

# Zu-chao Zhu

## List of Publications by Year in descending order

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113  
papers

1,846  
citations

279798

23  
h-index

361022

35  
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113  
all docs

113  
docs citations

113  
times ranked

655  
citing authors

#	ARTICLE	IF	CITATIONS
1	Effects of flow pattern on hydraulic performance and energy conversion characterisation in a centrifugal pump. <i>Renewable Energy</i> , 2020, 151, 475-487.	8.9	88
2	Entropy generation analysis for the cavitating head-drop characteristic of a centrifugal pump. <i>Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science</i> , 2018, 232, 4637-4646.	2.1	85
3	Influence of opening and closing process of ball valve on external performance and internal flow characteristics. <i>Experimental Thermal and Fluid Science</i> , 2017, 80, 193-202.	2.7	63
4	Experimental and numerical investigations of head-flow curve instability of a single-stage centrifugal pump with volute casing. <i>Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy</i> , 2016, 230, 633-647.	1.4	55
5	Effect of the blade loading distribution on hydrodynamic performance of a centrifugal pump with cylindrical blades. <i>Journal of Mechanical Science and Technology</i> , 2018, 32, 1161-1170.	1.5	55
6	Extended compressible thermal cavitation model for the numerical simulation of cryogenic cavitating flow. <i>International Journal of Hydrogen Energy</i> , 2020, 45, 10104-10118.	7.1	51
7	Gas-liquid solid two-phase flow and erosion calculation of gate valve based on the CFD-DEM model. <i>Powder Technology</i> , 2020, 366, 395-407.	4.2	51
8	Numerical and experimental investigations on the cavitation characteristics of a high-speed centrifugal pump with a splitter-blade inducer. <i>Journal of Mechanical Science and Technology</i> , 2015, 29, 259-267.	1.5	45
9	Numerical simulation of cryogenic cavitating flow by an extended transport-based cavitation model with thermal effects. <i>Cryogenics</i> , 2018, 92, 98-104.	1.7	44
10	Application of entropy dissipation to analyze energy loss in a centrifugal pump as turbine. <i>Renewable Energy</i> , 2021, 163, 41-55.	8.9	43
11	An Experimental and Numerical Study of Regulating Performance and Flow Loss in a V-Port Ball Valve. <i>Journal of Fluids Engineering, Transactions of the ASME</i> , 2020, 142, .	1.5	42
12	Numerical investigation of attached cavitating flow in thermo-sensitive fluid with special emphasis on thermal effect and shedding dynamics. <i>International Journal of Hydrogen Energy</i> , 2019, 44, 3170-3184.	7.1	40
13	Unsteady mixed convection in a square enclosure with an inner cylinder rotating in a bi-directional and time-periodic mode. <i>International Journal of Heat and Mass Transfer</i> , 2019, 136, 563-580.	4.8	39
14	Numerical simulation and analysis of solid-liquid two-phase flow in centrifugal pump. <i>Chinese Journal of Mechanical Engineering (English Edition)</i> , 2013, 26, 53-60.	3.7	38
15	Multiscale modeling of tip-leakage cavitating flows by a combined volume of fluid and discrete bubble model. <i>Physics of Fluids</i> , 2021, 33, .	4.0	36
16	The Flow Simulation and Experimental Study of Low-Specific-Speed High-Speed Complex Centrifugal Impellers. <i>Chinese Journal of Chemical Engineering</i> , 2006, 14, 435-441.	3.5	35
17	An energy consumption improvement method for centrifugal pump based on bionic optimization of blade trailing edge. <i>Energy</i> , 2022, 246, 123323.	8.8	34
18	Transient behaviors of mixed convection in a square enclosure with an inner impulsively rotating circular cylinder. <i>International Communications in Heat and Mass Transfer</i> , 2018, 98, 143-154.	5.6	31

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19	Internal unsteady flow characteristics of centrifugal pump based on entropy generation rate and vibration energy. Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 2019, 233, 456-473.	2.5	31
20	Study on the metrological performance of a swirlmeter affected by flow regulation with a sleeve valve. Flow Measurement and Instrumentation, 2019, 67, 83-94.	2.0	28
21	Effects of vortex structure on performance characteristics of a multiblade fan with inclined tongue. Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy, 2019, 233, 1007-1021.	1.4	28
22	Unsteady characteristics of low-Re flow past two tandem cylinders. Theoretical and Computational Fluid Dynamics, 2018, 32, 475-493.	2.2	27
23	Numerical study of solid particle erosion in a cavity with different wall heights. Powder Technology, 2014, 254, 150-159.	4.2	26
24	Influence of Impeller Sinusoidal Tubercle Trailing-Edge on Pressure Pulsation in a Centrifugal Pump at Nominal Flow Rate. Journal of Fluids Engineering, Transactions of the ASME, 2021, 143, .	1.5	26
25	Influence of flashboard location on flow resistance properties and internal features of gate valve under the variable condition. Journal of Natural Gas Science and Engineering, 2016, 33, 108-117.	4.4	25
26	Forced convection of flow past two tandem rectangular cylinders in a channel. Numerical Heat Transfer; Part A: Applications, 2017, 72, 89-106.	2.1	25
27	Investigation of flow pattern and hydraulic performance of a centrifugal pump impeller through the PIV method. Renewable Energy, 2020, 162, 561-574.	8.9	25
28	Numerical and experimental studies on hydrodynamic characteristics of sleeve regulating valves. Flow Measurement and Instrumentation, 2017, 53, 279-285.	2.0	24
29	Instability analysis under part-load conditions in centrifugal pump. Journal of Mechanical Science and Technology, 2019, 33, 269-278.	1.5	24
30	Experimental and numerical investigations of cavitation evolution in a high-speed centrifugal pump with inducer. Journal of Hydrodynamics, 2021, 33, 140-149.	3.2	23
31	Partitioning effect on natural convection in a circular enclosure with an asymmetrically placed inclined plate. International Communications in Heat and Mass Transfer, 2018, 90, 11-22.	5.6	21
32	Numerical simulation and experimental research on the influence of solid-phase characteristics on centrifugal pump performance. Chinese Journal of Mechanical Engineering (English Edition), 2012, 25, 1184-1189.	3.7	20
33	Quantification of wake unsteadiness for low-Re flow across two staggered cylinders. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2019, 233, 6892-6909.	2.1	20
34	Experimental investigations on the performance and noise characteristics of a forward-curved fan with the stepped tongue. Measurement and Control, 2019, 52, 1480-1488.	1.8	19
35	Investigations of energy distribution and loss characterization in a centrifugal impeller through PIV experiment. Ocean Engineering, 2022, 247, 110773.	4.3	19
36	Influence of blade outlet angle on performance of low-specific-speed centrifugal pump. Journal of Thermal Science, 2013, 22, 117-122.	1.9	18

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37	Unstable flow characteristics in a pump-turbine simulated by a modified Partially-Averaged Navier-Stokes method. <i>Science China Technological Sciences</i> , 2019, 62, 406-416.	4.0	18
38	Metrological performance investigation of swirl flowmeter affected by vortex inflow. <i>Journal of Mechanical Science and Technology</i> , 2019, 33, 2671-2680.	1.5	17
39	Effects of the short blade locations on the anti-cavitation performance of the splitter-bladed inducer and the pump. <i>Chinese Journal of Chemical Engineering</i> , 2015, 23, 1095-1101.	3.5	16
40	Numerical investigation of transient liquid nitrogen cavitating flows with special emphasis on force evolution and entropy features. <i>Cryogenics</i> , 2021, 113, 103225.	1.7	16
41	Very Large Eddy Simulation of Cavitation from Inception to Sheet/Cloud Regimes by A Multiscale Model. <i>China Ocean Engineering</i> , 2021, 35, 361-371.	1.6	16
42	Numerical study on cavitation over flat hydrofoils with arc obstacles. <i>Physics of Fluids</i> , 2021, 33, .	4.0	16
43	Large eddy simulation of tip-leakage cavitating flow using a multiscale cavitation model and investigation on model parameters. <i>Physics of Fluids</i> , 2021, 33, .	4.0	16
44	Flow Unsteadiness and Stability Characteristics of Low-Re Flow Past an Inclined Triangular Cylinder. <i>Journal of Fluids Engineering, Transactions of the ASME</i> , 2017, 139, .	1.5	15
45	Condensation flow patterns and heat transfer correction for zeotropic hydrocarbon mixtures in a helically coiled tube. <i>International Journal of Heat and Mass Transfer</i> , 2019, 143, 118500.	4.8	15
46	Investigation on characteristics of pressure fluctuation in a centrifugal pump with clearance flow. <i>Journal of Mechanical Science and Technology</i> , 2020, 34, 3657-3666.	1.5	14
47	Effects of clearance flow on the characteristics of centrifugal pump under low flow rate. <i>Journal of Mechanical Science and Technology</i> , 2020, 34, 189-200.	1.5	14
48	Numerical analysis of thermo-sensitive cavitating flows with special emphasises on flow separation and enstrophy conversion. <i>International Communications in Heat and Mass Transfer</i> , 2021, 125, 105336.	5.6	14
49	Three-dimensional numerical investigation of solid particle erosion in gate valves. <i>Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science</i> , 2014, 228, 1670-1679.	2.1	13
50	Numerical investigation of pressure distribution in a low specific speed centrifugal pump. <i>Journal of Thermal Science</i> , 2018, 27, 25-33.	1.9	13
51	Effects of dimensional wall temperature on velocity-temperature correlations in supersonic turbulent channel flow of thermally perfect gas. <i>Science China: Physics, Mechanics and Astronomy</i> , 2019, 62, 1.	5.1	13
52	Axial thrust instability analysis and estimation theory of high speed centrifugal pump. <i>Physics of Fluids</i> , 2022, 34, .	4.0	13
53	Investigation of Flow Separation Characteristics in a Pump as Turbines Impeller Under the Best Efficiency Point Condition. <i>Journal of Fluids Engineering, Transactions of the ASME</i> , 2021, 143, .	1.5	11
54	Time-Resolved Particle Image Velocimetry Measurements and Proper Orthogonal Decomposition Analysis of Unsteady Flow in a Centrifugal Impeller Passage. <i>Frontiers in Energy Research</i> , 2022, 9, .	2.3	11

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55	Prediction of particle distribution and particle impact erosion in inclined cavities. Powder Technology, 2017, 305, 562-571.	4.2	10
56	Analysis of vortices formed in flow passage of a five-bladed centrifugal water pump by means of PIV method. AIP Advances, 2019, 9, .	1.3	10
57	Research of Particle Motion in a Two-Stage Slurry Transport Pump for Deep-Ocean Mining by the CFD-DEM Method. Energies, 2020, 13, 6711.	3.1	10
58	Numerical Study on the Influence of Inlet Guide Vanes on the Internal Flow Characteristics of Centrifugal Pump. Processes, 2020, 8, 122.	2.8	10
59	Impact of Particle Sizes on Flow Characteristics of Slurry Pump for Deep-Sea Mining. Shock and Vibration, 2021, 2021, 1-13.	0.6	10
60	Large eddy simulation of energy gradient field in a centrifugal pump impeller. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2019, 233, 4047-4057.	2.1	9
61	Investigation of transient gas-solid flow characteristics and particle erosion in a square gate valve. Engineering Failure Analysis, 2020, 118, 104827.	4.0	9
62	Numerical study of solid-liquid two-phase flow and erosion in ball valves with different openings. Advanced Powder Technology, 2022, 33, 103542.	4.1	9
63	Effects of Single-arc Blade Profile Length on the Performance of a Forward Multiblade Fan. Processes, 2019, 7, 629.	2.8	8
64	Boundary Vorticity Analysis and Shedding Dynamics of Transient Cavitation Flow Around a Twisted Hydrofoil. Journal of Fluids Engineering, Transactions of the ASME, 2021, 143, .	1.5	8
65	A Numerical and Experimental Study of the Time-Averaged and Transient Flow Downstream of a Butterfly Valve. Journal of Fluids Engineering, Transactions of the ASME, 2022, 144, .	1.5	8
66	Effect of Shaft Diameter on the Hydrodynamic Torque of Butterfly Valve Disk. Journal of Fluids Engineering, Transactions of the ASME, 2020, 142, 111202.	1.5	8
67	Statistics of Heat Transfer in Two-Dimensional Turbulent Rayleigh-Bénard Convection at Various Prandtl Number. Entropy, 2018, 20, 582.	2.2	7
68	Experimental and Comparative RANS/URANS Investigations on the Effect of Radius of Volute Tongue on the Aerodynamics and Aeroacoustics of a Sirocco Fan. Processes, 2020, 8, 1442.	2.8	7
69	Numerical study of gas-liquid two-phase flow and erosion in a cavity with a slope. Particuology, 2022, 62, 25-35.	3.6	7
70	Numerical study on flow characteristics of rotor pumps including cavitation. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2015, 229, 2626-2638.	2.1	6
71	Investigation of flow separation in a centrifugal pump impeller based on improved delayed detached eddy simulation method. Advances in Mechanical Engineering, 2019, 11, 168781401989783.	1.6	6
72	Unsteady Flow Characteristics of Rotating Stall and Surging in a Backward Centrifugal Fan at Low Flow-Rate Conditions. Processes, 2020, 8, 872.	2.8	6

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73	Comparative Experiments on a Self-priming Pump Delivering Water Medium During Rapid and Slow Starting Periods. Iranian Journal of Science and Technology - Transactions of Mechanical Engineering, 2020, , 1.	1.3	6
74	Numerical Simulation of Fine Particle Solid-Liquid Two-Phase Flow in a Centrifugal Pump. Shock and Vibration, 2021, 2021, 1-10.	0.6	6
75	Numerical and experimental research on the erosion of solid-liquid two-phase flow in transport butterfly valve based on DEM method. Industrial Lubrication and Tribology, 2021, 73, 606-613.	1.3	6
76	Large eddy simulation of cavitating flow around a twist hydrofoil and investigation on force element evolution using a multiscale cavitation model. Physics of Fluids, 2022, 34, .	4.0	6
77	A Method to Determine the Slip Factor of Centrifugal Pumps through Experiment. International Journal of Turbo and Jet Engines, 2015, 32, .	0.7	5
78	An improved turbulence model for separation flow in a centrifugal pump. Advances in Mechanical Engineering, 2016, 8, 168781401665331.	1.6	5
79	Direct numerical simulation of high-temperature supersonic turbulent channel flow of equilibrium air. AIP Advances, 2018, 8, 115325.	1.3	5
80	Theoretical Solutions for Dynamic Characteristics of Spiral-Grooved Liquid Seals. Tribology Transactions, 2019, 62, 22-33.	2.0	5
81	Evolution Characteristics of Separated Vortices and Near-Wall Flow in a Centrifugal Impeller in an Off-Designed Condition. Applied Sciences (Switzerland), 2020, 10, 8209.	2.5	5
82	Numerical Analysis to the Effect of Guiding Plate on Flow Characteristics in a Ball Valve. Processes, 2020, 8, 69.	2.8	5
83	Analysis of unsteady flow and fluid exciting forces of multistage centrifugal pump based on actual size. Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy, 2022, 236, 21-32.	1.4	5
84	Effect of Incident Angle of Wear-Ring Clearance on Pressure Pulsation and Vibration Performance of Centrifugal Pump. Frontiers in Energy Research, 2022, 10, .	2.3	5
85	Transient Regulating Characteristics of V-Port Ball Valve in Opening and Closing Process. Journal of Fluids Engineering, Transactions of the ASME, 2022, , .	1.5	5
86	Numerical simulation and analysis of flow characteristics in the front chamber of a centrifugal pump. Journal of Mechanical Science and Technology, 2017, 31, 5131-5140.	1.5	4
87	Reduction of aerodynamic noise of single-inlet centrifugal fan with inclined volute tongue. Measurement and Control, 2020, 53, 1376-1387.	1.8	4
88	The effect of solid particle size and concentrations on internal flow and external characteristics of the dense fine particles solid-liquid two-phase centrifugal pump under low flow condition. AIP Advances, 2021, 11, 085309.	1.3	4
89	Instability analysis for a centrifugal pump with straight inlet pipe using partially averaged Navier-Stokes model. Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy, 2021, 235, 211-226.	1.4	4
90	Flow Characteristics and Energy Loss of a Multistage Centrifugal Pump with Blade-Type Guide Vanes. Journal of Marine Science and Engineering, 2022, 10, 180.	2.6	4

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91	Effects of particle size and liquid film viscosity on characteristics of particles colliding with dry and wet walls. <i>Physics of Fluids</i> , 2022, 34, .	4.0	4
92	Solidâ€“liquid two-phase flow and erosion calculation of butterfly valves at small opening based on DEM method. <i>Industrial Lubrication and Tribology</i> , 2021, 73, 414-421.	1.3	3
93	Large Eddy Simulation of Periodic Transient Pressure Fluctuation in a Centrifugal Pump Impeller at Low Flow Rate. <i>Symmetry</i> , 2021, 13, 311.	2.2	3
94	Studies of cavitation characteristics of inducers with different blade numbers. <i>AIP Advances</i> , 2021, 11, .	1.3	3
95	Effect of liquid layer on the motion of particle during oblique wet collision. <i>Advanced Powder Technology</i> , 2021, 32, 3259-3267.	4.1	3
96	Small-scale fluctuation and scaling law of mixing in three-dimensional rotating turbulent Rayleigh-Taylor instability. <i>Physical Review E</i> , 2022, 105, 015103.	2.1	3
97	Experimental Study on Operational Stability of Centrifugal Pumps of Varying Impeller Types Based on External Characteristic, Pressure Pulsation and Vibration Characteristic Tests. <i>Frontiers in Energy Research</i> , 2022, 10, .	2.3	3
98	Blade shape optimization and internal-flow characteristics of the backward non-volute centrifugal fan. <i>Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy</i> , 2022, 236, 673-688.	1.4	3
99	Numerical Analysis of Droplet Impact on the Convex Surface with Liquid Film. <i>Langmuir</i> , 2022, 38, 7593-7602.	3.5	3
100	Theoretical Solutions for Dynamic Characteristics of Liquid Annular Seals with Herringbone Grooves on the Stator Based on Bulk-Flow Theory. <i>Science and Technology of Nuclear Installations</i> , 2018, 2018, 1-13.	0.8	2
101	Characteristics of Ammonia Oxidation in a Dielectric Barrier Discharge Reactor. <i>IEEE Transactions on Plasma Science</i> , 2020, 48, 3616-3620.	1.3	2
102	Study on the eccentric jet-flow characteristics induced by the opening regulation with a gate valve. <i>Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science</i> , 2021, 235, 5353-5364.	2.1	2
103	Experiments on Pressure Distribution of a Low Specific-Speed Centrifugal Pump with Atypical Open Impeller. <i>Journal of Chemical Engineering of Japan</i> , 2020, 53, 237-245.	0.6	2
104	Comparative analysis of transient valve-induced flow characteristics between opening and closing processes. <i>Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering</i> , 2022, 236, 1319-1329.	2.5	2
105	Numerical study on flow and wear characteristics of dense fine particle solidâ€“liquid two-phase flow in centrifugal pump. <i>AIP Advances</i> , 2022, 12, .	1.3	2
106	Numerical investigation on buoyancy-driven flow over a circular cylinder in a channel with nonparallel walls. <i>Numerical Heat Transfer; Part A: Applications</i> , 2022, 82, 299-316.	2.1	2
107	Void fraction and pressure drop of hydrocarbon mixture during condensation in a helically coiled tube. <i>International Journal of Heat and Mass Transfer</i> , 2021, 178, 121618.	4.8	1
108	Correlation between the Internal Flow Pattern and the Blade Load Distribution of the Centrifugal Impeller. <i>Machines</i> , 2022, 10, 40.	2.2	1

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109	Temporal Evolution and Scaling of Mixing in Turbulent Thermal Convection for Inhomogeneous Boundary Conditions. <i>Advances in Applied Mathematics and Mechanics</i> , 2017, 9, 1035-1051.	1.2	0
110	Numerical Analyses of Static Characteristics of Liquid Annular Seals Based on 2D LBM-LES Model. <i>Shock and Vibration</i> , 2021, 2021, 1-11.	0.6	0
111	Effect of Rotation Speed and Flow Rate on Slip Factor in a Centrifugal Pump. <i>Shock and Vibration</i> , 2021, 2021, 1-14.	0.6	0
112	Numerical investigation on separated turbulent flow in a three-dimensional U-turn duct with spanwise diverging. <i>Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science</i> , 0, , 095440622110293.	2.1	0
113	Transient separation and fluctuation of turbulent flow in an axisymmetric U-turn channel perturbed by periodically passing gust inflow. <i>Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science</i> , 0, , 095440622210819.	2.1	0