Ke-Qing Xia

List of Publications by Year
in descending order

130 papers	5,946 citations	53751 45 h-index	79644 73 g-index
130 all docs	130 docs citations	130 times ranked	1495 citing authors

#	Article	IF	Citations
1	Small-Scale Properties of Turbulent Rayleigh-BÃ©nard Convection. Annual Review of Fluid Mechanics, 2010, 42, 335-364.	10.8	683
2	From laminar plumes to organized flows: the onset of large-scale circulation in turbulent thermal convection. Journal of Fluid Mechanics, 2004, 503, 47-56.	1.4	190
3	Flow Reversals in Thermally Driven Turbulence. Physical Review Letters, 2010, 105, 034503.	2.9	165
4	Current trends and future directions in turbulent thermal convection. Theoretical and Applied Mechanics Letters, 2013, 3, 052001.	1.3	126
5	Particle image velocimetry measurement of the velocity field in turbulent thermal convection. Physical Review E, 2003, 68, 066303.	0.8	120
6	Incorporation of a differential refractometer into a laser lightâ€scattering spectrometer. Review of Scientific Instruments, 1994, 65, 587-590.	0.6	119
7	Heat-Flux Measurement in High-Prandtl-Number Turbulent Rayleigh-BÃ©nard Convection. Physical Review Letters, 2002, 88, 064501.	2.9	119
8	Measured Local Heat Transport in Turbulent Rayleigh-BÃ©nard Convection. Physical Review Letters, 2003, 90, 074501.	2.9	117
9	Three-dimensional flow structures and dynamics of turbulent thermal convection in a cylindrical cell. Physical Review E, 2005, 72, 026302.	0.8	115
10	Origin of the Temperature Oscillation in Turbulent Thermal Convection. Physical Review Letters, 2009, 102, 044503.	2.9	112
11	Flow mode transitions in turbulent thermal convection. Physics of Fluids, 2008, 20, .	1.6	108
12	Spatial structure of the thermal boundary layer in turbulent convection. Physical Review E, 1998, 57, 5494-5503.	0.8	99
13	Turbulent Convection over Rough Surfaces. Physical Review Letters, 1996, 76, 908-911.	2.9	98
14	Azimuthal Symmetry, Flow Dynamics, and Heat Transport in Turbulent Thermal Convection in a Cylinder with an Aspect Ratio of 0.5. Physical Review Letters, 2005, 95, 074502.	2.9	96
15	Morphological Evolution of Thermal Plumes in Turbulent Rayleigh-BÃ©nard Convection. Physical Review Letters, 2007, 98, 074501.	2.9	92
16	Experimental studies of the viscous boundary layer properties in turbulent Rayleighâ€"BÃ©nard convection. Journal of Fluid Mechanics, 2008, 605, 79-113.	1.4	90
17	Heat transport by turbulent Rayleighâ€"BÃ©nard convection in 1 m diameter cylindrical cells of widely varying aspect ratio. Journal of Fluid Mechanics, 2005, 542, 165.	1.4	86
18	Confinement-Induced Heat-Transport Enhancement in Turbulent Thermal Convection. Physical Review Letters, 2013, 111, 104501.	2.9	85

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19	Azimuthal motion of the mean wind in turbulent thermal convection. Physical Review E, 2006, 73, 056312.	0.8	84
20	Cessations and reversals of the large-scale circulation in turbulent thermal convection. Physical Review E, 2007, 75, 066307.	0.8	81
21	Prandtl number dependence of the viscous boundary layer and the Reynolds numbers in Rayleigh-BÃ©nard convection. Physical Review E, 2002, 65, 066306.	0.8	76
22	Measured Instantaneous Viscous Boundary Layer in Turbulent Rayleigh-BÃ©nard Convection. Physical Review Letters, 2010, 104, 104301.	2.9	75
23	Oscillations of the large-scale circulation in turbulent Rayleighâ€“BÃ©nard convection: the sloshing mode and its relationship with the torsional mode. Journal of Fluid Mechanics, 2009, 630, 367-390.	1.4	74
24	Cascades of Velocity and Temperature Fluctuations in Buoyancy-Driven Thermal Turbulence. Physical Review Letters, 2006, 97, 144504.	2.9	73
25	Velocity oscillations in turbulent Rayleighâ€“BÃ©nard convection. Physics of Fluids, 2004, 16, 412-423.	1.6	71
26	Confined Rayleigh-BÃ©nard, Rotating Rayleigh-BÃ©nard, and Double Diffusive Convection: A Unifying View on Turbulent Transport Enhancement through Coherent Structure Manipulation. Physical Review Letters, 2017, 119, 064501.	2.9	67
27	Measured Velocity Boundary Layers in Turbulent Convection. Physical Review Letters, 1996, 77, 1266-1269.	2.9	66
28	Turbulent flow in the bulk of Rayleighâ€“BÃ©nard convection: small-scale properties in a cubic cell. Journal of Fluid Mechanics, 2013, 722, 596-617.	1.4	65
29	Prandtlâ€“Blasius temperature and velocity boundary-layer profiles in turbulent Rayleighâ€“BÃ©nard convection. Journal of Fluid Mechanics, 2010, 664, 297-312.	1.4	64
30	Effect of Additives on Self-Assembling Behavior of Nafion in Aqueous Media. Macromolecules, 2001, 34, 7783-7788.	2.2	63
31	Plume Statistics in Thermal Turbulence: Mixing of an Active Scalar. Physical Review Letters, 2002, 89, 184502.	2.9	60
32	Viscous boundary layers at the sidewall of a convection cell. Physical Review E, 1998, 58, 486-491.	0.8	59
33	Scaling of the velocity power spectra in turbulent thermal convection. Physical Review E, 2001, 64, 065301.	0.8	59
34	Measurements of the local convective heat flux in turbulent Rayleigh-BÃ©nard convection. Physical Review E, 2004, 70, 026308.	0.8	58
35	Turbulent thermal convection over rough plates with varying roughness geometries. Journal of Fluid Mechanics, 2017, 825, 573-599.	1.4	58
36	Thermal boundary layer structure in turbulent Rayleighâ€“BÃ©nard convection in a rectangular cell. Journal of Fluid Mechanics, 2013, 721, 199-224.	1.4	57

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37	Scaling Properties of the Temperature Field in Convective Turbulence. Physical Review Letters, 2001, 87, 064501.	2.9	55
38	Condensation of Coherent Structures in Turbulent Flows. Physical Review Letters, 2015, 115, 264503.	2.9	52
39	Scaling of the Local Convective Heat Flux in Turbulent Rayleigh-BÃ©nard Convection. Physical Review Letters, 2008, 100, 244503.	2.9	50
40	Azimuthal motion, reorientation, cessation, and reversal of the large-scale circulation in turbulent thermal convection: A comparative study in aspect ratio one and one-half geometries. Physical Review E, 2008, 78, 036326.	0.8	50
41	Heat transport properties of plates with smooth and rough surfaces in turbulent thermal convection. Journal of Fluid Mechanics, 2014, 740, 28-46.	1.4	49
42	Boundary layer length scales in convective turbulence. Physical Review E, 1997, 56, 3010-3015.	0.8	48
43	Physical and geometrical properties of thermal plumes in turbulent Rayleighâ€“BÃ©nard convection. New Journal of Physics, 2010, 12, 075006.	1.2	48
44	Lagrangian acceleration measurements in convective thermal turbulence. Journal of Fluid Mechanics, 2012, 692, 395-419.	1.4	48
45	Reversals of the large-scale circulation in quasi-2D Rayleighâ€“BÃ©nard convection. Journal of Fluid Mechanics, 2015, 778, .	1.4	46
46	Scaling of the Reynolds number in turbulent thermal convection. Physical Review E, 2005, 72, 067302.	0.8	45
47	Turbulent Thermal Convection with an Obstructed Sidewall. Physical Review Letters, 1997, 79, 5006-5009.	2.9	44
48	Experimental study of velocity boundary layer near a rough conducting surface in turbulent natural convection. Journal of Turbulence, 2005, 6, N30.	0.5	43
49	Effect of Prandtl number on heat transport enhancement in Rayleigh-BÃ©nard convection under geometrical confinement. Physical Review Fluids, 2018, 3, .	1.0	43
50	Experimental investigation of homogeneity, isotropy, and circulation of the velocity field in buoyancy-driven turbulence. Journal of Fluid Mechanics, 2008, 598, 361-372.	1.4	42
51	Effects of geometric confinement in quasi-2-D turbulent Rayleighâ€“BÃ©nard convection. Journal of Fluid Mechanics, 2016, 794, 639-654.	1.4	42
52	Experimental Study of the Spectral Distribution of the Light Scattered from Flexible Macromolecules in Very Dilute Solution. Macromolecules, 1995, 28, 1032-1037.	2.2	41
53	Test of steady-state fluctuation theorem in turbulent Rayleigh-BÃ©nard convection. Physical Review E, 2005, 72, 015301.	0.8	41
54	Extraction of Plumes in Turbulent Thermal Convection. Physical Review Letters, 2004, 93, 124501.	2.9	39

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55	An experimental investigation of turbulent thermal convection in water-based alumina nanofluid. Physics of Fluids, 2011, 23, .	1.6	38
56	Interfacial tensions of phaseâ€separated polymer solutions. Journal of Chemical Physics, 1992, 97, 1446-1454.	1.2	37
57	Local Energy Dissipation Rate Balances Local Heat Flux in the Center of Turbulent Thermal Convection. Physical Review Letters, 2011, 107, 174503.	2.9	37
58	Higher-order flow modes in turbulent Rayleighâ€“BÃ©nard convection. Journal of Fluid Mechanics, 2016, 805, 31-51.	1.4	37
59	Exploring the severely confined regime in Rayleighâ€“BÃ©nard convection. Journal of Fluid Mechanics, 2016, 805, .	1.4	37
60	Horizontal structures of velocity and temperature boundary layers in two-dimensional numerical turbulent Rayleigh-BÃ©nard convection. Physics of Fluids, 2011, 23, 125104.	1.6	36
61	Thermal boundary layer profiles in turbulent Rayleigh-BÃ©nard convection in a cylindrical sample. Physical Review E, 2012, 85, 027301.	0.8	36
62	Dual-beam incoherent cross-correlation spectroscopy. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1995, 12, 1571.	0.8	35
63	Measured coexistence curves of phaseâ€separated polymer solutions. Journal of Chemical Physics, 1996, 105, 6018-6025.	1.2	34
64	Turbulent flow in the bulk of Rayleighâ€“BÃ©nard convection: aspect-ratio dependence of the small-scale properties. Journal of Fluid Mechanics, 2014, 747, 73-102.	1.4	32
65	Flow Topology Transition via Global Bifurcation in Thermally Driven Turbulence. Physical Review Letters, 2018, 120, 214501.	2.9	32
66	Emergence of substructures inside the large-scale circulation induces transition in flow reversals in turbulent thermal convection. Journal of Fluid Mechanics, 2019, 877, .	1.4	32
67	Spatial structure of the viscous boundary layer in turbulent convection. Physical Review E, 1998, 58, 5816-5820.	0.8	31
68	Comparative Experimental Study of Fixed Temperature and Fixed Heat Flux Boundary Conditions in Turbulent Thermal Convection. Physical Review Letters, 2015, 115, 154502.	2.9	31
69	Quasistatic magnetoconvection: heat transport enhancement and boundary layer crossing. Journal of Fluid Mechanics, 2019, 870, 519-542.	1.4	30
70	Energy dependence of impact fragmentation of long glass rods. Physica A: Statistical Mechanics and Its Applications, 2000, 287, 83-90.	1.2	29
71	Spatial variations of the mean and statistical quantities in the thermal boundary layers of turbulent convection. European Physical Journal B, 2003, 32, 127-136.	0.6	28
72	Vortices as Brownian particles in turbulent flows. Science Advances, 2020, 6, eaaz1110.	4.7	28

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73	Measured Thermal Dissipation Field in Turbulent Rayleigh-BÃ©nard Convection. Physical Review Letters, 2007, 98, 144501.	2.9	26
74	Measured Local-Velocity Fluctuations in Turbulent Convection. Physical Review Letters, 1995, 75, 437-440.	2.9	25
75	Viscous boundary layer properties in turbulent thermal convection in a cylindrical cell: the effect of cell tilting. Journal of Fluid Mechanics, 2013, 720, 140-168.	1.4	24
76	Comparative experimental study of local mixing of active and passive scalars in turbulent thermal convection. Physical Review E, 2008, 77, 056312.	0.8	23
77	Universality of Local Dissipation Scales in Buoyancy-Driven Turbulence. Physical Review Letters, 2010, 104, 124301.	2.9	23
78	Density Fluctuations in Strongly Stratified Two-Dimensional Turbulence. Physical Review Letters, 2005, 94, 174503.	2.9	22
79	Dynamics of the large-scale circulation in high-Prandtl-number turbulent thermal convection. Journal of Fluid Mechanics, 2013, 717, 322-346.	1.4	22
80	Effects of polymer additives in the bulk of turbulent thermal convection. Journal of Fluid Mechanics, 2015, 784, .	1.4	22
81	Measured oscillations of the velocity and temperature fields in turbulent Rayleigh-BÃ©nard convection in a rectangular cell. Physical Review E, 2007, 76, 036301.	0.8	21
82	Enhanced and reduced heat transport in turbulent thermal convection with polymer additives. Physical Review E, 2012, 86, 016325.	0.8	21
83	Dynamic light scattering from binary-liquid gels. Physical Review A, 1988, 37, 3626-3629.	1.0	20
84	Interactions in mixtures of a microemulsion and a polymer. Physical Review E, 1997, 55, 5792-5795.	0.8	20
85	Temperature Fluctuation Profiles in Turbulent Thermal Convection: A Logarithmic Dependence versus a Power-Law Dependence. Physical Review Letters, 2019, 122, 014503.	2.9	20
86	Light scattering from a binary-liquid entanglement gel. Physical Review A, 1987, 36, 2432-2439.	1.0	19
87	Thermal convection with mixed thermal boundary conditions: effects of insulating lids at the top. Journal of Fluid Mechanics, 2017, 817, .	1.4	19
88	Incoherent crossâ€correlation spectroscopy. Journal of Chemical Physics, 1993, 98, 9256-9265.	1.2	18
89	An experimental study of kicked thermal turbulence. Journal of Fluid Mechanics, 2008, 606, 133-151.	1.4	18
90	Heat-transport scaling and transition in geostrophic rotating convection with varying aspect ratio. Physical Review Fluids, 2021, 6, .	1.0	18

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91	Experimental investigation of pair dispersion with small initial separation in convective turbulent flows. Physical Review E, 2013, 87, 063006.	0.8	17
92	Multiple-resolution scheme in finite-volume code for active or passive scalar turbulence. Journal of Computational Physics, 2018, 375, 1045-1058.	1.9	17
93	On the effective horizontal buoyancy in turbulent thermal convection generated by cell tilting. Journal of Fluid Mechanics, 2021, 914, .	1.4	16
94	Dynamics and flow coupling in two-layer turbulent thermal convection. Journal of Fluid Mechanics, 2013, 728, .	1.4	14
95	Spatially correlated temperature fluctuations in turbulent convection. Physical Review E, 2001, 63, 046308.	0.8	13
96	How heat transfer efficiencies in turbulent thermal convection depend on internal flow modes. Journal of Fluid Mechanics, 2011, 676, 1-4.	1.4	13
97	Turbidity of critical solutions of polymethylmethacrylate in 3-octanone. Journal of Chemical Physics, 1997, 107, 2060-2065.	1.2	12
98	Correlation length and amplitude scaling in critical polymer solutions. Journal of Chemical Physics, 1999, 111, 8298-8301.	1.2	12
99	Velocity and temperature cross-scaling in turbulent thermal convection. Journal of Turbulence, 2004, 5, .	0.5	12
100	Disentangle plume-induced anisotropy in the velocity field in buoyancy-driven turbulence. Journal of Fluid Mechanics, 2011, 684, 192-203.	1.4	12
101	Kolmogorov constants for the second-order structure function and the energy spectrum. Physical Review E, 2013, 87, 023002.	0.8	12
102	Laboratory simulation of the geothermal heating effects on ocean overturning circulation. Journal of Geophysical Research: Oceans, 2016, 121, 7589-7598.	1.0	12
103	Universal fluctuations in the bulk of Rayleighâ€"BÃ©nard turbulence. Journal of Fluid Mechanics, 2019, 878, .	1.4	12
104	Multi-point local temperature measurements inside the conducting plates in turbulent thermal convection. Journal of Fluid Mechanics, 2007, 570, 479-489.	1.4	11
105	Contribution of Surface Thermal Forcing to Mixing in the Ocean. Journal of Geophysical Research: Oceans, 2018, 123, 855-863.	1.0	10
106	Statistical characterization of thermal plumes in turbulent thermal convection. Physical Review Fluids, 2016, 1, .	1.0	10
107	Centrifugal-Force-Induced Flow Bifurcations in Turbulent Thermal Convection. Physical Review Letters, 2021, 127, 244501.	2.9	10
108	Turbulent convection with "disconnectedâ€•top and bottom boundary layers. Europhysics Letters, 1999, 46, 171-176.	0.7	9

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109	Turbidity measurements and amplitude scaling of critical solutions of polystyrene in methylcyclohexane. Journal of Chemical Physics, 2002, 117, 4557-4563.	1.2	9
110	Temperature power spectra and the viscous boundary layer in thermal turbulence: the role of Prandtl number. Physica A: Statistical Mechanics and Its Applications, 2000, 288, 308-314.	1.2	8
111	Analysis of the large-scale circulation and the boundary layers in turbulent Rayleigh-BÃ©nard convection. ERCOFTAC Series, 2011, , 383-388.	0.1	8
112	Two clocks for a single engine in turbulent convection. Journal of Statistical Mechanics: Theory and Experiment, 2007, 2007, N11001-N11001.	0.9	7
113	The mixing evolution and geometric properties of a passive scalar field in turbulent Rayleighâ€“BÃ©nard convection. New Journal of Physics, 2010, 12, 083029.	1.2	7
114	Moisture transfer by turbulent natural convection. Journal of Fluid Mechanics, 2019, 874, 1041-1056.	1.4	7
115	Inverse centrifugal effect induced by collective motion of vortices in rotating thermal convection. Nature Communications, 2021, 12, 5585.	5.8	7
116	A holographic relaxation spectrometer with phaseâ€modulated detection. Review of Scientific Instruments, 1991, 62, 27-32.	0.6	6
117	On the centrifugal effect in turbulent rotating thermal convection: onset and heat transport. Journal of Fluid Mechanics, 2022, 938, .	1.4	6
118	Radiation pressure induced gratings in colloidal suspensions: Dynamics of formation and decay. Journal of Chemical Physics, 1989, 91, 1351-1356.	1.2	5
119	Exploring the plume and shear effects in turbulent Rayleighâ€“BÃ©nard convection with effective horizontal buoyancy under streamwise and spanwise geometrical confinements. Journal of Fluid Mechanics, 2022, 940, .	1.4	5
120	Lagrangian velocity and acceleration measurements in plume-rich regions of turbulent Rayleigh-BÃ©nard convection. Physical Review Fluids, 2021, 6, .	1.0	4
121	Tuning heat transport via boundary layer topographies. Journal of Fluid Mechanics, 2019, 876, 1-4.	1.4	3
122	Statistics and Scaling of the Velocity Field in Turbulent Thermal Convection. , 2005, , 163-170.		2
123	Local Dissipation Scales and Integral-Scale Reynolds Number Scalings in Thermally-Driven Turbulence. Journal of Physics: Conference Series, 2011, 318, 042016.	0.3	1
124	Probing the viscous boundary layer by measuring temperature fluctuations in turbulent Rayleigh-Bènard convection. AIP Conference Proceedings, 2000, , .	0.3	0
125	Extended self similarity of passive scalar in Rayleigh-BÃ©nard convection flow based on wavelet transform. Applied Mathematics and Mechanics (English Edition), 2002, 23, 804-810.	1.9	0
126	A comparative study of linear and step forcing temperature profiles in horizontal convection ^(a). Europhysics Letters, 2021, 135, 24006.	0.7	0

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127	COHERENT STRUCTURE AND ITS INFLUENCE TO SCALING LAW IN RAYLEIGH-BÃ‰NARD CONVECTION BASED ON WAVELET TRANSFORMATION. , 2003, , .		0
128	Experimental Studies of Turbulent Rayleigh-BÃ©nard Convection. Springer Proceedings in Physics, 2009, , 471-478.	0.1	0
129	The effect of tidal force and topography on horizontal convection. Journal of Fluid Mechanics, 2022, 932, .	1.4	0
130	A laboratory study of internal gravity waves incident upon slopes with varying surface roughness. Journal of Fluid Mechanics, 2022, 942, .	1.4	0