Devang Khakhar

List of Publications by Year
in descending order

129 papers	5,230 citations	94381 37 h-index	91828 69 g-index
130 all docs	130 docs citations	130 times ranked	2963 citing authors

#	Article	IF	Citations
1	Mixing and Segregation of Granular Materials. Annual Review of Fluid Mechanics, 2000, 32, 55-91.	10.8	582
2	Studies on poly(vinylidene fluoride)â€“clay nanocomposites: Effect of different clay modifiers. Polymer, 2008, 49, 3486-3499.	1.8	223
3	Radial segregation of granular mixtures in rotating cylinders. Physics of Fluids, 1997, 9, 3600-3614.	1.6	213
4	Transverse flow and mixing of granular materials in a rotating cylinder. Physics of Fluids, 1997, 9, 31-43.	1.6	212
5	Analysis of chaotic mixing in two model systems. Journal of Fluid Mechanics, 1986, 172, 419.	1.4	156
6	Segregation-driven organization in chaotic granular flows. Proceedings of the National Academy of Sciences of the United States of America, 1999, 96, 11701-11706.	3.3	149
7	A case study of chaotic mixing in deterministic flows: The partitioned-pipe mixer. Chemical Engineering Science, 1987, 42, 2909-2926.	1.9	139
8	Scaling relations for granular flow in quasi-two-dimensional rotating cylinders. Physical Review E, 2001, 64, 031302.	0.8	138
9	Polyurethane Foamâ^'Clay Nanocomposites:Â Nanoclays as Cell Openers. Industrial & Engineering Chemistry Research, 2006, 45, 7126-7134.	1.8	137
10	Axial segregation of particles in a horizontal rotating cylinder. Chemical Engineering Science, 1991, 46, 1513-1517.	1.9	127
11	Surface flow of granular materials: model and experiments in heap formation. Journal of Fluid Mechanics, 2001, 441, 255-264.	1.4	111
12	Density difference-driven segregation in a dense granular flow. Journal of Fluid Mechanics, 2013, 717, 643-669.	1.4	105
13	Mixing and segregation of granular materials in chute flows. Chaos, 1999, 9, 594-610.	1.0	104
14	Chaotic mixing in a bounded three-dimensional flow. Journal of Fluid Mechanics, 2000, 417, 265-301.	1.4	99
15	Mixing and Dispersion of Viscous Liquids and Powdered Solids. Advances in Chemical Engineering, 1999, 25, 105-204.	0.5	98
16	Computational studies of granular mixing. Powder Technology, 2000, 109, 72-82.	2.1	98
17	Breakup of liquid threads in linear flows. International Journal of Multiphase Flow, 1987, 13, 71-86.	1.6	91
18	Rheology of binary granular mixtures in the dense flow regime. Physics of Fluids, 2011, 23, .	1.6	82

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19	Visualization of Three-Dimensional Chaos. , 1998, 281, 683-686.		81
20	Deformation and breakup of slender drops in linear flows. Journal of Fluid Mechanics, 1986, 166, 265.	1.4	77
21	Modeling of the Dynamics of Water and R-11 blown polyurethane foam formation. Polymer Engineering and Science, 1994, 34, 642-649.	1.5	73
22	Segregation of granular materials in rotating cylinders. Physica A: Statistical Mechanics and Its Applications, 2003, 318, 129-136.	1.2	73
23	Rigid polyurethaneâ€“clay nanocomposite foams: Preparation and properties. Journal of Applied Polymer Science, 2007, 103, 2802-2809.	1.3	72
24	Chaotic mixing of granular materials in two-dimensional tumbling mixers. Chaos, 1999, 9, 195-205.	1.0	64
25	Continuum model of mixing and size segregation in a rotating cylinder: concentration-flow coupling and streak formation. Powder Technology, 2001, 116, 232-245.	2.1	63
26	Rheology of surface granular flows. Journal of Fluid Mechanics, 2007, 571, 1-32.	1.4	61
27	Reticulated vitreous carbon from polyurethane foamâ€“clay composites. Carbon, 2007, 45, 531-535.	5.4	60
28	Axial transport of granular solids in horizontal rotating cylinders. Part 1: Theory. Powder Technology, 1991, 67, 145-151.	2.1	55
29	Modeling of the dynamics of R-11 blown polyurethane foam formation. Polymer Engineering and Science, 1994, 34, 632-641.	1.5	55
30	Formation and characterization of polyurethaneâ€”vermiculite clay nanocomposite foams. Polymer Engineering and Science, 2008, 48, 1778-1784.	1.5	52
31	Fundamental research in heaping, mixing, and segregation of granular materials: challenges and perspectives. Powder Technology, 2001, 121, 117-122.	2.1	50
32	Axial transport of granular solids in rotating cylinders. Part 2: Experiments in a non-flow system. Powder Technology, 1991, 67, 153-162.	2.1	48
33	Coalescence in Surfactant-Stabilized Emulsions Subjected to Shear Flow. Langmuir, 2001, 17, 2647-2655.	1.6	46
34	Studies on Î± to Î² phase transformations in mechanically deformed PVDF films. Journal of Applied Polymer Science, 2010, 117, 3491-3497.	1.3	46
35	Self-Organization in Granular Slurries. Physical Review Letters, 2001, 86, 3771-3774.	2.9	45
36	Dispersion of solids in nonhomogeneous viscous flows. Chemical Engineering Science, 1998, 53, 1803-1817.	1.9	39

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37	Scaling of granular flow processes: From surface flows to design rules. AICHE Journal, 2002, 48, 2157-2166.	1.8	39
38	Enhancement of polymerization rates for rigid rod-like molecules by shearing. Nature, 1992, 360, 53-55.	13.7	38
39	Mixing of viscous immiscible liquids. Part 1: Computational models for strongâ€“weak and continuous flow systems. Chemical Engineering Science, 2001, 56, 5511-5529.	1.9	38
40	Solid-Fluid Transition in a Granular Shear Flow. Physical Review Letters, 2004, 93, 068001.	2.9	38
41	Phosphoniumâ€based layered silicateâ€”Poly(ethylene terephthalate) nanocomposites: Stability, thermal and mechanical properties. Journal of Applied Polymer Science, 2009, 113, 1720-1732.	1.3	37
42	Stretching induced phase transformations in melt extruded poly(vinylidene fluoride) cast films: Effect of cast roll temperature and speed. Polymer Engineering and Science, 2007, 47, 1992-2004.	1.5	36
43	Radial mixing of granular materials in a rotating cylinder: Experimental determination of particle self-diffusivity. Physics of Fluids, 2005, 17, 013101.	1.6	34
44	A study of the rheology of planar granular flow of dumbbells using discrete element method simulations. Physics of Fluids, 2016, 28, .	1.6	34
45	Regulation of Cell Structure in Water Blown Rigid Polyurethane Foam. Macromolecular Symposia, 2004, 216, 241-254.	0.4	31
46	Phase transformation and enhancement of toughness in polyvinylidene fluoride by onium salts. Journal of Polymer Science, Part B: Polymer Physics, 2011, 49, 1339-1344.	2.4	31
47	Suppression of Coalescence in Surfactant Stabilized Emulsions by Shear Flow. Physical Review Letters, 1999, 83, 2461-2464.	2.9	30
48	MIXING OF GRANULAR MATERIALS: A TEST-BED DYNAMICAL SYSTEM FOR PATTERN FORMATION. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 1999, 09, 1467-1484.	0.7	30
49	Numerical Simulation of the Sedimentation of a Sphere in a Sheared Granular Fluid: A Granular Stokes Experiment. Physical Review Letters, 2011, 107, 108001.	2.9	30
50	Fluid mixing (stretching) by time periodic sequences for weak flows. Physics of Fluids, 1986, 29, 3503.	1.4	29
51	Formation of integral skin polyurethane foams. Polymer Engineering and Science, 1999, 39, 164-176.	1.5	29
52	SURFACE GRANULAR FLOWS: TWO RELATED EXAMPLES. International Journal of Modeling, Simulation, and Scientific Computing, 2001, 04, 407-417.	0.9	27
53	Radial segregation of ternary granular mixtures in rotating cylinders. Granular Matter, 2011, 13, 475-486.	1.1	27
54	Rheology of a gas-fluidized bed. Powder Technology, 1995, 83, 29-34.	2.1	26

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55	Mixing of viscous immiscible liquids. Part 2: Overemulsificationâ€"interpretation and use. Chemical Engineering Science, 2001, 56, 5531-5537.	1.9	24
56	A Simple Model for Granular Convection. Physical Review Letters, 1997, 79, 829-832.	2.9	23
57	An experimental study of the flow of nonspherical grains in a rotating cylinder. AICHE Journal, 2017, 63, 4307-4315.	1.8	23
58	Effect of monomer temperature on foaming and properties of flexible polyurethane foams. Journal of Applied Polymer Science, 2007, 105, 3439-3443.	1.3	22
59	Dense granular flow of mixtures of spheres and dumbbells down a rough inclined plane: Segregation and rheology. Physics of Fluids, 2019, 31, .	1.6	22
60	Mechanistic origins of multi-scale reinforcements in segmented polyurethane-clay nanocomposites. Polymer, 2014, 55, 5198-5210.	1.8	21
61	Experimental evidence for a description of granular segregation in terms of the effective temperature. Europhysics Letters, 2008, 83, 54004.	0.7	20
62	Fluidization characteristics of lithium-titanate in gas-solid fluidized bed. Fusion Engineering and Design, 2011, 86, 393-398.	1.0	20
63	Characterizing the nanoclay induced constrained amorphous region in model segmented polyurethaneâ€"urea/clay nanocomposites and its implications on gas barrier properties. Physical Chemistry Chemical Physics, 2016, 18, 1487-1499.	1.3	20
64	Diffusionâ€limited polymerization of rigid rodlike molecules: Dilute solutions. Journal of Chemical Physics, 1992, 96, 7125-7134.	1.2	18
65	Breakage of vesicles in a simple shear flow. Soft Matter, 2019, 15, 1979-1987.	1.2	18
66	Internal avalanches in a granular medium. Physical Review E, 1998, 58, R6935-R6938.	0.8	17
67	Rheology and Mixing of Granular Materials. Macromolecular Materials and Engineering, 2011, 296, 278-289.	1.7	17
68	Sidewall-friction-driven ordering transition in granular channel flows: Implications for granular rheology. Physical Review E, 2017, 96, 050901.	0.8	17
69	Analysis of granular rheology in a quasi-two-dimensional slow flow by means of discrete element method based simulations. Physics of Fluids, 2020, 32, .	1.6	17
70	Optimization of the structure of integral skin foams for maximal flexural properties. Polymer Engineering and Science, 1994, 34, 726-733.	1.5	15
71	Flexural Properties of Mica Filled Polyurethane Foams. Journal of Cellular Plastics, 1997, 33, 587-605.	1.2	15
72	Steady flow of smooth, inelastic particles on a bumpy inclined plane: Hard and soft particle simulations. Physical Review E, 2010, 81, 041307.	0.8	15

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73	Modeling the dynamics of reactive foaming and film thinning in polyurethane foams. AICHE Journal, 2010, 56, 522-530.	1.8	14
74	Sensitivity of granular segregation of mixtures in quasi-two-dimensional fluidized layers. Physical Review E, 2004, 69, 031304.	0.8	13
75	Rheology of dense granular flows in two dimensions: Comparison of fully two-dimensional flows to unidirectional shear flow. Physical Review Fluids, 2018, 3, .	1.0	13
76	Diffusionâ€limited polymerization of rigid rodlike molecules: Semidilute solutions. Journal of Chemical Physics, 1993, 99, 1382-1392.	1.2	12
77	Hydraulic resistance of rigid polyurethane foams. III. Effect of variation of the concentration of catalysts on foam structure and properties. Journal of Applied Polymer Science, 2004, 93, 2838-2843.	1.3	12
78	Hydraulic resistance of rigid polyurethane foams. I. Effect of different surfactants on foam structure and properties. Journal of Applied Polymer Science, 2004, 93, 2821-2829.	1.3	12
79	Clay nanoplatelet induced morphological evolutions during polymeric foaming. Soft Matter, 2011, 7, 6801.	1.2	12
80	Structureâ€“thermomechanical property correlation of moisture cured poly(urethane-urea)/clay nanocomposite coatings. Progress in Organic Coatings, 2012, 75, 264-273.	1.9	12
81	Effects of Ethanol Addition on the Size Distribution of Liposome Suspensions in Water. Industrial & Engineering Chemistry Research, 2019, 58, 7511-7519.	1.8	12
82	Collisional SPH: A method to model frictional collisions with SPH. Applied Mathematical Modelling, 2021, 94, 13-35.	2.2	12
83	Simulation of diffusionâ€limited stepâ€growth polymerization in 2D: Effect of shear flow and chain rigidity. Journal of Chemical Physics, 1993, 99, 3067-3074.	1.2	11
84	Role of voids in granular convection. Physical Review E, 1997, 55, 6121-6133.	0.8	11
85	Polymerization kinetics of rodlike molecules under quiescent conditions. AICHE Journal, 2001, 47, 177-186.	1.8	11
86	Open problems in active chaotic flows: Competition between chaos and order in granular materials. Chaos, 2002, 12, 400-407.	1.0	11
87	Creating analytically divergence-free velocity fields from grid-based data. Journal of Computational Physics, 2016, 323, 75-94.	1.9	11
88	A study of the rheology and micro-structure of dumbbells in shear geometries. Physics of Fluids, 2018, 30, .	1.6	11
89	Shear flow induced orientation development during homogeneous solution polymerization of rigid rodlike molecules. Macromolecules, 1993, 26, 3960-3965.	2.2	10
90	Hydraulic resistance of rigid polyurethane foams. II. Effect of variation of surfactant, water, and nucleating agent concentrations on foam structure and properties. Journal of Applied Polymer Science, 2004, 93, 2830-2837.	1.3	10

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91	Mixing of granular material in rotating cylinders with noncircular cross-sections. Physics of Fluids, 2010, 22, 103302.	1.6	10
92	Coalescence in a surfactant-less emulsion under simple shear flow. AICHE Journal, 2006, 52, 885-894.	1.8	9
93	Granular flow in rotating cylinders with noncircular cross sections. Physical Review E, 2008, 77, 041301.	0.8	9
94	Collision rates in chaotic flows: Dilute suspensions. Physical Review A, 1990, 42, 5964-5969.	1.0	8
95	Brownian dynamics simulation of diffusion-limited polymerization of rodlike molecules: Anisotropic translation diffusion. Journal of Chemical Physics, 1998, 108, 5626-5634.	1.2	8
96	Anomalous toluene transport in model segmented polyurethaneâ€“urea/clay nanocomposites. Soft Matter, 2018, 14, 3870-3881.	1.2	8
97	Theoretical calculation of the buoyancy force on a particle in flowing granular mixtures. Physical Review E, 2019, 100, 042909.	0.8	8
98	A note on the linear vector model of Olbricht, Rallison, and Leal as applied to the breakup of slender axisymmetric drops. Journal of Non-Newtonian Fluid Mechanics, 1986, 21, 127-131.	1.0	7
99	Competition effects in surface diffusion controlled reactions: Theory and Brownian dynamics simulations. Journal of Chemical Physics, 1993, 99, 9237-9247.	1.2	7
100	Simulation of the percolation of water into rigid polyurethane foams at applied hydraulic pressures. Polymer Engineering and Science, 2006, 46, 970-983.	1.5	7
101	Analysis of grinding in a spiral jet mill. Part 1: Batch grinding. Chemical Engineering Science, 2021, 231, 116310.	1.9	7
102	Elastoplastic frictional collisions with Collisional-SPH. Tribology International, 2022, 168, 107438.	3.0	7
103	Jet impingement mixing in an L-type mixhead: Comparison of mixing criteria. Polymer Engineering and Science, 1993, 33, 1611-1618.	1.5	6
104	Brownian dynamics simulations of diffusion controlled reactions with finite reactivity. Journal of Chemical Physics, 1997, 107, 1915-1921.	1.2	6
105	Gradient Monte Carlo simulations: Hard spheres in spatially varying temperature and gravitational fields. Physical Review E, 2011, 83, 061306.	0.8	5
106	Benzyl triphenyl phosphonium chloride as an additive for polyvinylidene fluoride: Melt rheology, crystallization, and electrical properties. Polymer Engineering and Science, 2014, 54, 2420-2429.	1.5	5
107	A study of wet granule breakage in a breakage-only high-shear mixer. Advanced Powder Technology, 2020, 31, 2438-2446.	2.0	5
108	Theory for size segregation in flowing granular mixtures based on computation of forces on a single large particle. Physical Review E, 2021, 103, L031301.	0.8	5

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109	FLUIDIZED BED ADSORBER MODELLING AND EXPERIMENTAL STUDY. Chemical Engineering Communications, 1983, 20, 235-251.	1.5	4
110	Structure Formation in Suspensions with a Liquid Crystalline Medium:â€‰ Percolation Phenomena. Langmuir, 1998, 14, 2541-2547.	1.6	4
111	Acceleration of the Polymerization of Rodlike Molecules by Flow. Journal of the American Chemical Society, 2000, 122, 10910-10913.	6.6	4
112	Flow enhanced diffusion-limited polymerization of rodlike molecules. Journal of Chemical Physics, 2001, 114, 553.	1.2	4
113	A Simple Method for Studying the Dynamics of Rigid Polyurethane Foam Formation. Journal of Cellular Plastics, 1993, 29, 280-284.	1.2	3
114	RAINING OF PARTICLES FROM AN EMULSION-GAS INTERFACE IN A FLUIDIZED BED. Chemical Engineering Communications, 1997, 161, 205-229.	1.5	3
115	Reinforcement Mechanism Of Polyurethane-Ureaâˆ•Clay Nanocomposites Probed By Positron Annihilation Lifetime Spectroscopy And Dynamic Mechanical Analysis. AIP Conference Proceedings, 2010, , .	0.3	3
116	Granular surface flow on an asymmetric conicalÂheap. Journal of Fluid Mechanics, 2019, 865, 41-59.	1.4	3
117	Granular segregation in quasi-2d rectangular bin. , 2013, , .		2
118	Experimental Investigation of Coke Collapse in Quasi-two Dimensional System for a Blast Furnace. Procedia Engineering, 2015, 102, 676-683.	1.2	2
119	Global organization of three-dimensional, volume-preserving flows: Constraints, degenerate points, and Lagrangian structure. Chaos, 2020, 30, 033124.	1.0	2
120	Free energy of conformational change in a single chain of polyvinylidene fluoride using molecular simulations. Polymer Engineering and Science, 2021, 61, 1270-1280.	1.5	2
121	Reduction in gravity-induced collision frequencies of particles dispersed in a viscoplastic fluid. Journal of Colloid and Interface Science, 1992, 153, 578-580.	5.0	1
122	Modeling of industrial styrene polymerization reactors. Polymer Engineering and Science, 1997, 37, 1073-1081.	1.5	1
123	Structural Investigations of Polyurethane-Ureaâˆ•Clay Nanocomposites. AIP Conference Proceedings, 2011, , .	0.3	1
124	Depth Profile of Chemical Composition and Free Volume of Polyurethane-Urea/Clay Nanocomposite. Materials Science Forum, 0, 733, 175-178.	0.3	1
125	Field induced gradient simulations: A high throughput method for computing chemical potentials in multicomponent systems. Journal of Chemical Physics, 2012, 136, 134108.	1.2	1
126	Dense Granular Flows: Rheology and Segregation. AIP Conference Proceedings, 2008, , .	0.3	0

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127	Preface to the Professor K. D. P. Nigam Festschrift. Industrial & Engineering Chemistry Research, 2012, 51, 1435-1436.	1.8	0
128	DEM simulations of quasi-two-dimensional flow of spherical particles on a heap without sidewalls. EPJ Web of Conferences, 2021, 249, 03034.	0.1	0
129	Signatures of Chaos in 2D Tumbling Mixers. Solid Mechanics and Its Applications, 2000, , 171-180.	0.1	0