Douglas J Durian

List of Publications by Year
in descending order

		34105	43889
160	8,999	52	91
papers	citations	h-index	g-index
163	163	163	5332
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Foam Mechanics at the Bubble Scale. Physical Review Letters, 1995, 75, 4780-4783.	7.8	491
2	Measurement of growing dynamical length scales and prediction of the jamming transition in a granular material. Nature Physics, 2007, 3, 260-264.	16.7	330
3	Speckle-visibility spectroscopy: A tool to study time-varying dynamics. Review of Scientific Instruments, 2005, 76, 093110.	1.3	313
4	Identifying Structural Flow Defects in Disordered Solids Using Machine-Learning Methods. Physical Review Letters, 2015, 114, 108001.	7.8	301
5	Multiple Light-Scattering Probes of Foam Structure and Dynamics. Science, 1991, 252, 686-688.	12.6	299
6	Unified force law for granular impactÂcratering. Nature Physics, 2007, 3, 420-423.	16.7	262
7	Bubble-scale model of foam mechanics:mMelting, nonlinear behavior, and avalanches. Physical Review E, 1997, 55, 1739-1751.	2.1	246
8	Structure-property relationships from universal signatures of plasticity in disordered solids. Science, 2017, 358, 1033-1037.	12.6	218
9	Low-Speed Impact Craters in Loose Granular Media. Physical Review Letters, 2003, 90, 194301.	7.8	204
10	Effective Temperatures of a Driven System Near Jamming. Physical Review Letters, 2002, 89, 095703.	7.8	201
11	Scaling behavior in shaving cream. Physical Review A, 1991, 44, R7902-R7905.	2.5	194
12	Investigating non-Gaussian scattering processes by using nth -order intensity correlation functions. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1999, 16, 1651.	1.5	189
13	Wetting transitions in a cylindrical pore. Physical Review Letters, 1990, 65, 1897-1900.	7.8	167
14	Diffusing-Wave Spectroscopy of Dynamics in a Three-Dimensional Granular Flow. Science, 1997, 275, 1920-1922.	12.6	167
15	Microfluidic Rheology of Soft Colloids above and below Jamming. Physical Review Letters, 2010, 105, 175701.	7.8	162
16	Vanishing elasticity for wet foams: Equivalence with emulsions and role of polydispersity. Journal of Rheology, 1999, 43, 1411-1422.	2.6	151
17	Statistical mechanics of a gas-fluidized particle. Nature, 2004, 427, 521-523.	27.8	147
18	Effects of Particle Shape on Growth Dynamics at Edges of Evaporating Drops of Colloidal Suspensions. Physical Review Letters, 2013, 110, 035501.	7.8	127

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19	From Avalanches to Fluid Flow: A Continuous Picture of Grain Dynamics Down a Heap. Physical Review Letters, 2000, 85, 4273-4276.	7.8	126
20	Nonlinear Bubble Dynamics in a Slowly Driven Foam. Physical Review Letters, 1995, 75, 2610-2613.	7.8	123
21	Scattering optics of foam. Applied Optics, 2001, 40, 4210.	2.1	123
22	Shear-Induced â€œMeltingâ€•of an Aqueous Foam. Journal of Colloid and Interface Science, 1999, 213, 169-178.	9.4	119
23	Onset of sediment transport is a continuous transition driven by fluid shear and granular creep. Nature Communications, 2015, 6, 6527.	12.8	119
24	Diffusing-wave spectroscopy: The technique and some applications. Physica Scripta, 1993, T49B, 610-621.	2.5	117
25	Particle Motions in a Gas-Fluidized Bed of Sand. Physical Review Letters, 1997, 79, 3407-3410.	7.8	117
26	Depth-Dependent Resistance of Granular Media to Vertical Penetration. Physical Review Letters, 2013, 111, 168002.	7.8	109
27	Fraction of Clogging Configurations Sampled by Granular Hopper Flow. Physical Review Letters, 2015, 114, 178001.	7.8	107
28	Scaling of transient hydrodynamic interactions in concentrated suspensions. Physical Review Letters, 1992, 68, 2559-2562.	7.8	102
29	Approach to jamming in an air-fluidized granular bed. Physical Review E, 2006, 74, 031308.	2.1	102
30	Relaxing in Foam. Physical Review Letters, 2003, 91, 188303.	7.8	98
31	Dynamics of shallow impact cratering. Physical Review E, 2005, 72, 041305.	2.1	97
32	Diffusing-light spectroscopies beyond the diffusion limit:â€ƒThe role of ballistic transport and anisotropic scattering. Physical Review E, 1998, 57, 4498-4515.	2.1	96
33	Statistics of shear-induced rearrangements in a two-dimensional model foam. Physical Review E, 1999, 60, 4385-4396.	2.1	95
34	Influence of boundary reflection and refraction on diffusive photon transport. Physical Review E, 1994, 50, 857-866.	2.1	89
35	Polymeric filament thinning and breakup in microchannels. Physical Review E, 2008, 77, 036309.	2.1	88
36	Photon migration at short times and distances and in cases of strong absorption. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1997, 14, 235.	1.5	86

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37	Granular discharge and clogging for tilted hoppers. Granular Matter, 2010, 12, 579-585.	2.2	86
38	Speckle Visibility Spectroscopy and Variable Granular Fluidization. Physical Review Letters, 2003, 90, 184302.	7.8	85
39	Angular distribution of diffusely transmitted light. Physical Review E, 1996, 53, 3215-3224.	2.1	84
40	Electrical conductivity of dispersions: from dry foams to dilute suspensions. Journal of Physics Condensed Matter, 2005, 17, 6301-6305.	1.8	84
41	Penetration depth for shallow impact cratering. Physical Review E, 2005, 71, 051305.	2.1	83
42	Geometry dependence of the clogging transition in tilted hoppers. Physical Review E, 2013, 87, 052201.	2.1	80
43	Wetting phenomena of binary liquid mixtures on chemically altered substrates. Physical Review Letters, 1987, 59, 555-558.	7.8	77
44	Uniform foam production by turbulent mixing: new results on free drainage vs. liquid content. European Physical Journal B, 1999, 12, 67-73.	1.5	72
45	Projectile Interactions in Granular Impact Cratering. Physical Review Letters, 2008, 101, 068001.	7.8	70
46	Topological persistence and dynamical heterogeneities near jamming. Physical Review E, 2007, 76, 021306.	2.1	69
47	Drag force scaling for penetration into granular media. Physical Review E, 2013, 87, 052208.	2.1	69
48	Viscous and elastic fingering instabilities in foam. Physical Review Letters, 1994, 72, 3347-3350.	7.8	67
49	Enhanced Drainage and Coarsening in Aqueous Foams. Physical Review Letters, 2002, 88, 088304.	7.8	66
50	Projectile-shape dependence of impact craters in loose granular media. Physical Review E, 2003, 68, 060301.	2.1	62
51	Accuracy of diffusing-wave spectroscopy theories. Physical Review E, 1995, 51, 3350-3358.	2.1	57
52	What Is in a Pebble Shape?. Physical Review Letters, 2006, 97, 028001.	7.8	57
53	Rheology of soft colloids across the onset of rigidity: scaling behavior, thermal, and non-thermal responses. Soft Matter, 2014, 10, 3027.	2.7	57
54	The effects of polymer molecular weight on filament thinning and drop breakup in microchannels. New Journal of Physics, 2009, 11, 115006.	2.9	54

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55	The diffusion coefficient depends on absorption. Optics Letters, 1998, 23, 1502.	3.3	50
56	Free drainage of aqueous foams: Container shape effects on capillarity and vertical gradients. Europhysics Letters, 2000, 50, 695-701.	2.0	49
57	Jamming and growth of dynamical heterogeneities versus depth for granular heap flow. Soft Matter, 2010, 6, 3023.	2.7	49
58	Characterization of the drag force in an air-moderated granular bed. Soft Matter, 2010, 6, 3038.	2.7	46
59	Effective Temperatures and Activated Dynamics for a Two-Dimensional Air-Driven Granular System on Two Approaches to Jamming. Physical Review Letters, 2008, 101, 245701.	7.8	44
60	Multiple light scattering as a probe of foams and emulsions. Current Opinion in Colloid and Interface Science, 2014, 19, 242-252.	7.4	43
61	Rheology of sediment transported by a laminar flow. Physical Review E, 2016, 94, 062609.	2.1	42
62	Instabilities in a Liquid-Fluidized Bed of Gas Bubbles. Physical Review Letters, 2000, 84, 3001-3004.	7.8	39
63	Photon channelling in foams. Europhysics Letters, 2004, 65, 414-419.	2.0	37
64	Bubble kinetics in a steady-state column of aqueous foam. Europhysics Letters, 2006, 76, 683-689.	2.0	35
65	Divergence of Voronoi Cell Anisotropy Vector: A Threshold-Free Characterization of Local Structure in Amorphous Materials. Physical Review Letters, 2016, 116, 088001.	7.8	35
66	Gas and liquid transport in steady-state aqueous foam. European Physical Journal E, 2008, 26, 309-316.	1.6	32
67	Granular discharge rate for submerged hoppers. Papers in Physics, 0, 6, 060009.	0.2	31
68	Dynamics and coarsening in three-dimensional foams. Journal of Physics Condensed Matter, 1990, 2, SA433-SA436.	1.8	30
69	Dynamical heterogeneity in soft-particle suspensions under shear. Physical Review E, 2011, 84, 021403.	2.1	30
70	Effect of interstitial fluid on the fraction of flow microstates that precede clogging in granular hoppers. Physical Review E, 2017, 95, 032904.	2.1	29
71	Spatially resolved backscattering: implementation of extrapolation boundary condition and exponential source. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1999, 16, 837.	1.5	28
72	Bubble statistics and coarsening dynamics for quasi-two-dimensional foams with increasing liquid content. Physical Review E, 2013, 87, 042304.	2.1	28

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73	Effect of hydrogel particle additives on water-accessible pore structure of sandy soils: A custom pressure plate apparatus and capillary bundle model. Physical Review E, 2013, 87, 053013.	2.1	28
74	The sands of time run faster near the end. Nature Communications, 2017, 8, 15551.	12.8	28
75	Centrifugal compression of soft particle packings: Theory and experiment. Physical Review E, 2010, 82, 041403.	2.1	27
76	Deformation-driven diffusion and plastic flow in amorphous granular pillars. Physical Review E, 2015, 91, 062212.	2.1	27
77	Intermittency and velocity fluctuations in hopper flows prone to clogging. Physical Review E, 2016, 94, 022901.	2.1	27
78	Principles and Applications of Diffusing-Wave Spectroscopy. , 1992, , 731-748.		27
79	Demonstration of Decentralized Physics-Driven Learning. Physical Review Applied, 2022, 18, .	3.8	27
80	Statistics of bubble rearrangement dynamics in a coarsening foam. Physical Review E, 2008, 78, 066313.	2.1	25
81	Dynamics of gas-fluidized granular rods. Physical Review E, 2009, 79, 041301.	2.1	25
82	Morphology of Rain Water Channeling in Systematically Varied Model Sandy Soils. Physical Review Applied, 2014, 2, .	3.8	24
83	Friction controls even submerged granular flows. Soft Matter, 2017, 13, 7657-7664.	2.7	23
84	Machine learning characterization of structural defects in amorphous packings of dimers and ellipses. Physical Review E, 2019, 99, 022903.	2.1	23
85	Penetration depth for diffusing-wave spectroscopy. Applied Optics, 1995, 34, 7100.	2.1	22
86	Hysteresis and packing in gas-fluidized beds. Physical Review E, 2000, 62, 4442-4445.	2.1	22
87	Avalanche statistics and time-resolved grain dynamics for a driven heap. Physical Review E, 2007, 76, 061301.	2.1	21
88	Diffusing wave spectroscopy (DWS) methods applied to double emulsions. Current Opinion in Colloid and Interface Science, 2018, 37, 74-87.	7.4	21
89	Dynamics and thermodynamics of air-driven active spinners. Soft Matter, 2018, 14, 5588-5594.	2.7	20
90	Fast thermal dynamics in aqueous foams. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1997, 14, 150.	1.5	19

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91	Shape and erosion of pebbles. Physical Review E, 2007, 75, 021301.	2.1	19
92	Tunable Capillary-Induced Attraction between Vertical Cylinders. Langmuir, 2015, 31, 2421-2429.	3.5	18
93	An instrument for studying granular media in low-gravity environment. Review of Scientific Instruments, 2018, 89, 075103.	1.3	18
94	Quasi-elastic light scattering for intermittent dynamics. Applied Optics, 2001, 40, 3984.	2.1	16
95	Statistical characterization of the forces on spheres in an upflow of air. Physical Review E, 2005, 71, 016313.	2.1	16
96	Partition of energy for air-fluidized grains. Physical Review E, 2005, 72, 031305.	2.1	16
97	Continued exploration of the wetting phase diagram. Physical Review B, 1987, 36, 7307-7310.	3.2	15
98	Coffee rings and coffee disks: Physics on the edge. Physics Today, 2013, 66, 60-61.	0.3	15
99	Note: Eliminating stripe artifacts in light-sheet fluorescence imaging. Review of Scientific Instruments, 2018, 89, 036107.	1.3	15
100	Rain water transport and storage in a model sandy soil with hydrogel particle additives. European Physical Journal E, 2014, 37, 97.	1.6	13
101	Border-crossing model for the diffusive coarsening of two-dimensional and quasi-two-dimensional wet foams. Physical Review E, 2017, 96, 032805.	2.1	13
102	Temperature-driven motion of a wetting layer. Physical Review A, 1989, 40, 5220-5223.	2.5	12
103	Making a frothy shampoo or beer. Physics Today, 2010, 63, 62-63.	0.3	12
104	Temperature-Pressure Scaling for Air-Fluidized Grains near Jamming. Physical Review Letters, 2012, 108, 138001.	7.8	12
105	YunkeretÂal.Reply:. Physical Review Letters, 2013, 111, 209602.	7.8	12
106	Penetration depth scaling for impact into wet granular packings. Physical Review E, 2015, 91, 022202.	2.1	12
107	Physical learning beyond the quasistatic limit. Physical Review Research, 2022, 4, .	3.6	12
108	Gaussian and non-Gaussian speckle fluctuations in the diffusing-wave spectroscopy signal of a coarsening foam. Applied Optics, 2006, 45, 2199.	2.1	11

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109	Desynchronous learning in a physics-driven learning network. Journal of Chemical Physics, 2022, 156, 144903.	3.0	11
110	Capillary behavior of binary liquid mixtures near criticality: Rise and kinetics. Physical Review A, 1990, 42, 4724-4734.	2.5	10
111	Two-stream theory of diffusing light spectroscopies. Physica A: Statistical Mechanics and Its Applications, 1996, 229, 218-235.	2.6	10
112	Angular distribution of diffusely backscattered light. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1997, 14, 2800.	1.5	10
113	Fast, nonevolutionary dynamics in foams. Current Opinion in Colloid and Interface Science, 1997, 2, 615-621.	7.4	10
114	Spatial sampling by diffuse photons. Applied Optics, 2001, 40, 4228.	2.1	10
115	Permeability of mixed soft and hard granular material: Hydrogels as drainage modifiers. European Physical Journal E, 2011, 34, 65.	1.6	10
116	Coarsening of a two-dimensional foam on a dome. Physical Review E, 2012, 86, 021402.	2.1	10
117	Characterizing pixel and point patterns with a hyperuniformity disorder length. Physical Review E, 2017, 96, 032909.	2.1	10
118	Anisotropic particles strengthen granular pillars under compression. Physical Review E, 2018, 97, 012904.	2.1	10
119	Strain localization and failure of disordered particle rafts with tunable ductility during tensile deformation. Soft Matter, 2020, 16, 8226-8236.	2.7	9
120	In search of soft solutions. Nature, 2001, 412, 391-392.	27.8	8
121	Wetting Phenomena of Binary Liquid Mixtures on Chemically Altered Substrates. Physical Review Letters, 1987, 59, 1492-1492.	7.8	7
122	Collisions and intermittency in granular flow. Journal of Physics Condensed Matter, 2000, 12, A507-A512.	1.8	7
123	Propagating waves in a monolayer of gas-fluidized rods. Physical Review E, 2011, 83, 061304.	2.1	7
124	Dynamical heterogeneities in grains and foams. , 2011, , 203-228.		7
125	Observation of two branches in the hindered settling function at low Reynolds number. Physical Review Fluids, 2018, 3, .	2.5	7
126	Soft matter dynamics: A versatile microgravity platform to study dynamics in soft matter. Review of Scientific Instruments, 2021, 92, 124503.	1.3	7

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127	Static and dynamic properties of highly turbid media determined by spatially resolved diffusive-wave spectroscopy. Applied Optics, 2002, 41, 7294.	2.1	6
128	Spectrum of structure for jammed and unjammed soft disks. Physical Review E, 2018, 98, .	2.1	6
129	Experimentally testing a generalized coarsening model for individual bubbles in quasi-two-dimensional wet foams. Physical Review E, 2021, 103, 012610.	2.1	6
130	Probing Gardner Physics in an Active Quasithermal Pressure-Controlled Granular System of Noncircular Particles. Physical Review Letters, 2022, 128, .	7.8	6
131	Polymer drop breakup in microchannels. Chaos, 2007, 17, 041102.	2.5	5
132	Abrasion of flat rotating shapes. Physical Review E, 2011, 83, 031303.	2.1	5
133	Kinetics of gravity-driven water channels under steady rainfall. Physical Review E, 2014, 90, 042205.	2.1	5
134	Hyperuniformity disorder length spectroscopy for extended particles. Physical Review E, 2017, 96, 032910.	2.1	5
135	Quantifying the long-range structure of foams and other cellular patterns with hyperuniformity disorder length spectroscopy. Physical Review E, 2021, 103, 062609.	2.1	5
136	Relaxation in Aqueous Foams. MRS Bulletin, 1994, 19, 20-23.	3.5	4
137	Diffusing-wave spectroscopy for arbitrary geometries: numerical analysis by a boundary-element method. Applied Optics, 2001, 40, 4179.	2.1	4
138	Reply to the Comment by S. J. Cox and D. Weaire on "Free drainage of aqueous foams: Container shape effects on capillarity and vertical gradients". Europhysics Letters, 2001, 55, 447-448.	2.0	4
139	Dynamics of normal and superfluid fogs using diffusing-wave spectroscopy. Physical Review E, 2004, 69, 061408.	2.1	4
140	Stagnant zone formation in a 2D bed of circular and elongated grains under penetration. Granular Matter, 2020, 22, 1.	2.2	4
141	Letter: Importance of boundary reflections in the theory of diffusive light scattering [see 33(12)3849-3852(Dec1994)]. Optical Engineering, 1995, 34, 3344.	1.0	3
142	Structure and coarsening at the surface of a dry three-dimensional aqueous foam. Physical Review E, 2013, 88, 062302.	2.1	3
143	Spatters and spills: Spreading dynamics for partially wetting droplets. Physics of Fluids, 2022, 34, 012112.	4.0	3
144	Scaliing in Three-Dimensional Foams. Materials Research Society Symposia Proceedings, 1991, 248, 295.	0.1	2

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145	Diffusingâ€wave spectroscopy and interferometry. Macromolecular Symposia, 1994, 79, 31-44.	0.7	2
146	Photon migration at short times and distances and in cases of strong absorption:â€ƒerratum. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1997, 14, 940.	1.5	2
147	Air-fluidized balls in a background of smaller beads. Journal of Statistical Mechanics: Theory and Experiment, 2011, 2011, P03027.	2.3	2
148	Spatially heterogeneous dynamics in a granular system near jamming. Chaos, 2007, 17, 041107.	2.5	1
149	Final bubble lengths for aqueous foam coarsened in a horizontal cylinder. Philosophical Magazine, 2011, 91, 4357-4366.	1.6	1
150	Publisher's Note: Drag force scaling for penetration into granular media [Phys. Rev. E87, 052208 (2013)]. Physical Review E, 2014, 89, .	2.1	1
151	Ballistic motion of a Brownian particle. Physics Today, 2015, 68, 10-11.	0.3	1
152	Reply to the Commentary on "Granular discharge rate for submerged hoppers". Papers in Physics, 2014, 6, .	0.2	1
153	Dynamics of Grains in Driven Granular Media. Materials Research Society Symposia Proceedings, 1996, 463, 313.	0.1	0
154	Photon migration at short times and distances and in cases of strong absorption:â€ƒerrata. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1998, 15, 2443.	1.5	0
155	Light scattering from superfluid fog. Physica B: Condensed Matter, 2003, 329-333, 230-231.	2.7	0
156	Publisherâ€™s Note: Depth-Dependent Resistance of Granular Media to Vertical Penetration [Phys. Rev. Lett. 111, 168002 (2013)]. Physical Review Letters, 2014, 112, .	7.8	0
157	Resolving tensions surrounding massive pulleys. American Journal of Physics, 2021, 89, 277-283.	0.7	0
158	On the Multiplicity of Polyabolos and Tangrams with Four-Fold Symmetry. Mathematics Magazine, 2021, 94, 296-301.	0.1	0
159	Detecting and characterizing intermittency using higher-order intensity correlation functions. , 2000, , .		0
160	Noise Model for Laser Speckle Contrast Imaging. , 2006, , .		0