John M Gray

List of Publications by Year
in descending order

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91 papers	4,737 citations	87723 38 h-index	95083 68 g-index
94 all docs	94 docs citations	94 times ranked	1621 citing authors

#	Article	IF	Citations
1	Gravity-driven free surface flow of granular avalanches over complex basal topography. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 1999, 455, 1841-1874.	1.0	349
2	Shock waves, dead zones and particle-free regions in rapid granular free-surface flows. Journal of Fluid Mechanics, 2003, 491, 161-181.	1.4	262
3	Grainâ€size segregation and levee formation in geophysical mass flows. Journal of Geophysical Research, 2012, 117, .	3.3	234
4	A theory for particle size segregation in shallow granular free-surface flows. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2005, 461, 1447-1473.	1.0	217
5	Particle Segregation in Dense Granular Flows. Annual Review of Fluid Mechanics, 2018, 50, 407-433.	10.8	200
6	A depth-averaged -rheology for shallow granular free-surface flows. Journal of Fluid Mechanics, 2014, 755, 503-534.	1.4	162
7	Particle-size segregation and diffusive remixing in shallow granular avalanches. Journal of Fluid Mechanics, 2006, 569, 365.	1.4	157
8	Granular flow in partially filled slowly rotating drums. Journal of Fluid Mechanics, 2001, 441, 1-29.	1.4	149
9	Pattern formation in granular avalanches. Continuum Mechanics and Thermodynamics, 1997, 9, 341-345.	1.4	143
10	Well-posed and ill-posed behaviour of the -rheology for granular flow. Journal of Fluid Mechanics, 2015, 779, 794-818.	1.4	130
11	Channelized free-surface flow of cohesionless granular avalanches in a chute with shallow lateral curvature. Journal of Fluid Mechanics, 1999, 392, 73-100.	1.4	126
12	Segregation, recirculation and deposition of coarse particles near two-dimensional avalanche fronts. Journal of Fluid Mechanics, 2009, 629, 387-423.	1.4	119
13	Multi-component particle-size segregation in shallow granular avalanches. Journal of Fluid Mechanics, 2011, 678, 535-588.	1.4	113
14	Shock-Capturing and Front-Tracking Methods for Granular Avalanches. Journal of Computational Physics, 2002, 175, 269-301.	1.9	112
15	Experimental investigation into segregating granular flows down chutes. Physics of Fluids, 2011, 23, .	1.6	104
16	Underlying Asymmetry within Particle Size Segregation. Physical Review Letters, 2015, 114, 238001.	2.9	97
17	Large particle segregation, transport and accumulation in granular free-surface flows. Journal of Fluid Mechanics, 2010, 652, 105-137.	1.4	90
18	Fine-grained linings of leveed channels facilitate runout of granular flows. Earth and Planetary Science Letters, 2014, 385, 172-180.	1.8	85

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19	A three-phase mixture theory for particle size segregation in shallow granular free-surface flows. Journal of Fluid Mechanics, 2006, 550, 1.	1.4	81
20	Gravity-driven granular free-surface flow around a circular cylinder. Journal of Fluid Mechanics, 2013, 720, 314-337.	1.4	76
21	A two-dimensional depth-averaged -rheology for dense granular avalanches. Journal of Fluid Mechanics, 2016, 787, 367-395.	1.4	76
22	Weak, strong and detached oblique shocks in gravity-driven granular free-surface flows. Journal of Fluid Mechanics, 2007, 579, 113-136.	1.4	75
23	Erosionâ€“deposition waves in shallow granular free-surface flows. Journal of Fluid Mechanics, 2015, 762, 35-67.	1.4	75
24	Segregation-induced fingering instabilities in granular free-surface flows. Journal of Fluid Mechanics, 2012, 709, 543-580.	1.4	65
25	Partial regularisation of the incompressible ?(I)-rheology for granular flow. Journal of Fluid Mechanics, 2017, 828, 5-32.	1.4	65
26	Pattern selection by a granular wave in a rotating drum. Physical Review E, 2006, 73, 061302.	0.8	60
27	Granular jets and hydraulic jumps on an inclined plane. Journal of Fluid Mechanics, 2011, 675, 87-116.	1.4	57
28	Flow of dense avalanches past obstructions. Annals of Glaciology, 2001, 32, 281-284.	2.8	54
29	Asymmetric flux models for particle-size segregation in granular avalanches. Journal of Fluid Mechanics, 2014, 757, 297-329.	1.4	54
30	Well-posed continuum equations for granular flow with compressibility and Î¼ (I) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 3 473, 20160846.	1.0	54
31	Granular avalanches on the Moon: Massâ€wasting conditions, processes, and features. Journal of Geophysical Research E: Planets, 2017, 122, 1893-1925.	1.5	53
32	Particle-size andÂ-density segregation in granular free-surface flows. Journal of Fluid Mechanics, 2015, 779, 622-668.	1.4	50
33	Time-dependent solutions for particle-size segregation in shallow granular avalanches. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2006, 462, 947-972.	1.0	46
34	Segregation-induced finger formation in granular free-surface flows. Journal of Fluid Mechanics, 2016, 809, 168-212.	1.4	46
35	Multiple solutions for granular flow over a smooth two-dimensional bump. Journal of Fluid Mechanics, 2017, 815, 77-116.	1.4	45
36	Deflecting dams and the formation of oblique shocks in snow avalanches at Flateyri, Iceland. Journal of Geophysical Research, 2007, 112, .	3.3	42

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37	Self-channelisation and levee formation in monodisperse granular flows. Journal of Fluid Mechanics, 2019, 876, 591-641.	1.4	41
38	Constitutive relations for compressible granular flow in the inertial regime. Journal of Fluid Mechanics, 2019, 874, 926-951.	1.4	40
39	Coupling rheology and segregation in granular flows. Journal of Fluid Mechanics, 2021, 909, .	1.4	39
40	Breaking size segregation waves and particle recirculation in granular avalanches. Journal of Fluid Mechanics, 2008, 596, 261-284.	1.4	38
41	Formation of levees, troughs and elevated channels by avalanches on erodible slopes. Journal of Fluid Mechanics, 2017, 823, 278-315.	1.4	37
42	Particle-size segregation in dense granular avalanches. Comptes Rendus Physique, 2015, 16, 73-85.	0.3	34
43	Arrested coarsening of granular roll waves. Physics of Fluids, 2014, 26, .	1.6	30
44	The kinematics of bidisperse granular roll waves. Journal of Fluid Mechanics, 2018, 848, 836-875.	1.4	30
45	Loss of Hyperbolicity and Ill-posedness of the Viscousâ€“Plastic Sea Ice Rheology in Uniaxial Divergent Flow. Journal of Physical Oceanography, 1999, 29, 2920-2929.	0.7	29
46	Stable solutions of a scalar conservation law for particle-size segregation in dense granular avalanches. European Journal of Applied Mathematics, 2008, 19, 61-86.	1.4	25
47	Frictional hysteresis and particle deposition in granular free-surface flows. Journal of Fluid Mechanics, 2019, 875, 1058-1095.	1.4	24
48	Stability of the Viscous-Plastic Sea Ice Rheology. Journal of Physical Oceanography, 1995, 25, 971-978.	0.7	23
49	Asymmetric breaking size-segregation waves in dense granular free-surface flows. Journal of Fluid Mechanics, 2016, 794, 460-505.	1.4	22
50	An accurate shock-capturing finite-difference method to solve the Savage-Hutter equations in avalanche dynamics. Annals of Glaciology, 2001, 32, 263-267.	2.8	19
51	Retrogressive failure of a static granular layer on an inclined plane. Journal of Fluid Mechanics, 2019, 869, 313-340.	1.4	19
52	Discrete and continuum modelling of grain size segregation during bedload transport. Journal of Fluid Mechanics, 2020, 895, .	1.4	19
53	Physik granularer Lawinen. Physik Journal, 1998, 54, 37-43.	0.1	18
54	Large particle segregation, transport and accumulation in granular free-surface flows â€“ ERRATUM. Journal of Fluid Mechanics, 2010, 657, 539-539.	1.4	18

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55	An experimental scaling law for particle-size segregation in dense granular flows. Journal of Fluid Mechanics, 2021, 916, .	1.4	17
56	A dry snow pack model. Cold Regions Science and Technology, 1994, 22, 135-148.	1.6	16
57	The compaction of polar snow packs. Cold Regions Science and Technology, 1995, 23, 109-119.	1.6	14
58	Water movement in wet snow. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 1996, 354, 465-500.	1.6	14
59	Methods of similitude in granular avalanche flows. Lecture Notes in Physics, 1999, , 415-428.	0.3	14
60	Erosion-deposition dynamics and long distance propagation of granular avalanches. Journal of Fluid Mechanics, 2021, 915, .	1.4	14
61	Particle Image Velocimetry (PIV) for Granular Avalanches on Inclined Planes. Lecture Notes in Applied and Computational Mechanics, 2003, , 195-218.	2.0	14
62	Phase change interactions and singular fronts. Continuum Mechanics and Thermodynamics, 1995, 7, 387-414.	1.4	13
63	Limiting stress states in granular avalanches. Annals of Glaciology, 1998, 26, 272-276.	2.8	13
64	Bulbous head formation in bidisperse shallow granular flow over an inclined plane. Journal of Fluid Mechanics, 2019, 866, 263-297.	1.4	13
65	Dense Granular Avalanches: Mathematical Description and Experimental Validation. , 2001, , 339-366.		13
66	Size segregation of irregular granular materials captured by time-resolved 3D imaging. Scientific Reports, 2021, 11, 8352.	1.6	12
67	Breaking size-segregation waves and mobility feedback in dense granular avalanches. Granular Matter, 2018, 20, 1.	1.1	11
68	A phase-changing dry snowpack model. Journal of Glaciology, 1995, 41, 11-29.	1.1	10
69	Shedding dynamics and mass exchange by dry granular waves flowing over erodible beds. Earth and Planetary Science Letters, 2019, 523, 115700.	1.8	10
70	Large particle segregation in two-dimensional sheared granular flows. Physical Review Fluids, 2021, 6, .	1.0	10
71	Particle Size Segregation, Granular Shocks and Stratification Patterns. , 1998, , 697-702.		10
72	Formation of dry granular fronts and watery tails in debris flows. Journal of Fluid Mechanics, 2022, 943, .	1.4	10

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73	Sea Ice Ridging Schemes. Journal of Physical Oceanography, 1996, 26, 2420-2428.	0.7	9
74	On the inclusion of a velocity-dependent basal drag in avalanche models. Annals of Glaciology, 1998, 26, 277-280.	2.8	9
75	Particle size segregation in granular avalanches: A brief review of recent progress. AIP Conference Proceedings, 2010, , .	0.3	8
76	Balance relations for classical mixtures containing a moving non-material surface with application to phase transitions. Continuum Mechanics and Thermodynamics, 1996, 8, 171-187.	1.4	7
77	Interaction models for mixtures with application to phase transitions. International Journal of Engineering Science, 1997, 35, 55-74.	2.7	7
78	Limiting stress states in granular avalanches. Annals of Glaciology, 1998, 26, 272-276.	2.8	7
79	Subcritical and supercritical granular flow around an obstacle on a rough inclined plane. Journal of Fluid Mechanics, 2022, 933, .	1.4	7
80	A hierarchy of particle-size segregation models: From polydisperse mixtures to depth-averaged theories. AIP Conference Proceedings, 2013, , .	0.3	5
81	On the inclusion of a velocity-dependent basal drag in avalanche models. Annals of Glaciology, 1998, 26, 277-280.	2.8	4
82	Rapid Granular Avalanches. Lecture Notes in Applied and Computational Mechanics, 2003, , 3-42.	2.0	4
83	The effect of change in thermal properties on the propagation of a periodic thermal wave: Application to a snow-buried rocky outcrop. Journal of Geophysical Research, 1995, 100, 15267-15279.	3.3	3
84	Steady Motion of a Finite Granular Mass in a Rotating Drum. Journal of Mechanics, 2000, 16, 67-72.	0.7	2
85	Evolution of a Mixing Zone in Granular Avalanches. Applied Mathematics Research EXpress, 0, , .	1.0	2
86	Granular Avalanches on Complex Topography. Solid Mechanics and Its Applications, 1997, , 275-286.	0.1	2
87	A phase-changing dry snowpack model. Journal of Glaciology, 1995, 41, 11-29.	1.1	1
88	Shock Waves and Particle Size Segregation in Shallow Granular Flows. Solid Mechanics and Its Applications, 2000, , 269-276.	0.1	1
89	Granular jets and hydraulic jumps on an inclined plane. , 2010, , .		0
90	Depth-hoar growth rates near a rocky outcrop. Journal of Glaciology, 1998, 44, 477-484.	1.1	0

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91	Les instabilitÃ©s hydrodynamiques dans les Ã©coulements granulaires gÃ©ophysiques. , 2019, , 32-36.	0.1	0