

Viswanathan Kumaran

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

98 papers	1,735 citations	25 h-index	35 g-index
108 ext. papers	1,956 ext. citations	3.7 avg, IF	5.45 L-index

#	Paper	IF	Citations
98	Moving efficiently through a crowd: A nature-inspired traffic rule.. <i>Physical Review E</i> , 2021 , 104, 054609	2.4	0
97	Stability and the transition to turbulence in the flow through conduits with compliant walls. <i>Journal of Fluid Mechanics</i> , 2021 , 924,	3.7	3
96	Disruption of turbulence due to particle loading in a dilute gasparticle suspension. <i>Journal of Fluid Mechanics</i> , 2020 , 889,	3.7	7
95	Neurogenesis-on-Chip: Electric field modulated transdifferentiation of human mesenchymal stem cell and mouse muscle precursor cell coculture. <i>Biomaterials</i> , 2020 , 226, 119522	15.6	18
94	Effect of magnetic dipolar interactions and size dispersity on the origin of steady state magnetomechanical response in bidisperse MnZn ferrite spherical particle based magnetorheological fluids. <i>New Journal of Chemistry</i> , 2019 , 43, 9969-9979	3.6	18
93	Rheology of a suspension of conducting particles in a magnetic field. <i>Journal of Fluid Mechanics</i> , 2019 , 871, 139-185	3.7	1
92	Biophysical implications of Maxwell stress in electric field stimulated cellular microenvironment on biomaterial substrates. <i>Biomaterials</i> , 2019 , 209, 54-66	15.6	7
91	Synthesis of highly magnetic Mn-Zn ferrite (Mn _{0.7} Zn _{0.3} Fe ₂ O ₄) ceramic powder and its use in smart magnetorheological fluid. <i>Rheologica Acta</i> , 2019 , 58, 273-280	2.3	18
90	Reprogramming the Stem Cell Behavior by Shear Stress and Electric Field Stimulation: Lab-on-a-Chip Based Biomicrofluidics in Regenerative Medicine. <i>Regenerative Engineering and Translational Medicine</i> , 2019 , 5, 99-127	2.4	6
89	A cartridge based Point-of-Care device for complete blood count. <i>Scientific Reports</i> , 2019 , 9, 18583	4.9	10
88	Effect of particle stiffness on contact dynamics and rheology in a dense granular flow. <i>Physical Review E</i> , 2018 , 97, 012902	2.4	6
87	Controlled Shear Flow Directs Osteogenesis on UHMWPE-Based Hybrid Nanobiocomposites in a Custom-Designed PMMA Microfluidic Device.. <i>ACS Applied Bio Materials</i> , 2018 , 1, 414-435	4.1	9
86	Magnetorheological fluids containing rod-shaped lithium-zinc ferrite particles: the steady-state shear response. <i>Soft Matter</i> , 2018 , 14, 5407-5419	3.6	29
85	Transitions to different kinds of turbulence in a channel with soft walls. <i>Journal of Fluid Mechanics</i> , 2017 , 822, 267-306	3.7	4
84	Effect of viscoelasticity on the soft-wall transition and turbulence in a microchannel. <i>Journal of Fluid Mechanics</i> , 2017 , 812, 1076-1118	3.7	24
83	Effect of base topography on dynamics and transition in a dense granular flow. <i>Journal of Fluid Mechanics</i> , 2017 , 832, 600-640	3.7	3
82	Structure-rheology relationship in a sheared lamellar fluid. <i>Physical Review E</i> , 2016 , 93, 032609	2.4	4

81	System size dependence of the structure and rheology in a sheared lamellar liquid crystalline medium. <i>Journal of Chemical Physics</i> , 2016 , 145, 244901	3.9	
80	Ultra-fast microfluidic mixing by soft-wall turbulence. <i>Chemical Engineering Science</i> , 2016 , 149, 156-168	4.4	24
79	Wall-mode instability in plane shear flow of viscoelastic fluid over a deformable solid. <i>Physical Review E</i> , 2015 , 91, 023007	2.4	7
78	Stability of the flow in a soft tube deformed due to an applied pressure gradient. <i>Physical Review E</i> , 2015 , 91, 043001	2.4	14
77	Experimental studies on the flow through soft tubes and channels. <i>Sadhana - Academy Proceedings in Engineering Sciences</i> , 2015 , 40, 911-923	1	14
76	Synthesis and Characterization of Nanoparticles with Ultrathin Platinum Overlayers. <i>Journal of Physical Chemistry C</i> , 2015 , 119, 5982-5987	3.8	38
75	After transition in a soft-walled microchannel. <i>Journal of Fluid Mechanics</i> , 2015 , 780, 649-686	3.7	13
74	Effect of ultra-fast mixing in a microchannel due to a soft wall on the room temperature synthesis of gold nanoparticles. <i>Sadhana - Academy Proceedings in Engineering Sciences</i> , 2015 , 40, 973-983	1	3
73	Dense shallow granular flows. <i>Journal of Fluid Mechanics</i> , 2014 , 756, 555-599	3.7	7
72	The generalized Onsager model for a binary gas mixture. <i>Journal of Fluid Mechanics</i> , 2014 , 753, 307-359	3.7	4
71	Dynamics of edge dislocations in a sheared lamellar mesophase. <i>Journal of Chemical Physics</i> , 2013 , 139, 134907	3.9	2
70	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. <i>Journal of Fluid Mechanics</i> , 2013 , 727, 407-455	3.7	46
69	The effect of base roughness on the development of a dense granular flow down an inclined plane. <i>Physics of Fluids</i> , 2013 , 25, 070604	4.4	22
68	Effect of base dissipation on the granular flow down an inclined plane. <i>Granular Matter</i> , 2012 , 14, 209-213	3.6	8
67	Transition due to base roughness in a dense granular flow down an inclined plane. <i>Physics of Fluids</i> , 2012 , 24, 053302	4.4	25
66	A dynamical instability due to fluid-wall coupling lowers the transition Reynolds number in the flow through a flexible tube. <i>Journal of Fluid Mechanics</i> , 2012 , 705, 322-347	3.7	44
65	Particle dynamics in the channel flow of a turbulent particle-gas suspension at high Stokes number. Part 1. DNS and fluctuating force model. <i>Journal of Fluid Mechanics</i> , 2011 , 687, 1-40	3.7	12
64	Particle dynamics in the channel flow of a turbulent particle-gas suspension at high Stokes number. Part 2. Comparison of fluctuating force simulations and experiments. <i>Journal of Fluid Mechanics</i> , 2011 , 687, 41-71	3.7	8

63	Verifying scalings for bending rigidity of bilayer membranes using mesoscale models. <i>Soft Matter</i> , 2011 , 7, 3963	3.6	15
62	Fluctuation-dissipation relation for nonlinear Langevin equations. <i>Physical Review E</i> , 2011 , 83, 041126	2.4	2
61	Shear alignment of a disordered lamellar mesophase. <i>Physical Review E</i> , 2011 , 83, 031501	2.4	6
60	The generalized Onsager model for the secondary flow in a high-speed rotating cylinder. <i>Journal of Fluid Mechanics</i> , 2011 , 686, 109-159	3.7	11
59	Particle dynamics in a turbulent particle-gas suspension at high Stokes number. Part 1. Velocity and acceleration distributions. <i>Journal of Fluid Mechanics</i> , 2010 , 646, 59-90	3.7	15
58	Dense granular flow down an inclined plane: A comparison between the hard particle model and soft particle simulations. <i>Physics of Fluids</i> , 2010 , 22, 113302	4.4	19
57	Particle dynamics in a turbulent particle-gas suspension at high Stokes number. Part 2. The fluctuating-force model. <i>Journal of Fluid Mechanics</i> , 2010 , 646, 91-125	3.7	13
56	Dynamics of sheared inelastic dumbbells. <i>Journal of Fluid Mechanics</i> , 2010 , 660, 475-498	3.7	13
55	Dynamics of a dilute sheared inelastic fluid. I. Hydrodynamic modes and velocity correlation functions. <i>Physical Review E</i> , 2009 , 79, 011301	2.4	15
54	Dynamics of a dilute sheared inelastic fluid. II. The effect of correlations. <i>Physical Review E</i> , 2009 , 79, 011302	2.4	12
53	Mesoscale description of an asymmetric lamellar phase. <i>Journal of Chemical Physics</i> , 2009 , 130, 224905	3.9	6
52	Stability of the plane shear flow of dilute polymeric solutions. <i>Physics of Fluids</i> , 2009 , 21, 014109	4.4	13
51	Multiscale modeling of lamellar mesophases. <i>Journal of Chemical Physics</i> , 2009 , 130, 114907	3.9	9
50	Dynamics of dense sheared granular flows. Part II. The relative velocity distributions. <i>Journal of Fluid Mechanics</i> , 2009 , 632, 145-198	3.7	25
49	Dynamics of dense sheared granular flows. Part 1. Structure and diffusion. <i>Journal of Fluid Mechanics</i> , 2009 , 632, 109-144	3.7	28
48	Weakly nonlinear stability analysis of a flow past a neo-Hookean solid at arbitrary Reynolds numbers. <i>Physics of Fluids</i> , 2008 , 20, 094109	4.4	14
47	Fast decay of the velocity autocorrelation function in dense shear flow of inelastic hard spheres. <i>Europhysics Letters</i> , 2008 , 84, 64003	1.6	19
46	Weakly nonlinear analysis of viscous instability in flow past a neo-Hookean surface. <i>Physical Review E</i> , 2008 , 77, 056303	2.4	25

45	Dense granular flow down an inclined plane: from kinetic theory to granular dynamics. <i>Journal of Fluid Mechanics</i> , 2008 , 599, 121-168	3-7	42
44	Josiah Willard Gibbs 2007 , 12, 4-11		1
43	Stability of the viscous flow of a polymeric fluid past a flexible surface. <i>Physics of Fluids</i> , 2007 , 19, 034102-4	4	6
42	Stability of the flow of a viscoelastic fluid past a deformable surface in the low Reynolds number limit. <i>Physics of Fluids</i> , 2007 , 19, 104103	4-4	12
41	Velocity autocorrelations and viscosity renormalization in sheared granular flows. <i>Physical Review Letters</i> , 2006 , 96, 258002	7-4	27
40	The constitutive relation for the granular flow of rough particles, and its application to the flow down an inclined plane. <i>Journal of Fluid Mechanics</i> , 2006 , 561, 1	3-7	52
39	Granular flow of rough particles in the high-Knudsen-number limit. <i>Journal of Fluid Mechanics</i> , 2006 , 561, 43	3-7	10
38	Kinetic model for sheared granular flows in the high Knudsen number limit. <i>Physical Review Letters</i> , 2005 , 95, 108001	7-4	13
37	Stability of oscillatory flows past compliant surfaces. <i>European Physical Journal B</i> , 2004 , 41, 135-145	1-2	1
36	Constitutive relations and linear stability of a sheared granular flow. <i>Journal of Fluid Mechanics</i> , 2004 , 506, 1-43	3-7	42
35	Stability of a sheared particle suspension. <i>Physics of Fluids</i> , 2003 , 15, 3625-3637	4-4	8
34	Hydrodynamic Stability of Flow Through Compliant Channels and Tubes. <i>Fluid Mechanics and Its Applications</i> , 2003 , 95-118	0-2	10
33	Experimental study of the instability of the viscous flow past a flexible surface. <i>Physics of Fluids</i> , 2002 , 14, 775-780	4-4	45
32	Effect of Convection on Domain Growth During Demixing Transitions in Fluids. <i>Phase Transitions</i> , 2002 , 75, 339-352	1-3	
31	Stability of wall modes in fluid flow past a flexible surface. <i>Physics of Fluids</i> , 2002 , 14, 2324	4-4	43
30	A novel approach to computing the orientation moments of spheroids in simple shear flow at arbitrary Péclet number. <i>Physics of Fluids</i> , 2002 , 14, 75-84	4-4	8
29	Stability of fluid flow past a membrane. <i>Journal of Fluid Mechanics</i> , 2002 , 472, 29-50	3-7	9
28	Hydrodynamic modes of a sheared granular flow from the Boltzmann and Navier-Stokes equations. <i>Physics of Fluids</i> , 2001 , 13, 2258-2268	4-4	8

27	Effect of tangential interface motion on the viscous instability in fluid flow past flexible surfaces. <i>European Physical Journal B</i> , 2001 , 23, 533-550	1.2	10
26	Asymptotic analysis of wall modes in a flexible tube revisited. <i>European Physical Journal B</i> , 2001 , 19, 607-622	2.4	27
25	Effect of surface charges on the curvature moduli of a membrane. <i>Physical Review E</i> , 2001 , 64, 051922	2.4	17
24	Electrohydrodynamic instability of a charged membrane. <i>Physical Review E</i> , 2001 , 64, 011911	2.4	15
23	Weakly nonlinear stability of viscous flow past a flexible surface. <i>Journal of Fluid Mechanics</i> , 2001 , 434, 337-354	3.7	30
22	Stability of fluid flow in a flexible tube to non-axisymmetric disturbances. <i>Journal of Fluid Mechanics</i> , 2000 , 407, 291-314	3.7	37
21	Instabilities due to charge-density-curvature coupling in charged membranes. <i>Physical Review Letters</i> , 2000 , 85, 4996-9	7.4	30
20	Spontaneous growth of fluctuations in the viscous flow of a fluid past a soft interface. <i>Physical Review Letters</i> , 2000 , 84, 3310-3	7.4	73
19	Spontaneous motion of droplets during the demixing transition in binary fluids. <i>Journal of Chemical Physics</i> , 2000 , 112, 10984-10991	3.9	6
18	Structure and rheology of the defect-gel states of pure and particle-dispersed lyotropic lamellar phases. <i>European Physical Journal B</i> , 1999 , 12, 269-276	1.2	51
17	Stability of non-parabolic flow in a flexible tube. <i>Journal of Fluid Mechanics</i> , 1999 , 395, 211-236	3.7	39
16	Stability of fluid flow past a membrane. <i>European Physical Journal B</i> , 1998 , 2, 259-266	1.2	3
15	Asymptotic analysis of wall modes in a flexible tube. <i>European Physical Journal B</i> , 1998 , 4, 519-527	1.2	7
14	Microscopic analysis of the coarsening of an interface in the spinodal decomposition of a binary fluid. <i>Journal of Chemical Physics</i> , 1998 , 109, 3240-3244	3.9	1
13	Stability of wall modes in a flexible tube. <i>Journal of Fluid Mechanics</i> , 1998 , 362, 1-15	3.7	32
12	Effect of convective transport on droplet spinodal decomposition in fluids. <i>Journal of Chemical Physics</i> , 1998 , 109, 2437-2441	3.9	6
11	Droplet interaction in the spinodal decomposition of a fluid. <i>Journal of Chemical Physics</i> , 1998 , 109, 7644-7648	3.9	8
10	Coarsening of random interfaces in the spinodal decomposition of a binary fluid. <i>Journal of Chemical Physics</i> , 1998 , 108, 3038-3044	3.9	5

9	Stability of the flow of a fluid through a flexible tube at intermediate Reynolds number. <i>Journal of Fluid Mechanics</i> , 1998 , 357, 123-140	3.7	38
8	Kinetic theory for a vibro-fluidized bed. <i>Journal of Fluid Mechanics</i> , 1998 , 364, 163-185	3.7	33
7	Velocity distribution function for a dilute granular material in shear flow. <i>Journal of Fluid Mechanics</i> , 1997 , 340, 319-341	3.7	14
6	Stability of inviscid flow in a flexible tube. <i>Journal of Fluid Mechanics</i> , 1996 , 320, 1	3.7	32
5	Effect of dynamical asymmetry on the viscosity of a random copolymer melt. <i>Journal of Chemical Physics</i> , 1996 , 104, 3120-3133	3.9	3
4	Effect of fluid flow on the fluctuations at the surface of an elastic medium. <i>Journal of Chemical Physics</i> , 1995 , 102, 3452-3460	3.9	3
3	Stability of the flow of a fluid through a flexible tube at high Reynolds number. <i>Journal of Fluid Mechanics</i> , 1995 , 302, 117-139	3.7	29
2	Stability of the viscous flow of a fluid through a flexible tube. <i>Journal of Fluid Mechanics</i> , 1995 , 294, 259-281	3.7	65
1	Flow induced instability of the interface between a fluid and a gel at low Reynolds number. <i>Journal De Physique II</i> , 1994 , 4, 893-911		66