Nicholas Hutchins

List of Publications by Year
in descending order

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132 papers	8,670 citations	41258 49 h-index	42291 92 g-index
132 all docs	132 docs citations	132 times ranked	2264 citing authors

#	Article	IF	Citations
1	Evidence of very long meandering features in the logarithmic region of turbulent boundary layers. Journal of Fluid Mechanics, 2007, 579, 1-28.	1.4	994
2	Large-scale amplitude modulation of the small-scale structures in turbulent boundary layers. Journal of Fluid Mechanics, 2009, 628, 311-337.	1.4	591
3	Large-scale influences in near-wall turbulence. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2007, 365, 647-664.	1.6	476
4	Hot-wire spatial resolution issues in wall-bounded turbulence. Journal of Fluid Mechanics, 2009, 635, 103-136.	1.4	402
5	Predictive Model for Wall-Bounded Turbulent Flow. Science, 2010, 329, 193-196.	6.0	370
6	A comparison of turbulent pipe, channel and boundary layer flows. Journal of Fluid Mechanics, 2009, 632, 431-442.	1.4	287
7	Investigation of large-scale coherence in a turbulent boundary layer using two-point correlations. Journal of Fluid Mechanics, 2005, 524, 57-80.	1.4	214
8	Towards Reconciling the Large-Scale Structure of Turbulent Boundary Layers in the Atmosphere and Laboratory. Boundary-Layer Meteorology, 2012, 145, 273-306.	1.2	212
9	A predictive innerâ€“outer model for streamwise turbulence statistics in wall-bounded flows. Journal of Fluid Mechanics, 2011, 681, 537-566.	1.4	172
10	Inclined cross-stream stereo particle image velocimetry measurements in turbulent boundary layers. Journal of Fluid Mechanics, 2005, 541, 21.	1.4	167
11	High Reynolds number effects in wall turbulence. International Journal of Heat and Fluid Flow, 2010, 31, 418-428.	1.1	160
12	Amplitude and frequency modulation in wall turbulence. Journal of Fluid Mechanics, 2012, 712, 61-91.	1.4	154
13	The turbulent/non-turbulent interface and entrainment in a boundary layer. Journal of Fluid Mechanics, 2014, 742, 119-151.	1.4	151
14	Three-dimensional conditional structure of a high-Reynolds-number turbulent boundary layer. Journal of Fluid Mechanics, 2011, 673, 255-285.	1.4	143
15	A systematic investigation of roughness height and wavelength in turbulent pipe flow in the transitionally rough regime. Journal of Fluid Mechanics, 2015, 771, 743-777.	1.4	140
16	Predicting the Drag of Rough Surfaces. Annual Review of Fluid Mechanics, 2021, 53, 439-471.	10.8	131
17	Amplitude modulation of all three velocity components in turbulent boundary layers. Journal of Fluid Mechanics, 2014, 746, .	1.4	125
18	Estimating wall-shear-stress fluctuations given an outer region input. Journal of Fluid Mechanics, 2013, 715, 163-180.	1.4	123

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19	Uniform momentum zones in turbulent boundary layers. Journal of Fluid Mechanics, 2016, 786, 309-331.	1.4	113
20	Large-scale spanwise periodicity in a turbulent boundary layer induced by highly ordered and directional surface roughness. International Journal of Heat and Fluid Flow, 2013, 41, 90-102.	1.1	112
21	Evolution of zero-pressure-gradient boundary layers from different tripping conditions. Journal of Fluid Mechanics, 2015, 783, 379-411.	1.4	110
22	Comparison of turbulent boundary layers over smooth and rough surfaces up to high Reynolds numbers. Journal of Fluid Mechanics, 2016, 795, 210-240.	1.4	106
23	Simultaneous orthogonal-plane particle image velocimetry measurements in a turbulent boundary layer. Journal of Fluid Mechanics, 2006, 560, 53.	1.4	101
24	Comparison of large-scale amplitude modulation in turbulent boundary layers, pipes, and channel flows. Physics of Fluids, 2009, 21, .	1.6	97
25	Spatial resolution correction for wall-bounded turbulence measurements. Journal of Fluid Mechanics, 2011, 676, 41-53.	1.4	95
26	Some predictions of the attached eddy model for a high Reynolds number boundary layer. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2007, 365, 807-822.	1.6	94
27	The relationship between the velocity skewness and the amplitude modulation of the small scale by the large scale in turbulent boundary layers. Physics of Fluids, 2011, 23, .	1.6	91
28	Spectral stochastic estimation of high-Reynolds-number wall-bounded turbulence for a refined inner-outer interaction model. Physical Review Fluids, 2016, 1, .	1.0	87
29	Fully resolved measurements of turbulent boundary layer flows up to. Journal of Fluid Mechanics, 2018, 851, 391-415.	1.4	84
30	Self-similarity of wall-attached turbulence in boundary layers. Journal of Fluid Mechanics, 2017, 823, .	1.4	82
31	Wavelet analysis of wall turbulence to study large-scale modulation of small scales. Experiments in Fluids, 2015, 56, 1.	1.1	80
32	Cross-stream stereoscopic particle image velocimetry of a modified turbulent boundary layer over directional surfaceÂpattern. Journal of Fluid Mechanics, 2017, 813, 412-435.	1.4	79
33	Scaling of the streamwise turbulence intensity in the context of inner-outer interactions in wall turbulence. Physical Review Fluids, 2017, 2, .	1.0	78
34	A fast direct numerical simulation method for characterising hydraulic roughness. Journal of Fluid Mechanics, 2015, 773, 418-431.	1.4	77
35	Obtaining accurate mean velocity measurements in high Reynolds number turbulent boundary layers using Pitot tubes. Journal of Fluid Mechanics, 2013, 715, 642-670.	1.4	71
36	An assessment of the ship drag penalty arising from light calcareous tubeworm fouling. Biofouling, 2016, 32, 451-464.	0.8	65

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37	Study of the Log-Layer Structure in Wall Turbulence Over a Very Large Range of Reynolds Number. Flow, Turbulence and Combustion, 2008, 81, 115-130.	1.4	64
38	Turbulent flow over transitionally rough surfaces with varying roughness densities. Journal of Fluid Mechanics, 2016, 804, 130-161.	1.4	63
39	Distance-from-the-wall scaling of turbulent motions in wall-bounded flows. Physics of Fluids, 2017, 29, .	1.6	63
40	Secondary motion in turbulent pipe flow with three-dimensional roughness. Journal of Fluid Mechanics, 2018, 854, 5-33.	1.4	61
41	Skin-friction drag reduction in a high-Reynolds-number turbulent boundary layer via real-time control of large-scale structures. International Journal of Heat and Fluid Flow, 2017, 67, 30-41.	1.1	60
42	Similarity and structure of wall turbulence with lateral wall shear stress variations. Journal of Fluid Mechanics, 2018, 847, 591-613.	1.4	56
43	Structure Inclination Angles in the Convective Atmospheric Surface Layer. Boundary-Layer Meteorology, 2013, 147, 41-50.	1.2	55
44	A calibration technique to correct sensor drift issues in hot-wire anemometry. Measurement Science and Technology, 2014, 25, 105304.	1.4	54
45	The minimal-span channel for rough-wall turbulent flows. Journal of Fluid Mechanics, 2017, 816, 5-42.	1.4	54
46	Interfaces of uniform momentum zones in turbulent boundary layers. Journal of Fluid Mechanics, 2017, 820, 451-478.	1.4	54
47	Aerosolisation during tracheal intubation and extubation in an operating theatre setting. Anaesthesia, 2021, 76, 182-188.	1.8	53
48	Comparison of turbulent channel and pipe flows with varying Reynolds number. Experiments in Fluids, 2011, 51, 1261-1281.	1.1	51
49	Roughness effects in turbulent forced convection. Journal of Fluid Mechanics, 2019, 861, 138-162.	1.4	51
50	The quiescent core of turbulent channel flow. Journal of Fluid Mechanics, 2014, 751, 228-254.	1.4	50
51	The effect of spanwise wavelength of surface heterogeneity on turbulent secondary flows. Journal of Fluid Mechanics, 2020, 894, .	1.4	47
52	Use of direct numerical simulation (DNS) data to investigate spatial resolution issues in measurements of wall-bounded turbulence. Measurement Science and Technology, 2009, 20, 115401.	1.4	47
53	High spatial range velocity measurements in a high Reynolds number turbulent boundary layer. Physics of Fluids, 2014, 26, .	1.6	46
54	A direct measure of the frequency response of hot-wire anemometers: temporal resolution issues in wall-bounded turbulence. Experiments in Fluids, 2015, 56, 1.	1.1	44

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55	The meandering behaviour of large-scale structures in turbulent boundary layers. Journal of Fluid Mechanics, 2019, 865, .	1.4	43
56	Wall-drag measurements of smooth- and rough-wall turbulent boundary layers using a floating element. Experiments in Fluids, 2016, 57, 1.	1.1	40
57	Turbulent structures in a statistically three-dimensional boundary layer. Journal of Fluid Mechanics, 2019, 859, 543-565.	1.4	40
58	Reynolds number trend of hierarchies and scale interactions in turbulent boundary layers. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20160077.	1.6	38
59	Direct numerical simulation of open-channel flow over smooth-to-rough and rough-to-smooth step changes. Journal of Fluid Mechanics, 2019, 866, 450-486.	1.4	37
60	Direct numerical simulation of high aspect ratio spanwise-aligned bars. Journal of Fluid Mechanics, 2018, 843, 126-155.	1.4	34
61	Innerâ€“outer interactions in rough-wall turbulence. Journal of Turbulence, 2016, 17, 1159-1178.	0.5	31
62	Applicability of Taylorâ€™s hypothesis in rough- and smooth-wall boundary layers. Journal of Fluid Mechanics, 2017, 812, 398-417.	1.4	30
63	Development and Use of Machine-Learnt Algebraic Reynolds Stress Models for Enhanced Prediction of Wake Mixing in Low-Pressure Turbines. Journal of Turbomachinery, 2019, 141, .	0.9	29
64	Spatial resolution correction for hot-wire anemometry in wall turbulence. Experiments in Fluids, 2011, 50, 1443-1453.	1.1	28
65	Simultaneous skin friction and velocity measurements in high Reynolds number pipe and boundary layer flows. Journal of Fluid Mechanics, 2019, 871, 377-400.	1.4	28
66	Validating under-resolved turbulence intensities for PIV experiments in canonical wall-bounded turbulence. Experiments in Fluids, 2016, 57, 1.	1.1	27
67	Turbulence modifications in a turbulent boundary layer over a rough wall with spanwise-alternating roughness strips. Physics of Fluids, 2018, 30, .	1.6	27
68	Dispersive stresses in turbulent flow over riblets. Journal of Fluid Mechanics, 2021, 917, .	1.4	26
69	Recovery of wall-shear stress to equilibrium flow conditions after a rough-to-smooth step change in turbulent boundary layers. Journal of Fluid Mechanics, 2019, 872, 472-491.	1.4	25
70	On the use of the Reynolds decomposition in the intermittent region of turbulent boundary layers. Journal of Fluid Mechanics, 2016, 794, 5-16.	1.4	24
71	Vertical Coherence of Turbulence in the Atmospheric Surface Layer: Connecting the Hypotheses of Townsend and Davenport. Boundary-Layer Meteorology, 2019, 172, 199-214.	1.2	24
72	Large coherence of spanwise velocity in turbulent boundary layers. Journal of Fluid Mechanics, 2018, 847, 161-185.	1.4	23

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73	Caution: tripping hazards. Journal of Fluid Mechanics, 2012, 710, 1-4.	1.4	22
74	Influence of riblet shapes on the occurrence of Kelvinâ€“Helmholtz rollers. Journal of Fluid Mechanics, 2021, 913, .	1.4	22
75	On Large-Scale Friction Control in Turbulent Wall Flow in Low Reynolds Number Channels. Flow, Turbulence and Combustion, 2016, 97, 811-827.	1.4	21
76	Influence of spatial exclusion on the statistical behavior of attached eddies. Physical Review Fluids, 2016, 1, .	1.0	21
77	Haemodynamic effects of incomplete stent apposition in curved coronary arteries. Journal of Biomechanics, 2017, 63, 164-173.	0.9	20
78	On the mixing length eddies and logarithmic mean velocity profile in wall turbulence. Journal of Fluid Mechanics, 2020, 887, .	1.4	19
79	Pressure fluctuation in high-Reynolds-number turbulent boundary layer: results from experiments and DNS. Journal of Turbulence, 2012, 13, N50.	0.5	18
80	Computational fluid dynamics study of common stent models inside idealised curved coronary arteries. Computer Methods in Biomechanics and Biomedical Engineering, 2017, 20, 671-681.	0.9	18
81	Heat transfer in rough-wall turbulent thermal convection in the ultimate regime. Physical Review Fluids, 2019, 4, .	1.0	18
82	Generalization of the PIV loss-of-correlation formula introduced by Keane and Adrian. Experiments in Fluids, 2017, 58, 1.	1.1	16
83	Trajectory of a synthetic jet issuing into high-Reynolds-number turbulent boundaryÂlayers. Journal of Fluid Mechanics, 2018, 856, 531-551.	1.4	16
84	Direct Numerical Simulations of Turbulent Flow Over Various Riblet Shapes in Minimal-Span Channels. Flow, Turbulence and Combustion, 2021, 107, 1-29.	1.4	16
85	Simulation of a Large-Eddy-Break-up Device (LEBU) in a Moderate Reynolds Number Turbulent Boundary Layer. Flow, Turbulence and Combustion, 2017, 98, 445-460.	1.4	15
86	Periodicity of large-scale coherence in turbulent boundary layers. International Journal of Heat and Fluid Flow, 2020, 83, 108575.	1.1	14
87	Smooth- and rough-wall boundary layer structure from high spatial range particle image velocimetry. Physical Review Fluids, 2016, 1, .	1.0	14
88	Experimental study of a turbulent boundary layer with a rough-to-smooth change in surface conditions at high Reynolds numbers. Journal of Fluid Mechanics, 2021, 923, .	1.4	13
89	Machine-Learnt Turbulence Closures for Low-Pressure Turbines With Unsteady Inflow Conditions. Journal of Turbomachinery, 2019, 141, .	0.9	12
90	A wall-shear stress predictive model. Journal of Physics: Conference Series, 2011, 318, 012003.	0.3	11

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91	Spatial averaging of streamwise and spanwise velocity measurements in wall-bounded turbulence using â˜- and Ã—-probes. Measurement Science and Technology, 2013, 24, 115302.	1.4	11
92	Non-type behaviour of roughness when in-plane wavelength approaches the boundary layer thickness. Journal of Fluid Mechanics, 2021, 911, .	1.4	11
93	Reynolds number and roughness effects on turbulent stresses in sandpaper roughness boundary layers. Physical Review Fluids, 2017, 2, .	1.0	11
94	Turbulent flow over a long flat plate with uniform roughness. Physical Review Fluids, 2017, 2, .	1.0	11
95	Spatial averaging effects on the streamwise and wall-normal velocity measurements in a wall-bounded turbulence using a cross-wire probe. Measurement Science and Technology, 2019, 30, 085303.	1.4	10
96	Spanwise velocity statistics in high-Reynolds-number turbulent boundary layers. Journal of Fluid Mechanics, 2021, 913, .	1.4	10
97	The effect of cleaning and repainting on the ship drag penalty. Biofouling, 2021, 37, 372-386.	0.8	9
98	Prograde vortices, internal shear layers and the Taylor microscale in high-Reynolds-number turbulent boundary layers. Journal of Fluid Mechanics, 2021, 920, .	1.4	8
99	Large-Scale Structures in High Reynolds Number Wall-Bounded Turbulence. Springer Proceedings in Physics, 2014, , 75-83.	0.1	8
100	Scale-dependent inclination angle of turbulent structures in stratified atmospheric surface layers. Journal of Fluid Mechanics, 2022, 942, .	1.4	8
101	Experimental investigation on the drag reducing efficiency of the outer-layer vertical blades. Journal of Marine Science and Technology, 2011, 16, 390-401.	1.3	7
102	Impact of mismatched and misaligned laser light sheet profiles on PIV performance. Experiments in Fluids, 2018, 59, 1.	1.1	7
103	Spatial averaging of velocity measurements in wall-bounded turbulence: single hot-wires. Measurement Science and Technology, 2013, 24, 115301.	1.4	6
104	Influence of a Large-Eddy-Breakup-Device on the Turbulent Interface of Boundary Layers. Flow, Turbulence and Combustion, 2017, 99, 823-835.	1.4	6
105	The logarithmic variance of streamwise velocity and conundrum in wall turbulence. Journal of Fluid Mechanics, 2022, 933, .	1.4	6
106	Revisiting end conduction effects in constant temperature hot-wire anemometry. Experiments in Fluids, 2018, 59, 1.	1.1	5
107	Sensitivity of turbulent stresses in boundary layers to cross-wire probe uncertainties in the geometry and calibration procedure. Measurement Science and Technology, 2019, 30, 085301.	1.4	5
108	Controlling the Large-Scale Motions in a Turbulent Boundary Layer. Lecture Notes in Mechanical Engineering, 2014, , 17-26.	0.3	5

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109	Investigation of unsteady secondary flows and large-scale turbulence in heterogeneous turbulent boundary layers. Journal of Fluid Mechanics, 2022, 934, .	1.4	5
110	EXPERIMENTAL STUDY OF WALL TURBULENCE: IMPLICATIONS FOR CONTROL. Lecture Notes Series, Institute for Mathematical Sciences, 2005, , 207-246.	0.2	4
111	An Extended View of the Inner-outer Interaction Model for Wall-bounded Turbulence Using Spectral Linear Stochastic Estimation. Procedia Engineering, 2015, 126, 24-28.	1.2	4
112	Modelling and operation of sub-miniature constant temperature hot-wire anemometry. Measurement Science and Technology, 2016, 27, 125301.	1.4	4
113	Beam stability and warm-up effects of Nd:YAG lasers used in particle image velocimetry. Measurement Science and Technology, 2017, 28, 065301.	1.4	4
114	Towards fully-resolved PIV measurements in high Reynolds number turbulent boundary layers with DSLR cameras. Journal of Visualization, 2018, 21, 369-379.	1.1	4
115	Near wall coherence in wall-bounded flows and implications for flow control. International Journal of Heat and Fluid Flow, 2020, 86, 108683.	1.1	4
116	Is there a need for fully converged CFD solutions? Global extremum seeking applied to aerodynamic shape optimisation. , 2013, , .		3
117	Roll-modes generated in turbulent boundary layers with passive surface modifications. , 2014, , .		3
118	The minimal channel: a fast and direct method for characterising roughness. Journal of Physics: Conference Series, 2016, 708, 012010.	0.3	3
119	Investigation of cold-wire spatial and temporal resolution issues in thermal turbulent boundary layers. International Journal of Heat and Fluid Flow, 2022, 94, 108926.	1.1	3
120	Aerosolisation in endonasal endoscopic pituitary surgery. Pituitary, 2021, 24, 499-506.	1.6	2
121	Roughness and Reynolds Number Effects on the Flow Past a Rough-to-Smooth Step Change. Springer Proceedings in Physics, 2019, , 81-86.	0.1	2
122	A High Reynolds Number Turbulent Boundary Layer with Regular â€˜Braille-Typeâ€™ Roughness. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2010, , 69-75.	0.1	2
123	Spatial resolution correction for wall-bounded turbulence measurements. Journal of Fluid Mechanics, 0, , 1-13.	1.4	2
124	The Effects of Anisotropic Surface Roughness on Turbulent Boundary-Layer Flow. , 2020, , .		2
125	Reynolds Number Dependence of the Amplitude Modulated Near-Wall Cycle. ERCOFTAC Series, 2011, , 105-112.	0.1	2
126	Comparison of turbulent boundary layers over smooth and rough surfaces up to high Reynolds numbers â€“ ERRATUM. Journal of Fluid Mechanics, 2016, 797, 917-917.	1.4	1

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127	Analysis of the coherent and turbulent stresses of a numerically simulated rough wall pipe. Journal of Physics: Conference Series, 2017, 822, 012011.	0.3	1
128	The Effect of Wall Normal Actuation on a Turbulent Boundary Layer. Flow, Turbulence and Combustion, 2017, 99, 807-821.	1.4	1
129	Study of the Streamwise Evolution of Turbulent Boundary Layers to High Reynolds Numbers. , 2017, , 47-60.		1
130	Nasal preparation with local anesthetic should be considered an aerosolâ€generating procedure. International Forum of Allergy and Rhinology, 2021, 11, 1019-1021.	1.5	1
131	Fully mapped energy spectra in a high Reynolds number turbulent boundary layer. , 2007, , 349-351.		1
132	Turbulent flow over spanwise-varying roughness in a minimal streamwise channel. Journal of Physics: Conference Series, 2020, 1522, 012018.	0.3	0