superconductivity and Its Applications*, **1991**, 178, 119-124   1.3   1

22   Onset of scale-invariant pattern in growth processes: the cracking problem. *Physica A: Statistical Mechanics and Its Applications*, **1991**, 177, 407-415   3.3   7

21   Comment on "Nonlinear susceptibilities of granular matter". *Physical Review B*, **1991**, 43, 13682-13683   3.3   20

20   Strongly nonlinear composite dielectrics: A perturbation method for finding the potential field and bulk effective properties. *Physical Review B*, **1991**, 44, 7378-7386   3.3   60

19   Exact results on exponential screening in two-dimensional diffusion-limited aggregation. *Physical Review A*, **1991**, 44, 828-831   2.6   27

18   ONSET OF SCALING BEHAVIOUR IN 2D SLOW CRACKING. *Modern Physics Letters B*, **1991**, 05, 1567-1573   1.6

17   Novel flux solutions in nonlinear conducting continuum systems with negative dynamic resistance. *Physica A: Statistical Mechanics and Its Applications*, **1990**, 168, 697-704   3.3   2

16   Phase coherence oscillation of holes in La2-x(Sr)xCuO4, dynamics of single holes in the CuO plane and the typical pairing time. *Physica A: Statistical Mechanics and Its Applications*, **1990**, 168, 705-713   3.3   3

15   Universal scaling of the stress field at the vicinity of a wedge crack in two dimensions and oscillatory self-similar corrections to scaling. *Physical Review Letters*, **1990**, 65, 1784-1787   7.4   27

14   Blumenfeld and Aharony reply. *Physical Review Letters*, **1990**, 64, 1843   7.4   6

13   Pairing of holes via vortex/antivortex attraction in doped La 2-x(Sr)xCuO4. *Journal De Physique*, **1990**, 51, 2229-2233   1

12   Breakdown of multifractal behavior in diffusion-limited aggregates. *Physical Review Letters*, **1989**, 62, 2977-2980   7.4   112

11   Negative moments of currents in percolating resistor networks. *Physical Review B*, **1989**, 40, 7318-7320   3.3   7

10   Exact calculation to second order of the effective dielectric constant of a strongly nonlinear inhomogeneous composite. *Physical Review B*, **1989**, 40, 1987-1989   3.3   48

9   Nonlinear dielectrics: Electrostatics of random media and propagation of electromagnetic waves in a homogeneous slab. *Physica A: Statistical Mechanics and Its Applications*, **1989**, 157, 428-436   3.3   9

8   Dynamic structure factor of fractals. *Physica D: Nonlinear Phenomena*, **1989**, 38, 93-97   3.3   1

List of Publications

7	Universality and superuniversality of multifractals in nonlinear resistor networks. *Journal of Statistical Physics*, **1989**, 56, 233-241	1.5	1
6	Dynamic Structure Factor of a Deterministic Fractal. *Europhysics Letters*, **1988**, 7, 249-253	1.6	16
5	Fluid flow in a random porous medium: A network model and effective medium approximation. *Journal of Applied Physics*, **1987**, 62, 1616-1621	2.5	5
4	Series analysis of randomly diluted nonlinear networks with negative nonlinearity exponent. *Physical Review B*, **1987**, 36, 3950-3952	3.3	12
3	Resistance fluctuations in randomly diluted networks. *Physical Review B*, **1987**, 35, 3524-3535	3.3	72
2	Series analysis of randomly diluted nonlinear resistor networks. *Physical Review B*, **1986**, 34, 3424-3428	3.3	52
1	Cell surface fluctuations regulate early embryonic lineage sorting		5