Xuesong Wu

List of Publications by Year in descending order

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65 papers	1,524 citations	236833 25 h-index	330025 37 g-index
65 all docs	65 docs citations	65 times ranked	441 citing authors

#	Article	IF	Citations
1	On the weakly nonlinear three-dimensional instability of shear layers to pairs of oblique waves: the Stokes layer as a paradigm. Journal of Fluid Mechanics, 1993, 253, 681.	1.4	83
2	Excitation of steady and unsteady GÃ¶rtler vortices by free-stream vortical disturbances. Journal of Fluid Mechanics, 2011, 682, 66-100.	1.4	80
3	Evolution and instability of unsteady nonlinear streaks generated by free-stream vortical disturbances. Journal of Fluid Mechanics, 2011, 677, 1-38.	1.4	73
4	Receptivity of boundary layers with distributed roughness to vortical and acoustic disturbances: a second-order asymptotic theory and comparison with experiments. Journal of Fluid Mechanics, 2001, 431, 91-133.	1.4	71
5	Response of a compressible laminar boundary layer to free-stream vortical disturbances. Journal of Fluid Mechanics, 2007, 587, 97-138.	1.4	67
6	The nonlinear evolution of high-frequency resonant-triad waves in an oscillatory Stokes layer at high Reynolds number. Journal of Fluid Mechanics, 1992, 245, 553.	1.4	56
7	Linear and nonlinear instabilities of a Blasius boundary layer perturbed by streamwise vortices. Part 2. Intermittent instability induced by long-wavelength Klebanoff modes. Journal of Fluid Mechanics, 2003, 483, 249-286.	1.4	53
8	Combustion instability due to the nonlinear interaction between sound and flame. Journal of Fluid Mechanics, 2003, 497, 23-53.	1.4	50
9	Generation of Tollmienâ€“Schlichting waves by convecting gusts interacting with sound. Journal of Fluid Mechanics, 1999, 397, 285-316.	1.4	46
10	A local scattering theory for the effects of isolated roughness on boundary-layer instability and transition: transmission coefficient as an eigenvalue. Journal of Fluid Mechanics, 2016, 794, 68-108.	1.4	44
11	A critical-layer analysis of the resonant triad in boundary-layer transition: nonlinear interactions. Journal of Fluid Mechanics, 1993, 256, 85-106.	1.4	41
12	On continuous spectra of the Orrâ€“Sommerfeld/Squire equations and entrainment of free-stream vortical disturbances. Journal of Fluid Mechanics, 2013, 732, 616-659.	1.4	40
13	Interaction of phase-locked modes: a new mechanism for the rapid growth of three-dimensional disturbances. Journal of Fluid Mechanics, 1996, 316, 335-372.	1.4	39
14	Nonlinear evolution and secondary instability of steady and unsteady GÃ¶rtler vortices induced by free-stream vortical disturbances. Journal of Fluid Mechanics, 2017, 829, 681-730.	1.4	38
15	Nonlinear Theories for Shear Flow Instabilities: Physical Insights and Practical Implications. Annual Review of Fluid Mechanics, 2019, 51, 451-485.	10.8	38
16	On local boundary-layer receptivity to vortical disturbances in the free stream. Journal of Fluid Mechanics, 2001, 449, 373-393.	1.4	37
17	Low-frequency sound radiated by a nonlinearly modulated wavepacket of helical modes on a subsonic circular jet. Journal of Fluid Mechanics, 2009, 637, 173-211.	1.4	37
18	On the linear instability of a finite Stokes layer: Instantaneous versus Floquet modes. Physics of Fluids, 2010, 22, .	1.6	35

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19	Acoustic radiation of Tollmienâ€“Schlichting waves as they undergo rapid distortion. Journal of Fluid Mechanics, 2006, 550, 307.	1.4	34
20	Linear and nonlinear instabilities of a Blasius boundary layer perturbed by streamwise vortices. Part 1. Steady streaks. Journal of Fluid Mechanics, 2003, 483, 225-248.	1.4	31
21	Mach wave radiation of nonlinearly evolving supersonic instability modes in shear layers. Journal of Fluid Mechanics, 2005, 523, 121-159.	1.4	31
22	Viscous effects on fully coupled resonant-triad interactions: an analytical approach. Journal of Fluid Mechanics, 1995, 292, 377-407.	1.4	30
23	Nonlinear temporal-spatial modulation of near-planar Rayleigh waves in shear flows: formation of streamwise vortices. Journal of Fluid Mechanics, 1993, 256, 685-719.	1.4	27
24	The behaviour of Tollmienâ€“Schlichting waves undergoing small-scale localised distortions. Journal of Fluid Mechanics, 2016, 792, 499-525.	1.4	27
25	Receptivity of inviscid modes in supersonic boundary layers due to scattering of free-stream sound by localised wall roughness. Journal of Fluid Mechanics, 2020, 896, .	1.4	26
26	Entrainment of short-wavelength free-stream vortical disturbances in compressible and incompressible boundary layers. Journal of Fluid Mechanics, 2016, 797, 683-728.	1.4	25
27	Nonlinear unsteady streaks engendered by the interaction of free-stream vorticity with a compressible boundary layer. Journal of Fluid Mechanics, 2017, 817, 80-121.	1.4	24
28	On the catalytic role of the phase-locked interaction of Tollmienâ€“Schlichting waves in boundary-layer transition. Journal of Fluid Mechanics, 2007, 590, 265-294.	1.4	22
29	Response and receptivity of the hypersonic boundary layer past a wedge to free-stream acoustic, vortical and entropy disturbances. Journal of Fluid Mechanics, 2016, 797, 874-915.	1.4	21
30	Generation of first Mack modes in supersonic boundary layers by slow acoustic waves interacting with streamwise isolated wall roughness. Journal of Fluid Mechanics, 2020, 888, .	1.4	21
31	On generation of sound in wall-bounded shear flows: back action of sound and global acoustic coupling. Journal of Fluid Mechanics, 2011, 689, 279-316.	1.4	20
32	Linear and weakly nonlinear instability of a premixed curved flame under the influence of its spontaneous acoustic field. Journal of Fluid Mechanics, 2014, 758, 180-220.	1.4	19
33	Generation of sound and instability waves due to unsteady suction and injection. Journal of Fluid Mechanics, 2002, 453, 289-313.	1.4	15
34	On the weakly nonlinear development of Tollmien-Schlichting wavetrains in boundary layers. Journal of Fluid Mechanics, 1996, 323, 133-171.	1.4	13
35	On an active resonant triad of mixed modes in symmetric shear flows: a plane wake as a paradigm. Journal of Fluid Mechanics, 1996, 317, 337-368.	1.4	13
36	A non-perturbative approach to spatial instability of weakly non-parallel shear flows. Physics of Fluids, 2015, 27, 054102.	1.6	13

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37	Nonlinear dynamics of large-scale coherent structures in turbulent free shear layers. Journal of Fluid Mechanics, 2016, 787, 396-439.	1.4	13
38	A local scattering approach for the effects of abrupt changes on boundary-layer instability and transition: a finite-Reynolds-number formulation for isolated distortions. Journal of Fluid Mechanics, 2017, 822, 444-483.	1.4	12
39	GÃ¶rtler vortices and streaks in boundary layer subject to pressure gradient: excitation by free stream vortical disturbances, nonlinear evolution and secondary instability. Journal of Fluid Mechanics, 2020, 900, .	1.4	12
40	Instability of a stratified boundary layer and its coupling with internal gravity waves. Part 1. Linear and nonlinear instabilities. Journal of Fluid Mechanics, 2008, 595, 379-408.	1.4	11
41	Instability of a stratified boundary layer and its coupling with internal gravity waves. Part 2. Coupling with internal gravity waves via topography. Journal of Fluid Mechanics, 2008, 595, 409-433.	1.4	11
42	Flame-acoustic resonance initiated by vortical disturbances. Journal of Fluid Mechanics, 2009, 634, 321.	1.4	11
43	Spectral broadening and flow randomization in free shear layers. Journal of Fluid Mechanics, 2012, 706, 431-469.	1.4	11
44	Stationary crossflow vortices near the leading edge of three-dimensional boundary layers: the role of non-parallelism and excitation by surface roughness. Journal of Fluid Mechanics, 2018, 845, 93-140.	1.4	11
45	Nonlinear evolution and acoustic radiation of coherent structures in subsonic turbulent free shear layers. Journal of Fluid Mechanics, 2020, 884, .	1.4	11
46	On the nonlinear evolution of a pair of oblique Tollmienâ€“Schlichting waves in boundary layers. Journal of Fluid Mechanics, 1997, 340, 361-394.	1.4	10
47	Influence of small imperfections on the stability of plane Poiseuille flow: A theoretical model and direct numerical simulation. Physics of Fluids, 2004, 16, 2852-2863.	1.6	10
48	Large-activation-energy theory for premixed combustion under the influence of enthalpy fluctuations. Journal of Fluid Mechanics, 2010, 655, 3-37.	1.4	8
49	Nonlinear development of subsonic modes on compressible mixing layers: a unified strongly nonlinear critical-layer theory. Journal of Fluid Mechanics, 2008, 614, 105-144.	1.4	7
50	Receptivity of supersonic boundary layers over smooth and wavy surfaces to impinging slow acoustic waves. Journal of Fluid Mechanics, 2019, 872, 849-888.	1.4	7
51	Asymptotic approach to combustion instability. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2005, 363, 1247-1259.	1.6	5
52	Effects of distributed roughness on crossflow instability through generalized resonanceÂmechanisms. Journal of Fluid Mechanics, 2019, 858, 787-831.	1.4	5
53	Effects of streamwise-elongated and spanwise-periodic surface roughness elements on boundary-layer instability. Journal of Fluid Mechanics, 2020, 899, .	1.4	5
54	Surface-Roughness Effects on Crossflow Instability of Swept-Wing Boundary Layers Through Generalized Resonances. AIAA Journal, 2022, 60, 2887-2904.	1.5	5

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55	First-principle description of acoustic radiation of shear flows. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2019, 377, 20190077.	1.6	4
56	Receptivity of inviscid modes in supersonic boundary layers to wall perturbations. Journal of Engineering Mathematics, 2021, 128, 1.	0.6	3
57	Elevated low-frequency free-stream vortical disturbances eliminate boundary-layer separation. Journal of Fluid Mechanics, 2021, 920, .	1.4	3
58	Nonlinear evolution and low-frequency acoustic radiation of ring-mode coherent structures on subsonic turbulent circular jets. Journal of Fluid Mechanics, 2022, 940, .	1.4	3
59	On the role of acoustic feedback in boundary-layer instability. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130347.	1.6	2
60	Effects of spanwise-periodic surface heating on supersonic boundary-layer instability. Journal of Fluid Mechanics, 2022, 940, .	1.4	2
61	Non-Parallel-Flow Effects on Stationary Crossflow Vortices at Their Genesis. Procedia IUTAM, 2015, 14, 311-320.	1.2	1
62	Nonlinear evolution of interacting sinuous and varicose modes in plane wakes and jets: Quasi-periodic structures. Physics of Fluids, 2020, 32, 064104.	1.6	1
63	Preface. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2008, 366, 2645-2648.	1.6	0
64	The role of acoustic feedback in boundary-layer instability. , 2013, , .		0
65	Triadic Resonance Analysis of Distributed Roughness Effects on Crossflow Instability in Swept-Wing Boundary Layers. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2022, , 825-836.	0.1	0