Chaoqun Liu

List of Publications by Year
in descending order

150	4,199	147566	133063
papers	citations	31 h-index	59 g-index

156	156	156	864
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	New omega vortex identification method. Science China: Physics, Mechanics and Astronomy, 2016, 59, 1.	2.0	348
2	Rortexâ€”A new vortex vector definition and vorticity tensor and vector decompositions. Physics of Fluids, 2018, 30, .	1.6	330
3	Third generation of vortex identification methods: Omega and Liutex/Rortex based systems. Journal of Hydrodynamics, 2019, 31, 205-223.	1.3	291
4	Rortex and comparison with eigenvalue-based vortex identification criteria. Physics of Fluids, 2018, 30, .	1.6	225
5	New normalized Rortex/vortex identification method. Physics of Fluids, 2019, 31, .	1.6	128
6	Direct numerical simulation of flow separation around a NACA 0012 airfoil. Computers and Fluids, 2005, 34, 1096-1114.	1.3	120
7	Explicit formula for the Liutex vector and physical meaning of vorticity based on the Liutex-Shear decomposition. Journal of Hydrodynamics, 2019, 31, 464-474.	1.3	116
8	Determination of epsilon for Omega vortex identification method. Journal of Hydrodynamics, 2018, 30, 541-548.	1.3	115
9	Physics of turbulence generation and sustenance in a boundary layer. Computers and Fluids, 2014, 102, 353-384.	1.3	113
10	Microvortex generators in high-speed flow. Progress in Aerospace Sciences, 2012, 53, 30-45.	6.3	98
11	Definitions of vortex vector and vortex. Journal of Fluid Mechanics, 2018, 849, 312-339.	1.4	95
12	Modified normalized Rortex/vortex identification method. Physics of Fluids, 2019, 31, .	1.6	94
13	Numerical study of passive and active flow separation control over a NACA0012 airfoil. Computers and Fluids, 2008, 37, 975-992.	1.3	92
14	A selected review of vortex identification methods with applications. Journal of Hydrodynamics, 2018, 30, 767-779.	1.3	89
15	Weighted Compact Scheme for Shock Capturing. International Journal of Computational Fluid Dynamics, 2001, 15, 147-155.	0.5	76
16	Letter: Galilean invariance of Rortex. Physics of Fluids, 2018, 30, .	1.6	69
17	A Liutex based definition and identification of vortex core center lines. Journal of Hydrodynamics, 2019, 31, 445-454.	1.3	68
18	Multigrid Mapping and Box Relaxation for Simulation of the Whole Process of Flow Transition in 3D Boundary Layers. Journal of Computational Physics, 1995, 119, 325-341.	1.9	63

#	Article	IF	Citations
19	DNS Study on Vortex and Vorticity in Late Boundary Layer Transition. Communications in Computational Physics, 2017, 22, 441-459.	0.7	53
20	Rortex based velocity gradient tensor decomposition. Physics of Fluids, 2019, 31, .	1.6	50
21	An objective version of the Rortex vector for vortex identification. Physics of Fluids, 2019, 31, .	1.6	46
22	Parallel DNS for vortex structure of late stages of flow transition. Computers and Fluids, 2011, 45, 129-137.	1.3	45
23	Liutex (vortex) core definition and automatic identification for turbulence vortex structures. Journal of Hydrodynamics, 2019, 31, 857-863.	1.3	45
24	Comparisons and analyses of vortex identification between Omega method and Q criterion. Journal of Hydrodynamics, 2019, 31, 224-230.	1.3	44
25	Liutex theoretical system and six core elements of vortex identification. Journal of Hydrodynamics, 2020, 32, 197-211.	1.3	44
26	Study of Mechanism of Ring-Like Vortex Formation in Late Flow Transition. , 2010, , .		42
27	Objective Omega vortex identification method. Journal of Hydrodynamics, 2019, 31, 455-463.	1.3	39
28	Galilean invariance of Omega vortex identification method. Journal of Hydrodynamics, 2019, 31, 249-255.	1.3	38
29	LES for Supersonic Ramp Control Flow Using MVG at M=2.5 and Re?=1440. , 2010, , .		37
30	DNS for flow separation control around an airfoil by pulsed jets. Computers and Fluids, 2007, 36, 1040-1060.	1.3	34
31	Declining Angle Effects of the Trailing Edge of a Microramp Vortex Generator. Journal of Aircraft, 2010, 47, 2086-2095.	1.7	34
32	DNS study on Î›-vortex and vortex ring formation in flow transition at Mach number 0.5. Journal of Turbulence, 2014, 15, 1-21.	0.5	34
33	Correlation analysis on volume vorticity and vortex in late boundary layer transition. Physics of Fluids, 2018, 30, .	1.6	34
34	Numerical discovery and experimental confirmation of vortex ring generation by microramp vortex generator. Applied Mathematical Modelling, 2012, 36, 5700-5708.	2.2	33
35	Numerical study of micro-ramp vortex generator for supersonic ramp flow control at Mach 2.5. Shock Waves, 2017, 27, 79-96.	1.0	29
36	Study on vorticity structures in late flow transition. Physics of Fluids, 2018, 30, .	1.6	29

#	Article	IF	Citations
37	Explicit expressions for Rortex tensor and velocity gradient tensor decomposition. Physics of Fluids, 2019, 31, 081704.	1.6	29
38	Non-Reflecting Boundary Conditions for DNS in Curvilinear Coordinates. Fluid Mechanics and Its Applications, 1999, , 219-233.	0.1	29
39	Study on shock wave-vortex ring interaction by the micro vortex generator controlled ramp flow with turbulent inflow. Aerospace Science and Technology, 2013, 30, 226-231.	2.5	28
40	DNS study on mechanism of small length scale generation in late boundary layer transition. Physica D: Nonlinear Phenomena, 2012, 241, 11-24.	1.3	27
41	Numerical study on mechanisms of second sweep and positive spikes in transitional flow on a flat plate. Computers and Fluids, 2011, 40, 28-41.	1.3	26
42	An explicit expression for the calculation of the Rortex vector. Physics of Fluids, 2019, 31, .	1.6	26
43	New visualization method for vortex structure in turbulence by lambda2 and vortex filaments. Applied Mathematical Modelling, 2016, 40, 500-509.	2.2	25
44	Liutex similarity in turbulent boundary layer. Journal of Hydrodynamics, 2019, 31, 1259-1262.	1.3	25
45	Numerical and Experimental Investigations of the Supersonic Microramp Wake. AIAA Journal, 2014, 52, 1518-1527.	1.5	22
46	Direct Numerical Simulation of Boundary-Layer Receptivity for Subsonic Flow Around Airfoil. Fluid Mechanics and Its Applications, 1999, , 203-218.	0.1	22
47	Experimental and Numerical Study of Flow Topology Past Micro-Vortex Generators. , 2010, , .		19
48	Study on the ring-like vortical structure in MVG controlled supersonic ramp flow with different inflow conditions. Aerospace Science and Technology, 2014, 35, 106-115.	2.5	19
49	Spectrum study on unsteadiness of shock waveâ€“vortex ring interaction. Physics of Fluids, 2018, 30, .	1.6	19
50	Stretching and shearing contamination analysis for Liutex and other vortex identification methods. Advances in Aerodynamics, 2021, 3, .	1.3	19
51	Review of Micro Vortex Generators in High-Speed Flow. , 2011, , .		18
52	Numerical and Experimental Studies on the Separation Topology of the MVG Controlled Flow at M=2.5. , 2011, , .		18
53	Implicit LES for Supersonic Microramp Vortex Generator: New Discoveries and New Mechanisms. Modelling and Simulation in Engineering, 2011, 2011, 1-15.	0.4	18
54	Principal coordinates and principal velocity gradient tensor decomposition. Journal of Hydrodynamics, 2020, 32, 441-453.	1.3	18

#	Article	IF	Citations
55	Modified weighted compact scheme with global weights for shock capturing. Computers and Fluids, 2014, 96, 165-176.	1.3	17
56	Evolution of the vortex structures and turbulent spots at the late-stage of transitional boundary layers. Science China: Physics, Mechanics and Astronomy, 2011, 54, 986-990.	2.0	16
57	Investigation of correlation between vorticity, Q, <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si1.svg"><mml:msub><mml:mi>l</mml:mi><mml:mrow><mml:mi>c</mml:mi><mml:mi>i</mml:mi></mml:mrow></mml:msub></mml:math> <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si2.svg"><mml:msub><mml:mi>l</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:math>, <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si3.svg"><mml:msub><mml:mi>l</mml:mi><mml:mi>ci</mml:mi></mml:msub></mml:math> and λ2	1.3	16
58	LES and analyses on the vortex structure behind supersonic MVG with turbulent inflow. Applied Mathematical Modelling, 2014, 38, 196-211.	2.2	15
59	Physics of multiple level hairpin vortex structures in turbulence. Science China: Physics, Mechanics and Astronomy, 2016, 59, 1.	2.0	15
60	POD analysis on vortical structures in MVG wake by Liutex core line identification. Journal of Hydrodynamics, 2020, 32, 497-509.	1.3	15
61	Liutex based new fluid kinematics. Journal of Hydrodynamics, 2022, 34, 355-371.	1.3	15
62	Large-eddy simulation of wing tip vortex in the near field. International Journal of Computational Fluid Dynamics, 2008, 22, 289-330.	0.5	14
63	Numerical Study of Mechanism of U-Shaped Vortex Formation. , 2011, , .		14
64	Numerical study on U-shaped vortex formation in late boundary layer transition. Computers and Fluids, 2012, 55, 36-47.	1.3	14
65	Study on multiple ring-like vortex formation and small vortex generation in late flow transition on a flat plate. Theoretical and Computational Fluid Dynamics, 2013, 27, 41-70.	0.9	14
66	Prediction of the precessing vortex core in the Francis-99 draft tube under off-design conditions by using Liutex/Rortex method. Journal of Hydrodynamics, 2020, 32, 623-628.	1.3	14
67	DNS Study on Physics of Late Boundary Layer Transition. , 2012, , .		13
68	ILES for mechanism of ramp-type MVG reducing shock induced flow separation. Science China: Physics, Mechanics and Astronomy, 2016, 59, 1.	2.0	13
69	Liutex core line and POD analysis on hairpin vortex formation in natural flow transition. Journal of Hydrodynamics, 2020, 32, 1109-1121.	1.3	13
70	Instability-wave propagation in boundary-layer flows at subsonic through hypersonic Mach numbers. Mathematics and Computers in Simulation, 2004, 65, 469-487.	2.4	12
71	High performance computation for DNS/LES. Applied Mathematical Modelling, 2006, 30, 1143-1165.	2.2	12
72	Numerical and theoretical study on â€˜vortex breakdownâ€™. International Journal of Computer Mathematics, 2011, 88, 3702-3708.	1.0	12

#	Article	IF	Citations
73	New ideas on governing equations of fluid dynamics. Journal of Hydrodynamics, 2021, 33, 861-866.	1.3	12
74	Numerical Investigations on the Effects of the Declining Back-Edge of MVG. , 2010, , .		10
75	Study on the initial evolution of ring-like vortices generated by MVG. CEAS Aeronautical Journal, 2013, 4, 433-442.	0.9	10
76	Mathematical foundation of turbulence generationâ€"From symmetric to asymmetric Liutex. Journal of Hydrodynamics, 2019, 31, 632-636.	1.3	10
77	Evolution of the ring-like vortices and spike structure in transitional boundary layers. Science China: Physics, Mechanics and Astronomy, 2010, 53, 514-520.	2.0	9
78	DNS for Late Stage Structure of Flow Transition on a Flat-Plate Boundary Layer. , 2010, , .		9
79	Numerical Study of Mechanism of Small Vortex Generation in Boundary Layer Transition. , 2011, , .		9
80	Numerical, Experimental and Theoretical Studies on Mechanism of K-H Instability and Ring Generation behind Supersonic MVG. , 2011, , .		9
81	New Findings by High-Order DNS for Late Flow Transition in a Boundary Layer. Modelling and Simulation in Engineering, 2011, 2011, 1-16.	0.4	9
82	DNS study on the formation of Lambda rotational core and the role of TS wave in boundary layer transition. Journal of Turbulence, 2016, 17, 572-601.	0.5	9
83	New theory on turbulence generation and structureâ€"DNS and experiment. Science China: Physics, Mechanics and Astronomy, 2017, 60, 1.	2.0	9
84	Correlation analysis among vorticity, Q method and Liutex. Journal of Hydrodynamics, 2020, 32, 1207-1211.	1.3	9
85	Separation Topology of Microramp Vortex Generator Controlled Flow at Mach Number 2.5. Journal of Aircraft, 2015, 52, 2095-2100.	1.7	8
86	Liutex (vorex) cores in transitional boundary layer with spanwise-wall oscillation. Journal of Hydrodynamics, 2019, 31, 1178-1189.	1.3	8
87	Interaction of Microvortex Generator Flow with Ramp-Induced Shock/Boundary-Layer Interactions. , 2011, , .		7
88	New Theories on Boundary Layer Transition and Turbulence Formation. Modelling and Simulation in Engineering, 2012, 2012, 1-22.	0.4	7
89	Shear Layer Stability Analysis in Later Boundary Layer Transition and MVG controlled flow. , 2013, , .		7
90	New Vortex Identification Method and Vortex Ring Development Analysis in Boundary Layer Transition. , 2016, , .		7

#	Article	IF	Citations
91	DNS Study on Three Vortex Identification Methods. , 2017, , .		7
92	New governing equations for fluid dynamics. AIP Advances, 2021, 11, .	0.6	7
93	LES Study on Mechanism of Reduction of Shock Induced Flow Separation by MVG. , 2015, , .		6
94	DNS study on bursting and intermittency in late boundary layer transition. Science China: Physics, Mechanics and Astronomy, 2017, 60, 1.	2.0	6
95	Simulation of natural convection in an inclined polar cavity using a finite-difference lattice Boltzmann method. Journal of Mechanical Science and Technology, 2017, 31, 3053-3065.	0.7	6
96	Correlation between vorticity, Liutex and shear in boundary layer transition. Computers and Fluids, 2022, 238, 105371.	1.3	6
97	LES investigation into the generation of momentum deficits in the supersonic wake of a micro-ramp. Journal of Mechanical Science and Technology, 2014, 28, 1327-1337.	0.7	5
98	New fluid kinematics. Journal of Hydrodynamics, 2021, 33, 395-399.	1.3	5
99	LES Study on Mechanism of Vortex Rings behind Supersonic MVG with Turbulent Inflow. , 2012, , .		5
100	Numerical investigation on mechanism of multiple vortex rings formation in late boundary-layer transition. Computers and Fluids, 2013, 71, 156-168.	1.3	4
101	Numerical investigation on chaos in late boundary layer transition to turbulence. Computers and Fluids, 2014, 91, 68-76.	1.3	4
102	Numerical Discovery and Experimental Validation of Vortex Ring Generation by Microramp Vortex Generator. , 2012, , 403-408.		4
103	Numerical Study on Randomization in Late Boundary Layer Transition. , 2012, , .		4
104	Truncation error, dissipation and dispersion terms of fifth order WENO and of WCS for 1D conservation law. International Journal of Computer Mathematics, 2010, 87, 339-352.	1.0	3
105	The Interaction between Vortex Rings and Oblique Shocks by the MVG Controlled Ramp Flow at M=2.5. , 2011, , .		3
106	Numerical and Experimental Investigations of the Flow behind a Supersonic Micro-Ramp. , 2013, , .		3
107	The Vortical Structures in the Rear Separation and Wake Produced by a Supersonic Micro-Ramp. Flow, Turbulence and Combustion, 2014, 93, 25-36.	1.4	3
108	DNS Study on Role of Linearly Unstable Modes in Flow Transition. , 2015, , .		3

#	Article	IF	Citations
109	LES Analysis on Shock-Vortex Ring Interaction. , 2016, , .		3
110	LES Study on Unsteadiness of Shock Boundary Layer Interaction. , 2017, , .		3
111	POD Analyses on Vortex Structure in Late-stage Transition. , 2018, , .		3
112	Liutex and Third Generation of Vortex Identification Methods. , 2021, , 3-36.		3
113	Introduction of Liutex and Third Generation of Vortex Identification Methods. , 2022, , .		3
114	Numerical Simulation for Flow Separation Control with Pulsed Vortex Generator Jets. , 2003, , .		2
115	Modified Upwinding Compact Scheme for Shock and Shock Boundary Layer Interaction. Communications in Computational Physics, 2012, 11, 1022-1042.	0.7	2
116	Further Investigation on Shock Wave -Vortex Ring Interaction by the MVG Controlled Ramp Flow. , 2013, , .		2
117	DNS Study on Hairpin Vortex Structure in Turbulence. , 2015, , .		2
118	Construction Methodology of Weighted Upwind Compact Scheme. , 2016, , .		2
119	POD Study on vortex Structures in MVG wake. , 2019, , .		2
120	POD Analysis of Losing Symmetry in Late Flow Transition. , 2019, , .		2
121	Dimensional and Theoretical Analysis of Second-Generation Vortex Identification Methods. , 2021, , 57-70.		2
122	Numerical Study on Mechanism of Multiple Ring Formation. , 2012, , .		2
123	Proper Orthogonal Decomposition Analysis of Coherent Structure in a Turbulent Flow after a Micro-vortex Generator. Applied Mathematical Modelling, 2022, 104, 140-162.	2.2	2
124	LES for near field wakes behind junction of wing and plate. Journal of Hydrodynamics, 2006, 18, 270-274.	1.3	1
125	Verification and Validation of LES for Interaction of Wingtip Vortex and Wakes. , 2008, , .		1
126	High-order compact scheme for boundary points. International Journal of Computer Mathematics, 2010, 87, 1795-1819.	1.0	1

#	Article	IF	Citations
127	Study on Shock wave-Vortex Ring Interaction by the MVG Controlled Ramp Flow with Turbulence inlet from DNS. , 2012, , .		1
128	Self-Contradictions of Current Turbulence Theory and Liuâ€™s New Turbulence Generation Theory. , 0, , .		1
129	Optimization of MVG Position for Control of Shock Boundary Layer Interaction. , 2015, , .		1
130	Analysis on Î›-vortex development in a transitional boundary layer. , 2016, , .		1
131	DNS Study on Motion around a Vortex Ring in Transitional Boundary Layers. , 2016, , .		1
132	DNS study on large vortex ring formation in late flow transition. , 2018, , .		1
133	Influence of Different Inlet Flow on the Ring-like Vortex Structure in MVG Controlled Supersonic Ramp Flow. , 2014, , .		1
134	Liutex-Core-Tubes for Vortex Structure. , 2022, , .		1
135	Investigation of vortex motion mechanism of synthetic jet in a cross flow. AIP Advances, 2022, 12, 035045.	0.6	1
136	TRUNCATION ERROR REDUCTION METHOD FOR POISSON EQUATION. Modern Physics Letters B, 2005, 19, 1555-1558.	1.0	0
137	Les for near field wakes behind junction of wing and plate. Journal of Hydrodynamics, 2006, 18, 265-268.	1.3	0
138	LES for Interaction of Wingtip Vortex and Wakes. , 2007, , .		0
139	DNS Study of Turbulence Structure in a Boundary Layer. , 2014, , .		0
140	Self-Contradictions in Classical and Current Turbulence Theory and New Turbulence Genearation Theory. , 2016, , .		0
141	Numerical Investigation on the Oblique Shock and High-speed Vortex Rings Interaction. , 2017, , .		0
142	Spectrum analysis of SWBLI under ramp-type MVG control. , 2017, , .		0
143	Observation of the development of -vortex to hairpin vortex packet. , 2017, , .		0
144	LES Study on Structure Characteristics of Shock/Vortex Ring Interaction. , 2018, , .		0

#	Article	IF	Citations
145	Frequency Investigation on Unsteadiness of Shock-Vortex Ring Interaction. , 2018, , .		0
146	Some Applications of CFD With Examples. , 2018, , 291-367.		0
147	Analysis of Difference Between Liutex and Î»ci. , 2021, , 183-197.		0
148	Micro-Ramp Wake Structures Identified by Liutex. , 2021, , 279-288.		0
149	Mathematical Study on Local Fluid Rotation Axis: Vorticity is Not the Rotation Axis. , 2021, , 71-84.		0
150	Liutex and Proper Orthogonal Decomposition for Coherence Structure in the Wake of Micro Vortex Generator. , 2021, , 227-238.		0