Sergio Pirozzoli

List of Publications by Year
in descending order

109 papers	5,613 citations	87843 38 h-index	79644 73 g-index
109 all docs	109 docs citations	109 times ranked	1965 citing authors

#	Article	IF	Citations
1	Direct numerical simulation and analysis of a spatially evolving supersonic turbulent boundary layer at M=2.25. Physics of Fluids, 2004, 16, 530-545.	1.6	404
2	Conservative Hybrid Compact-WENO Schemes for Shock-Turbulence Interaction. Journal of Computational Physics, 2002, 178, 81-117.	1.9	376
3	Numerical Methods for High-Speed Flows. Annual Review of Fluid Mechanics, 2011, 43, 163-194.	10.8	339
4	Direct numerical simulation of impinging shock wave/turbulent boundary layer interaction at M=2.25. Physics of Fluids, 2006, 18, 065113.	1.6	273
5	Turbulence in supersonic boundary layers at moderate Reynolds number. Journal of Fluid Mechanics, 2011, 688, 120-168.	1.4	255
6	Generalized conservative approximations of split convective derivative operators. Journal of Computational Physics, 2010, 229, 7180-7190.	1.9	227
7	On the spectral properties of shock-capturing schemes. Journal of Computational Physics, 2006, 219, 489-497.	1.9	192
8	Velocity statistics in turbulent channel flow up to. Journal of Fluid Mechanics, 2014, 742, 171-191.	1.4	189
9	Characterization of coherent vortical structures in a supersonic turbulent boundary layer. Journal of Fluid Mechanics, 2008, 613, 205-231.	1.4	138
10	Direct numerical simulation of transonic shock/boundary layer interaction under conditions of incipient separation. Journal of Fluid Mechanics, 2010, 657, 361-393.	1.4	132
11	Reynolds and Mach number effects in compressible turbulent channel flow. International Journal of Heat and Fluid Flow, 2016, 59, 33-49.	1.1	132
12	Direct numerical simulations of isotropic compressible turbulence: Influence of compressibility on dynamics and structures. Physics of Fluids, 2004, 16, 4386-4407.	1.6	123
13	Passive scalars in turbulent channel flow at high Reynolds number. Journal of Fluid Mechanics, 2016, 788, 614-639.	1.4	115
14	Wall pressure fluctuations beneath supersonic turbulent boundary layers. Physics of Fluids, 2011, 23, .	1.6	108
15	Inner/outer layer interactions in turbulent boundary layers: A refined measure for the large-scale amplitude modulation mechanism. Physics of Fluids, 2011, 23, .	1.6	105
16	Turbulence and secondary motions in square duct flow. Journal of Fluid Mechanics, 2018, 840, 631-655.	1.4	104
17	Direct Numerical Simulation Database for Impinging Shock Wave/Turbulent Boundary-Layer Interaction. AIAA Journal, 2011, 49, 1307-1312.	1.5	101
18	Turbulence statistics in Couette flow at high Reynolds number. Journal of Fluid Mechanics, 2014, 758, 327-343.	1.4	91

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19	Shock-Wave-Vortex Interactions: Shock and Vortex Deformations, and Sound Production. Theoretical and Computational Fluid Dynamics, 2000, 13, 421-456.	0.9	89
20	Probing high-Reynolds-number effects in numerical boundary layers. Physics of Fluids, 2013, 25, .	1.6	87
21	Stability and modal analysis of shock/boundary layer interactions. Theoretical and Computational Fluid Dynamics, 2017, 31, 33-50.	0.9	86
22	Stabilized non-dissipative approximations of Euler equations in generalized curvilinear coordinates. Journal of Computational Physics, 2011, 230, 2997-3014.	1.9	76
23	Numerically stable formulations of convective terms for turbulent compressible flows. Journal of Computational Physics, 2019, 382, 86-104.	1.9	66
24	Heat transfer and wall temperature effects in shock wave turbulent boundary layer interactions. Physical Review Fluids, 2016, 1, .	1.0	65
25	STREAmS: A high-fidelity accelerated solver for direct numerical simulation of compressible turbulent flows. Computer Physics Communications, 2021, 263, 107906.	3.0	63
26	Mixed convection in turbulent channels with unstable stratification. Journal of Fluid Mechanics, 2017, 821, 482-516.	1.4	62
27	On the estimation of wall pressure coherence using time-resolved tomographic PIV. Experiments in Fluids, 2013, 54, 1.	1.1	60
28	One-point statistics for turbulent pipe flow up to. Journal of Fluid Mechanics, 2021, 926, .	1.4	60
29	Poiseuille and Couette flows in the transitional and fully turbulent regime. Journal of Fluid Mechanics, 2015, 770, 424-441.	1.4	52
30	Genuine compressibility effects in wall-bounded turbulence. Physical Review Fluids, 2019, 4, .	1.0	52
31	The wall pressure signature of transonic shock/boundary layer interaction. Journal of Fluid Mechanics, 2011, 671, 288-312.	1.4	50
32	Compressibility effects on roughness-induced boundary layer transition. International Journal of Heat and Fluid Flow, 2012, 35, 45-51.	1.1	50
33	Large-scale motions and inner/outer layer interactions in turbulent Couetteâ€“Poiseuille flows. Journal of Fluid Mechanics, 2011, 680, 534-563.	1.4	46
34	Data-driven compressibility transformation for turbulent wall layers. Physical Review Fluids, 2020, 5, .	1.0	45
35	On the suitability of the immersed boundary method for the simulation of high-Reynolds-number separated turbulent flows. Computers and Fluids, 2016, 130, 84-93.	1.3	41
36	On the role of secondary motions in turbulent square duct flow. Journal of Fluid Mechanics, 2018, 847, .	1.4	40

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37	A low-dissipative solver for turbulent compressible flows on unstructured meshes, with OpenFOAM implementation. Computers and Fluids, 2017, 152, 14-23.	1.3	39
38	An aerothermodynamic design optimization framework for hypersonic vehicles. Aerospace Science and Technology, 2019, 84, 339-347.	2.5	39
39	Development of optimized weighted-ENO schemes for multiscale compressible flows. International Journal for Numerical Methods in Fluids, 2003, 42, 953-977.	0.9	38
40	Wall pressure coherence in supersonic turbulent boundary layers. Journal of Fluid Mechanics, 2013, 732, 445-456.	1.4	38
41	A general strategy for the optimization of Rungeâ€"Kutta schemes for wave propagation phenomena. Journal of Computational Physics, 2009, 228, 4182-4199.	1.9	37
42	On the dynamical relevance of coherent vortical structures in turbulent boundary layers. Journal of Fluid Mechanics, 2010, 648, 325-349.	1.4	37
43	Generalized characteristic relaxation boundary conditions for unsteady compressible flow simulations. Journal of Computational Physics, 2013, 248, 109-126.	1.9	37
44	Parameterization of Boundary-Layer Transition Induced by Isolated Roughness Elements. AIAA Journal, 2014, 52, 2261-2269.	1.5	37
45	Turbulent channel flow simulations in convecting reference frames. Journal of Computational Physics, 2013, 232, 1-6.	1.9	36
46	Decomposition of the mean friction drag in zero-pressure-gradient turbulent boundary layers. Physics of Fluids, 2019, 31, .	1.6	35
47	Direct numerical simulation of supersonic pipe flow at moderate Reynolds number. International Journal of Heat and Fluid Flow, 2019, 76, 100-112.	1.1	34
48	Revisiting the mixing-length hypothesis in the outer part of turbulent wall layers: mean flow and wall friction. Journal of Fluid Mechanics, 2014, 745, 378-397.	1.4	31
49	Direct numerical simulation of conical shock waveâ€"turbulent boundary layer interaction. Journal of Fluid Mechanics, 2019, 877, 167-195.	1.4	30
50	Compressibility effects on pressure fluctuation in compressible turbulent channel flows. Physical Review Fluids, 2020, 5, .	1.0	30
51	On shock sensors for hybrid compact/WENO schemes. Computers and Fluids, 2020, 199, 104439.	1.3	29
52	Reynolds stress scaling in the near-wall region of wall-bounded flows. Journal of Fluid Mechanics, 2021, 926, .	1.4	29
53	Performance analysis and optimization of finite-difference schemes for wave propagation problems. Journal of Computational Physics, 2007, 222, 809-831.	1.9	28
54	A general framework for the evaluation of shock-capturing schemes. Journal of Computational Physics, 2019, 376, 924-936.	1.9	27

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55	The effect of large-scale turbulent structures on particle dispersion in wall-bounded flows. International Journal of Multiphase Flow, 2013, 51, 55-64.	1.6	25
56	Vortex events in Euler and Navierâ€“Stokes simulations with smooth initial conditions. Journal of Fluid Mechanics, 2012, 690, 288-320.	1.4	21
57	Computational analysis of impinging shock-wave boundary layer interaction under conditions of incipient separation. Shock Waves, 2009, 19, 487-497.	1.0	20
58	On the size of the energy-containing eddies in the outer turbulent wall layer. Journal of Fluid Mechanics, 2012, 702, 521-532.	1.4	20
59	Early evolution of the compressible mixing layer issued from two turbulent streams. Journal of Fluid Mechanics, 2015, 777, 196-218.	1.4	20
60	Scaling of velocity fluctuations in statistically unstable boundary-layer flows. Journal of Fluid Mechanics, 2020, 886, .	1.4	20
61	Optimal transient growth in compressible turbulent boundary layers. Journal of Fluid Mechanics, 2015, 770, 124-155.	1.4	19
62	Towards the ultimate regime in Rayleighâ€“Darcy convection. Journal of Fluid Mechanics, 2021, 911, .	1.4	18
63	Natural grid stretching for DNS of wall-bounded flows. Journal of Computational Physics, 2021, 439, 110408.	1.9	18
64	Direct numerical simulation of developed compressible flow in square ducts. International Journal of Heat and Fluid Flow, 2019, 76, 130-140.	1.1	17
65	Vortex shedding in a two-dimensional diffuser: theory and simulation of separation control by periodic mass injection. Journal of Fluid Mechanics, 2004, 520, 187-213.	1.4	16
66	Mean equation based scaling analysis of fully-developed turbulent channel flow with uniform heat generation. International Journal of Heat and Mass Transfer, 2017, 115, 50-61.	2.5	15
67	An Efficient Semi-implicit Solver for Direct Numerical Simulation of Compressible Flows at All Speeds. Journal of Scientific Computing, 2018, 75, 308-331.	1.1	15
68	Reynolds-Averaged Numerical Simulations of Conical Shock-Wave/Boundary-Layer Interactions. AIAA Journal, 2021, 59, 1645-1659.	1.5	15
69	On algebraic TVD-VOF methods for tracking material interfaces. Computers and Fluids, 2019, 189, 73-81.	1.3	14
70	The fluid dynamics of rolling wheels at low Reynolds number. Journal of Fluid Mechanics, 2012, 706, 496-533.	1.4	13
71	A minimal flow unit for the study of turbulence with passive scalars. Journal of Turbulence, 2014, 15, 731-751.	0.5	13
72	DNS of passive scalars in turbulent pipe flow. Journal of Fluid Mechanics, 2022, 940, .	1.4	13

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73	Direct Numerical Simulation and Theory of a Wall-Bounded Flow with Zero Skin Friction. Flow, Turbulence and Combustion, 2017, 99, 553-564.	1.4	12
74	Scrutiny of buffet mechanisms in transonic flow. International Journal of Numerical Methods for Heat and Fluid Flow, 2018, 28, 1031-1046.	1.6	12
75	Crossflow effects on shock wave/turbulent boundary layer interactions. Theoretical and Computational Fluid Dynamics, 2022, 36, 327-344.	0.9	12
76	Drag reduction on a transonic airfoil. Journal of Fluid Mechanics, 2022, 942, .	1.4	12
77	Conjugate heat transfer analysis of rectangular cooling channels using modeled and direct numerical simulation of turbulence. International Journal of Heat and Mass Transfer, 2021, 181, 121849.	2.5	11
78	Large-Eddy Simulations of Idealized Shock/Boundary-Layer Interactions with Crossflow. AIAA Journal, 2022, 60, 2767-2779.	1.5	10
79	Special issue on the fluid mechanics of hypersonic flight. Theoretical and Computational Fluid Dynamics, 2022, 36, 1-8.	0.9	10
80	Vorticity dynamics in turbulence growth. Theoretical and Computational Fluid Dynamics, 2010, 24, 247-251.	0.9	9
81	On turbulent friction in straight ducts with complex cross-section: the wall law and the hydraulic diameter. Journal of Fluid Mechanics, 2018, 846, .	1.4	9
82	Effects of Wall Temperature on Hypersonic Impinging Shock-Wave/Turbulent-Boundary-Layer Interactions. AIAA Journal, 2022, 60, 5109-5122.	1.5	9
83	DNS of Turbulent Flows in Ducts with Complex Shape. Flow, Turbulence and Combustion, 2018, 100, 1063-1079.	1.4	8
84	Direct numerical simulation of forced thermal convection in square ducts up to. Journal of Fluid Mechanics, 2022, 941, .	1.4	8
85	Transitional and turbulent flows in rectangular ducts: budgets and projection in principal mean strain axes. Journal of Turbulence, 2020, 21, 286-310.	0.5	7
86	Turbulent flows in square ducts: physical insight and suggestions for turbulence modellers. Journal of Turbulence, 2020, 21, 106-128.	0.5	7
87	Influence of corner angle in streamwise supersonic corner flow. Physics of Fluids, 2021, 33, 056108.	1.6	7
88	Secondary Flow in Smooth and Rough Turbulent Circular Pipes: Turbulence Kinetic Energy Budgets. Fluids, 2021, 6, 448.	0.8	6
89	On the velocity and dissipation signature of vortex tubes in isotropic turbulence. Physica D: Nonlinear Phenomena, 2012, 241, 202-207.	1.3	5
90	On the relationship between drag and vertical velocity fluctuations in flow over riblets and liquid infused surfaces. International Journal of Heat and Fluid Flow, 2020, 86, 108663.	1.1	5

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91	HTR-1.2 solver: Hypersonic Task-based Research solver version 1.2. Computer Physics Communications, 2021, 261, 107733.	3.0	5
92	Properties of the scalar variance transport equation in turbulent channel flow. Physical Review Fluids, 2019, 4, .	1.0	4
93	Strong Rayleighâ€"Darcy convection regime in three-dimensional porous media. Journal of Fluid Mechanics, 2022, 943, .	1.4	4
94	Optimised prefactored compact schemes for linear wave propagation phenomena. Journal of Computational Physics, 2017, 328, 66-85.	1.9	3
95	Energy-based decomposition of friction drag in turbulent square-duct flows. International Journal of Heat and Fluid Flow, 2020, 86, 108731.	1.1	3
96	Modal Analysis of Separation Bubble Unsteadiness in Conical Shock Wave/Turbulent Boundary Layer Interaction. AIAA Journal, 2022, 60, 5123-5135.	1.5	3
97	Self-Sustained Oscillations in Shock Wave/Turbulent Boundary Layer Interaction. , 2006, , .		2
98	Flow organization near shear layers in turbulent wall-bounded flows. Journal of Turbulence, 2011, 12, N41.	0.5	2
99	High-Reynolds-number effects on turbulent scalings in compressible channel flow. Proceedings in Applied Mathematics and Mechanics, 2015, 15, 489-490.	0.2	2
100	WP-2 Basic Investigation of Transition Effect. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2021, , 129-225.	0.2	2
101	Reynolds number effects and outer similarity of pressure fluctuations in turbulent pipe flow. International Journal of Heat and Fluid Flow, 2022, 96, 108998.	1.1	2
102	A structural model for the vortex tubes of isotropic turbulence. Theoretical and Computational Fluid Dynamics, 2009, 23, 55-62.	0.9	1
103	Wall pressure fluctuations in transonic shock/boundary layer interaction. Procedia Engineering, 2010, 6, 303-311.	1.2	1
104	Multi-variate Statistics of the Wall Pressure Field beneath Supersonic Turbulent Boundary Layers. , 2012, , .		1
105	Shear/Buoyancy Interaction in Wall Bounded Turbulent Flows. Springer Proceedings in Physics, 2019, , 47-54.	0.1	1
106	WP-1 Reference Cases of Laminar and Turbulent Interactions. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2021, , 25-127.	0.2	1
107	Analysis of secondary motions in square duct flow. Journal of Physics: Conference Series, 2018, 1001, 012009.	0.3	0
108	Finite Difference Methods for Incompressible and Compressible Turbulence. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 55-118.	0.3	0

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109	Nonequilibrium effects in near-wake ionizing flows. AIAA Journal, 1997, 35, 1151-1163.	1.5	0