Viswanathan Kumaran

List of Publications by Year
in descending order

107 papers	2,075 citations	186209 28 h-index	302012 39 g-index
108 all docs	108 docs citations	108 times ranked	1077 citing authors

#	Article	IF	Citations
1	Comparison of the compressible class of models and non-local models with the discrete element method for steady fully developed flow of cohesionless granular materials through a vertical channel. Journal of Fluid Mechanics, 2022, 937, .	1.4	6
2	The effect of inter-particle hydrodynamic and magnetic interactions in a magnetorheological fluid. Journal of Fluid Mechanics, 2022, 944, .	1.4	0
3	Dynamics of polarizable spheroid in a shear flow subjected to a parallel magnetic field. Physical Review Fluids, 2021, 6, .	1.0	2
4	Steady and rotating states of a polarizable spheroid subjected to a magnetic field and a shear flow. Physical Review Fluids, 2021, 6, .	1.0	1
5	Stability and the transition to turbulence in the flow through conduits with compliant walls. Journal of Fluid Mechanics, 2021, 924, .	1.4	11
6	Moving efficiently through a crowd: A nature-inspired traffic rule. Physical Review E, 2021, 104, 054609.	0.8	2
7	Neurogenesis-on-Chip: Electric field modulated transdifferentiation of human mesenchymal stem cell and mouse muscle precursor cell coculture. Biomaterials, 2020, 226, 119522.	5.7	32
8	A suspension of conducting particles in a magnetic field â€“ the particle stress. Journal of Fluid Mechanics, 2020, 901, .	1.4	4
9	Disruption of turbulence due to particle loading in a dilute gasâ€“particle suspension. Journal of Fluid Mechanics, 2020, 889, .	1.4	17
10	Bifurcations in the dynamics of a dipolar spheroid in a shear flow subjected to an external field. Physical Review Fluids, 2020, 5, .	1.0	4
11	Reprogramming the Stem Cell Behavior by Shear Stress and Electric Field Stimulation: Lab-on-a-Chip Based Biomicrofluidics in Regenerative Medicine. Regenerative Engineering and Translational Medicine, 2019, 5, 99-127.	1.6	11
12	Effect of magnetic dipolar interactions and size dispersity on the origin of steady state magnetomechanical response in bidisperse Mnâ€“Zn ferrite spherical particle based magnetorheological fluids. New Journal of Chemistry, 2019, 43, 9969-9979.	1.4	25
13	Rheology of a suspension of conducting particles in a magnetic field. Journal of Fluid Mechanics, 2019, 871, 139-185.	1.4	5
14	Biophysical implications of Maxwell stress in electric field stimulated cellular microenvironment on biomaterial substrates. Biomaterials, 2019, 209, 54-66.	5.7	15
15	Synthesis of highly magnetic Mn-Zn ferrite (Mn0.7Zn0.3Fe2O4) ceramic powder and its use in smart magnetorheological fluid. Rheologica Acta, 2019, 58, 273-280.	1.1	25
16	A cartridge based Point-of-Care device for complete blood count. Scientific Reports, 2019, 9, 18583.	1.6	18
17	Cessation of a dense granular flow down an inclined plane. Physical Review Fluids, 2019, 4, .	1.0	1
18	Effect of particle stiffness on contact dynamics and rheology in a dense granular flow. Physical Review E, 2018, 97, 012902.	0.8	8

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19	Controlled Shear Flow Directs Osteogenesis on UHMWPE-Based Hybrid Nanobiocomposites in a Custom-Designed PMMA Microfluidic Device. ACS Applied Bio Materials, 2018, 1, 414-435.	2.3	12
20	Magnetorheological fluids containing rod-shaped lithiumâ€“zinc ferrite particles: the steady-state shear response. Soft Matter, 2018, 14, 5407-5419.	1.2	41
21	Transitions to different kinds of turbulence in a channel with soft walls. Journal of Fluid Mechanics, 2017, 822, 267-306.	1.4	5
22	Effect of viscoelasticity on the soft-wall transition and turbulence in a microchannel. Journal of Fluid Mechanics, 2017, 812, 1076-1118.	1.4	28
23	Effect of base topography on dynamics and transition in a dense granular flow. Journal of Fluid Mechanics, 2017, 832, 600-640.	1.4	6
24	Ultra-fast microfluidic mixing by soft-wall turbulence. Chemical Engineering Science, 2016, 149, 156-168.	1.9	28
25	Structure-rheology relationship in a sheared lamellar fluid. Physical Review E, 2016, 93, 032609.	0.8	7
26	System size dependence of the structure and rheology in a sheared lamellar liquid crystalline medium. Journal of Chemical Physics, 2016, 145, 244901.	1.2	3
27	After transition in a soft-walled microchannel. Journal of Fluid Mechanics, 2015, 780, 649-686.	1.4	14
28	Effect of ultra-fast mixing in a microchannel due to a soft wall on the room temperature synthesis of gold nanoparticles. Sadhana - Academy Proceedings in Engineering Sciences, 2015, 40, 973-983.	0.8	6
29	Wall-mode instability in plane shear flow of viscoelastic fluid over a deformable solid. Physical Review E, 2015, 91, 023007.	0.8	7
30	Stability of the flow in a soft tube deformed due to an applied pressure gradient. Physical Review E, 2015, 91, 043001.	0.8	15
31	Experimental studies on the flow through soft tubes and channels. Sadhana - Academy Proceedings in Engineering Sciences, 2015, 40, 911-923.	0.8	15
32	Synthesis and Characterization of Au@Pt Nanoparticles with Ultrathin Platinum Overlayers. Journal of Physical Chemistry C, 2015, 119, 5982-5987.	1.5	40
33	Dense shallow granular flows. Journal of Fluid Mechanics, 2014, 756, 555-599.	1.4	12
34	The generalized Onsager model for a binary gas mixture. Journal of Fluid Mechanics, 2014, 753, 307-359.	1.4	15
35	Dynamics of edge dislocations in a sheared lamellar mesophase. Journal of Chemical Physics, 2013, 139, 134907.	1.2	5
36	A multifold reduction in the transition Reynolds number, and ultra-fast mixing, in a micro-channel due to a dynamical instability induced by a soft wall. Journal of Fluid Mechanics, 2013, 727, 407-455.	1.4	50

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37	The effect of base roughness on the development of a dense granular flow down an inclined plane. Physics of Fluids, 2013, 25, .	1.6	26
38	Transition due to base roughness in a dense granular flow down an inclined plane. Physics of Fluids, 2012, 24, .	1.6	28
39	A dynamical instability due to fluidâ€"wall coupling lowers the transition Reynolds number in the flow through a flexible tube. Journal of Fluid Mechanics, 2012, 705, 322-347.	1.4	48
40	Effect of base dissipation on the granular flow down an inclined plane. Granular Matter, 2012, 14, 209-213.	1.1	8
41	Verifying scalings for bending rigidity of bilayer membranes using mesoscale models. Soft Matter, 2011, 7, 3963.	1.2	24
42	Particle dynamics in the channel flow of a turbulent particleâ€"gas suspension at high Stokes number. Part 1. DNS and fluctuating force model. Journal of Fluid Mechanics, 2011, 687, 1-40.	1.4	14
43	Particle dynamics in the channel flow of a turbulent particleâ€"gas suspension at high Stokes number. Part 2. Comparison of fluctuating force simulations and experiments. Journal of Fluid Mechanics, 2011, 687, 41-71.	1.4	10
44	Fluctuation-dissipation relation for nonlinear Langevin equations. Physical Review E, 2011, 83, 041126.	0.8	3
45	Shear alignment of a disordered lamellar mesophase. Physical Review E, 2011, 83, 031501.	0.8	9
46	The generalized Onsager model for the secondary flow in a high-speed rotating cylinder. Journal of Fluid Mechanics, 2011, 686, 109-159.	1.4	28
47	Particle dynamics in a turbulent particleâ€"gas suspension at high Stokes number. Part 2. The fluctuating-force model. Journal of Fluid Mechanics, 2010, 646, 91-125.	1.4	15
48	Dynamics of sheared inelastic dumbbells. Journal of Fluid Mechanics, 2010, 660, 475-498.	1.4	14
49	Particle dynamics in a turbulent particleâ€"gas suspension at high Stokes number. Part 1. Velocity and acceleration distributions. Journal of Fluid Mechanics, 2010, 646, 59-90.	1.4	20
50	Dense granular flow down an inclined plane: A comparison between the hard particle model and soft particle simulations. Physics of Fluids, 2010, 22, .	1.6	23
51	The hard-particle model for a dense granular flow down an inclined plane. , 2010, , .		0
52	Dynamics of a dilute sheared inelastic fluid. I. Hydrodynamic modes and velocity correlation functions. Physical Review E, 2009, 79, 011301.	0.8	17
53	Dynamics of a dilute sheared inelastic fluid. II. The effect of correlations. Physical Review E, 2009, 79, 011302.	0.8	14
54	Mesoscale description of an asymmetric lamellar phase. Journal of Chemical Physics, 2009, 130, 224905.	1.2	9

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55	Stability of the plane shear flow of dilute polymeric solutions. Physics of Fluids, 2009, 21, .	1.6	17
56	Multiscale modeling of lamellar mesophases. Journal of Chemical Physics, 2009, 130, 114907.	1.2	12
57	Dynamics of dense sheared granular flows. Part II. The relative velocity distributions. Journal of Fluid Mechanics, 2009, 632, 145-198.	1.4	29
58	Dynamics of dense sheared granular flows. Part 1. Structure and diffusion. Journal of Fluid Mechanics, 2009, 632, 109-144.	1.4	33
59	Rheology of Dense Sheared Granular Flows. AIP Conference Proceedings, 2008, , .	0.3	0
60	Weakly nonlinear stability analysis of a flow past a neo-Hookean solid at arbitrary Reynolds numbers. Physics of Fluids, 2008, 20, .	1.6	16
61	Fast decay of the velocity autocorrelation function in dense shear flow of inelastic hard spheres. Europhysics Letters, 2008, 84, 64003.	0.7	20
62	Weakly nonlinear analysis of viscous instability in flow past a neo-Hookean surface. Physical Review E, 2008, 77, 056303.	0.8	27
63	Dense granular flow down an inclined plane: from kinetic theory to granular dynamics. Journal of Fluid Mechanics, 2008, 599, 121-168.	1.4	51
64	Stability of the viscous flow of a polymeric fluid past a flexible surface. Physics of Fluids, 2007, 19, 034102.	1.6	7
65	Stability of the flow of a viscoelastic fluid past a deformable surface in the low Reynolds number limit. Physics of Fluids, 2007, 19, .	1.6	15
66	Josiah Willard Gibbs. Resonance, 2007, 12, 4-11.	0.2	1
67	The constitutive relation for the granular flow of rough particles, and its application to the flow down an inclined plane. Journal of Fluid Mechanics, 2006, 561, 1.	1.4	59
68	Granular flow of rough particles in the high-Knudsen-number limit. Journal of Fluid Mechanics, 2006, 561, 43.	1.4	12
69	Velocity Autocorrelations and Viscosity Renormalization in Sheared Granular Flows. Physical Review Letters, 2006, 96, 258002.	2.9	27
70	Kinetic Model for Sheared Granular Flows in the High Knudsen Number Limit. Physical Review Letters, 2005, 95, 108001.	2.9	14
71	Stability of oscillatory flows past compliant surfaces. European Physical Journal B, 2004, 41, 135-145.	0.6	2
72	Constitutive relations and linear stability of a sheared granular flow. Journal of Fluid Mechanics, 2004, 506, 1-43.	1.4	48

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73	Stability of a sheared particle suspension. Physics of Fluids, 2003, 15, 3625-3637.	1.6	10
74	Hydrodynamic Stability of Flow Through Compliant Channels and Tubes. Fluid Mechanics and Its Applications, 2003, , 95-118.	0.1	10
75	Experimental study of the instability of the viscous flow past a flexible surface. Physics of Fluids, 2002, 14, 775-780.	1.6	50
76	Effect of Convection on Domain Growth During Demixing Transitions in Fluids. Phase Transitions, 2002, 75, 339-352.	0.6	0
77	Stability of wall modes in fluid flow past a flexible surface. Physics of Fluids, 2002, 14, 2324.	1.6	49
78	A novel approach to computing the orientation moments of spheroids in simple shear flow at arbitrary PÃ©clet number. Physics of Fluids, 2002, 14, 75-84.	1.6	9
79	Stability of fluid flow past a membrane. Journal of Fluid Mechanics, 2002, 472, 29-50.	1.4	13
80	Weakly nonlinear stability of viscous flow past a flexible surface. Journal of Fluid Mechanics, 2001, 434, 337-354.	1.4	30
81	Hydrodynamic modes of a sheared granular flow from the Boltzmann and Navierâ€"Stokes equations. Physics of Fluids, 2001, 13, 2258-2268.	1.6	9
82	Effect of tangential interface motion on the viscous instability in fluid flow past flexible surfaces. European Physical Journal B, 2001, 23, 533-550.	0.6	10
83	Asymptotic analysis of wall modes in a flexible tube revisited. European Physical Journal B, 2001, 19, 607-622.	0.6	27
84	Effect of surface charges on the curvature moduli of a membrane. Physical Review E, 2001, 64, 051922.	0.8	17
85	Electrohydrodynamic instability of a charged membrane. Physical Review E, 2001, 64, 011911.	0.8	15
86	Stability of fluid flow in a flexible tube to non-axisymmetric disturbances. Journal of Fluid Mechanics, 2000, 407, 291-314.	1.4	39
87	Instabilities due to Charge-Density-Curvature Coupling in Charged Membranes. Physical Review Letters, 2000, 85, 4996-4999.	2.9	31
88	Spontaneous Growth of Fluctuations in the Viscous Flow of a Fluid past a Soft Interface. Physical Review Letters, 2000, 84, 3310-3313.	2.9	77
89	Spontaneous motion of droplets during the demixing transition in binary fluids. Journal of Chemical Physics, 2000, 112, 10984-10991.	1.2	6
90	Structure and rheology of the defect-gel states of pure and particle-dispersed lyotropic lamellar phases. European Physical Journal B, 1999, 12, 269-276.	0.6	55

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91	Stability of non-parabolic flow in a flexible tube. Journal of Fluid Mechanics, 1999, 395, 211-236.	1.4	40
92	Stability of fluid flow past a membrane. European Physical Journal B, 1998, 2, 259-266.	0.6	4
93	Asymptotic analysis of wall modes in a flexible tube. European Physical Journal B, 1998, 4, 519-527.	0.6	7
94	Microscopic analysis of the coarsening of an interface in the spinodal decomposition of a binary fluid. Journal of Chemical Physics, 1998, 109, 3240-3244.	1.2	1
95	Stability of wall modes in a flexible tube. Journal of Fluid Mechanics, 1998, 362, 1-15.	1.4	36
96	Effect of convective transport on droplet spinodal decomposition in fluids. Journal of Chemical Physics, 1998, 109, 2437-2441.	1.2	6
97	Droplet interaction in the spinodal decomposition of a fluid. Journal of Chemical Physics, 1998, 109, 7644-7648.	1.2	11
98	Coarsening of random interfaces in the spinodal decomposition of a binary fluid. Journal of Chemical Physics, 1998, 108, 3038-3044.	1.2	7
99	Stability of the flow of a fluid through a flexible tube at intermediate Reynolds number. Journal of Fluid Mechanics, 1998, 357, 123-140.	1.4	42
100	Kinetic theory for a vibro-fluidized bed. Journal of Fluid Mechanics, 1998, 364, 163-185.	1.4	35
101	Velocity distribution function for a dilute granular material in shear flow. Journal of Fluid Mechanics, 1997, 340, 319-341.	1.4	15
102	Stability of inviscid flow in a flexible tube. Journal of Fluid Mechanics, 1996, 320, 1.	1.4	36
103	Effect of dynamical asymmetry on the viscosity of a random copolymer melt. Journal of Chemical Physics, 1996, 104, 3120-3133.	1.2	3
104	Effect of fluid flow on the fluctuations at the surface of an elastic medium. Journal of Chemical Physics, 1995, 102, 3452-3460.	1.2	3
105	Stability of the flow of a fluid through a flexible tube at high Reynolds number. Journal of Fluid Mechanics, 1995, 302, 117-139.	1.4	31
106	Stability of the viscous flow of a fluid through a flexible tube. Journal of Fluid Mechanics, 1995, 294, 259-281.	1.4	71
107	Flow induced instability of the interface between a fluid and a gel at low Reynolds number. Journal De Physique II, 1994, 4, 893-911.	0.9	74