Daniel H Rothman

List of Publications by Year
in descending order

67 papers	7,759 citations	101384 36 h-index	95083 68 g-index
70 all docs	70 docs citations	70 times ranked	6059 citing authors

#	Article	IF	Citations
1	Lattice Boltzmann model of immiscible fluids. Physical Review A, 1991, 43, 4320-4327.	1.0	1,293
2	Calibrating the End-Permian Mass Extinction. Science, 2011, 334, 1367-1372.	6.0	648
3	Immiscible cellular-automaton fluids. Journal of Statistical Physics, 1988, 52, 1119-1127.	0.5	554
4	Dynamics of the Neoproterozoic carbon cycle. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 8124-8129.	3.3	493
5	An abiotic model for stromatolite morphogenesis. Nature, 1996, 383, 423-425.	13.7	385
6	Mineral protection regulates long-term global preservation of natural organic carbon. Nature, 2019, 570, 228-231.	13.7	354
7	Cellularâ€automaton fluids: A model for flow in porous media. Geophysics, 1988, 53, 509-518.	1.4	273
8	Lattice-gas models of phase separation: interfaces, phase transitions, and multiphase flow. Reviews of Modern Physics, 1994, 66, 1417-1479.	16.4	272
9	Scaling, Universality, and Geomorphology. Annual Review of Earth and Planetary Sciences, 2000, 28, 571-610.	4.6	252
10	Nonlinear inversion, statistical mechanics, and residual statics estimation. Geophysics, 1985, 50, 2784-2796.	1.4	248
11	Automatic estimation of large residual statics corrections. Geophysics, 1986, 51, 332-346.	1.4	248
12	The permeability of a random medium: Comparison of simulation with theory. Physics of Fluids A, Fluid Dynamics, 1990, 2, 2085-2088.	1.6	168
13	Hidden cycle of dissolved organic carbon in the deep ocean. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 16706-16711.	3.3	136
14	Methanogenic burst in the end-Permian carbon cycle. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 5462-5467.	3.3	126
15	Nonâ€Newtonian flow (through porous media): A latticeâ€Boltzmann method. Geophysical Research Letters, 1993, 20, 679-682.	1.5	125
16	Physical Model for the Decay and Preservation of Marine Organic Carbon. Science, 2007, 316, 1325-1328.	6.0	114
17	Atmospheric carbon dioxide levels for the last 500 million years. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 4167-4171.	3.3	111
18	Unified view of scaling laws for river networks. Physical Review E, 1999, 59, 4865-4877.	0.8	104

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19	Ramification of stream networks. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 20832-20836.	3.3	104
20	Drainage basins and channel incision on Mars. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 1780-1783.	3.3	96
21	Spontaneous channelization in permeable ground: theory, experiment, and observation. Journal of Fluid Mechanics, 2004, 503, 357-374.	1.4	94
22	Clay mineralogy, organic carbon burial, and redox evolution in Proterozoic oceans. Geochimica Et Cosmochimica Acta, 2010, 74, 1579-1592.	1.6	94
23	Growth laws for channel networks incised byÂgroundwater flow. Nature Geoscience, 2009, 2, 193-196.	5.4	88
24	Climate's watermark in the geometry of stream networks. Geophysical Research Letters, 2017, 44, 2272-2280.	1.5	79
25	Biophysical basis for the geometry of conical stromatolites. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 9956-9961.	3.3	76
26	Residual migration: Applications and limitations. Geophysics, 1985, 50, 110-126.	1.4	75
27	Thresholds of catastrophe in the Earth system. Science Advances, 2017, 3, e1700906.	4.7	68
28	Erosion of a granular bed driven by laminar fluid flow. Journal of Fluid Mechanics, 2008, 605, 47-58.	1.4	58
29	Bifurcation dynamics of natural drainage networks. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2013, 371, 20120365.	1.6	56
30	Two-fluid flow in sedimentary rock: simulation, transport and complexity. Journal of Fluid Mechanics, 1997, 341, 343-370.	1.4	51
31	Scaling of Dynamic Contact Angles in a Lattice-Boltzmann Model. Physical Review Letters, 2007, 98, 254503.	2.9	49
32	Path selection in the growth of rivers. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 14132-14137.	3.3	49
33	MACROSCOPIC MANIFESTATIONS OF MICROSCOPIC FLOWS THROUGH POROUS MEDIA: Phenomenology from Simulation. Annual Review of Earth and Planetary Sciences, 1996, 24, 63-87.	4.6	46
34	Oscillons, spiral waves, and stripes in a model of vibrated sand. Physical Review E, 1998, 57, R1239-R1242.	0.8	40
35	Lattice-gas and lattice-Boltzmann models of miscible fluids. Journal of Statistical Physics, 1992, 68, 409-429.	0.5	39
36	Common structure in the heterogeneity of plant-matter decay. Journal of the Royal Society Interface, 2012, 9, 2255-2267.	1.5	37

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37	A Galilean-invariant immiscible lattice gas. Physica D: Nonlinear Phenomena, 1991, 47, 53-63.	1.3	36
38	Fluctuating Fluid Interfaces. Physical Review Letters, 1995, 75, 260-263.	2.9	36
39	Technical note: An inverse method to relate organic carbon reactivity to isotope composition from serial oxidation. Biogeosciences, 2017, 14, 5099-5114.	1.3	36
40	Deformation, growth, and order in sheared spinodal decomposition. Physical Review Letters, 1990, 65, 3305-3308.	2.9	34
41	A lattice-gas model for three immiscible fluids. Physica D: Nonlinear Phenomena, 1991, 47, 47-52.	1.3	32
42	Reactionâ€“diffusion model of nutrient uptake in a biofilm: Theory and experiment. Journal of Theoretical Biology, 2011, 289, 90-95.	0.8	32
43	Phase separation in a three-dimensional, two-phase, hydrodynamic lattice gas. Journal of Statistical Physics, 1995, 81, 181-197.	0.5	31
44	Modeling seismic Pâ€Waves with cellular automata. Geophysical Research Letters, 1987, 14, 17-20.	1.5	30
45	A liquid-gas model on a lattice. Physica D: Nonlinear Phenomena, 1991, 47, 85-96.	1.3	30
46	Stochastic Equation for the Erosion of Inclined Topography. Physical Review Letters, 1998, 80, 4349-4352.	2.9	28
47	Characteristic disruptions of an excitable carbon cycle. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 14813-14822.	3.3	27
48	Fluctuating hydrodynamic interfaces: Theory and simulation. Physical Review E, 1996, 53, 1622-1643.	0.8	26
49	Age dependence of mineral dissolution and precipitation rates. Global Biogeochemical Cycles, 2013, 27, 906-919.	1.9	26
50	Scaling of a Slope: The Erosion of Tilted Landscapes. Journal of Statistical Physics, 1998, 93, 477-500.	0.5	25
51	Three-dimensional immiscible lattice gas: Application to sheared phase separation. Journal of Statistical Physics, 1995, 81, 199-222.	0.5	24
52	Negative-viscosity lattice gases. Journal of Statistical Physics, 1989, 56, 517-524.	0.5	21
53	Earthâ€™s carbon cycle: A mathematical perspective. Bulletin of the American Mathematical Society, 2014, 52, 47-64.	0.8	21
54	Surface tension and interface fluctuations in immiscible lattice gases. Journal De Physique, I, 1994, 4, 29-46.	1.2	21

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55	Simulating three-dimensional hydrodynamics on a cellular automata machine. Journal of Statistical Physics, 1995, 81, 105-128.	0.5	20
56	Critical behavior in flow through a rough-walled channel. Physics Letters, Section A: General, Atomic and Solid State Physics, 1999, 255, 31-36.	0.9	19
57	Transport properties and diagenesis in sedimentary rocks: The role of micro-scale geometry. Geology, 1997, 25, 547.	2.0	18
58	Shapes of river networks. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20180081.	1.0	17
59	Oxidative metabolisms catalyzed Earthâ€™s oxygenation. Nature Communications, 2022, 13, 1328.	5.8	17
60	Routes to global glaciation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200303.	1.0	12
61	Scale-dependence of resource-biodiversity relationships. Journal of Theoretical Biology, 2003, 225, 205-214.	0.8	9
62	Asymmetry of extreme Cenozoic climateâ€“carbon cycle events. Science Advances, 2021, 7, .	4.7	5
63	Random channel kinetics for reactionâ€“diffusion systems. Physica D: Nonlinear Phenomena, 2010, 239, 739-745.	1.3	4
64	Carbon transit through degradation networks. Ecological Monographs, 2014, 84, 109-129.	2.4	4
65	Symmetric rearrangement of groundwater-fed streams. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2017, 473, 20170539.	1.0	4
66	The Balance of Nature: A Global Marine Perspective. Annual Review of Marine Science, 2022, 14, 49-73.	5.1	4
67	Rate-induced collapse in evolutionary systems. Journal of the Royal Society Interface, 2022, 19, .	1.5	2