

# Xuesong Wu

## List of Publications by Citations

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61

papers

1,107

citations

21

h-index

31

g-index

65

ext. papers

1,380

ext. citations

3.9

avg, IF

4.95

L-index

#	Paper	IF	Citations
61	On the weakly nonlinear three-dimensional instability of shear layers to pairs of oblique waves: the Stokes layer as a paradigm. <i>Journal of Fluid Mechanics</i> , <b>1993</b> , 253, 681	3.7	67
60	Receptivity of boundary layers with distributed roughness to vortical and acoustic disturbances: a second-order asymptotic theory and comparison with experiments. <i>Journal of Fluid Mechanics</i> , <b>2001</b> , 431, 91-133	3.7	58
59	Excitation of steady and unsteady Görtler vortices by free-stream vortical disturbances. <i>Journal of Fluid Mechanics</i> , <b>2011</b> , 682, 66-100	3.7	56
58	Evolution and instability of unsteady nonlinear streaks generated by free-stream vortical disturbances. <i>Journal of Fluid Mechanics</i> , <b>2011</b> , 677, 1-38	3.7	53
57	Response of a compressible laminar boundary layer to free-stream vortical disturbances. <i>Journal of Fluid Mechanics</i> , <b>2007</b> , 587, 97-138	3.7	49
56	The nonlinear evolution of high-frequency resonant-triad waves in an oscillatory Stokes layer at high Reynolds number. <i>Journal of Fluid Mechanics</i> , <b>1992</b> , 245, 553	3.7	47
55	Combustion instability due to the nonlinear interaction between sound and flame. <i>Journal of Fluid Mechanics</i> , <b>2003</b> , 497, 23-53	3.7	42
54	Generation of Tollmien-Schlichting waves by convecting gusts interacting with sound. <i>Journal of Fluid Mechanics</i> , <b>1999</b> , 397, 285-316	3.7	42
53	Linear and nonlinear instabilities of a Blasius boundary layer perturbed by streamwise vortices. Part 2. Intermittent instability induced by long-wavelength Klebanoff modes. <i>Journal of Fluid Mechanics</i> , <b>2003</b> , 483, 249-286	3.7	39
52	A critical-layer analysis of the resonant triad in boundary-layer transition: nonlinear interactions. <i>Journal of Fluid Mechanics</i> , <b>1993</b> , 256, 85-106	3.7	39
51	Interaction of phase-locked modes: a new mechanism for the rapid growth of three-dimensional disturbances. <i>Journal of Fluid Mechanics</i> , <b>1996</b> , 316, 335-372	3.7	34
50	On continuous spectra of the Orr-Sommerfeld/Squire equations and entrainment of free-stream vortical disturbances. <i>Journal of Fluid Mechanics</i> , <b>2013</b> , 732, 616-659	3.7	30
49	Low-frequency sound radiated by a nonlinearly modulated wavepacket of helical modes on a subsonic circular jet. <i>Journal of Fluid Mechanics</i> , <b>2009</b> , 637, 173-211	3.7	29
48	Linear and nonlinear instabilities of a Blasius boundary layer perturbed by streamwise vortices. Part 1. Steady streaks. <i>Journal of Fluid Mechanics</i> , <b>2003</b> , 483, 225-248	3.7	28
47	On local boundary-layer receptivity to vortical disturbances in the free stream. <i>Journal of Fluid Mechanics</i> , <b>2001</b> , 449, 373-393	3.7	28
46	Acoustic radiation of Tollmien-Schlichting waves as they undergo rapid distortion. <i>Journal of Fluid Mechanics</i> , <b>2006</b> , 550, 307	3.7	27
45	A local scattering theory for the effects of isolated roughness on boundary-layer instability and transition: transmission coefficient as an eigenvalue. <i>Journal of Fluid Mechanics</i> , <b>2016</b> , 794, 68-108	3.7	27

44	On the linear instability of a finite Stokes layer: Instantaneous versus Floquet modes. <i>Physics of Fluids</i> , <b>2010</b> , 22, 054106	4.4	26
43	Viscous effects on fully coupled resonant-triad interactions: an analytical approach. <i>Journal of Fluid Mechanics</i> , <b>1995</b> , 292, 377-407	3.7	25
42	Nonlinear temporal-spatial modulation of near-planar Rayleigh waves in shear flows: formation of streamwise vortices. <i>Journal of Fluid Mechanics</i> , <b>1993</b> , 256, 685-719	3.7	24
41	Mach wave radiation of nonlinearly evolving supersonic instability modes in shear layers. <i>Journal of Fluid Mechanics</i> , <b>2005</b> , 523, 121-159	3.7	23
40	Nonlinear Theories for Shear Flow Instabilities: Physical Insights and Practical Implications. <i>Annual Review of Fluid Mechanics</i> , <b>2019</b> , 51, 451-485	22	21
39	The behaviour of Tollmien-Schlichting waves undergoing small-scale localised distortions. <i>Journal of Fluid Mechanics</i> , <b>2016</b> , 792, 499-525	3.7	20
38	Nonlinear evolution and secondary instability of steady and unsteady Görtler vortices induced by free-stream vortical disturbances. <i>Journal of Fluid Mechanics</i> , <b>2017</b> , 829, 681-730	3.7	19
37	On the catalytic role of the phase-locked interaction of Tollmien-Schlichting waves in boundary-layer transition. <i>Journal of Fluid Mechanics</i> , <b>2007</b> , 590, 265-294	3.7	19
36	On generation of sound in wall-bounded shear flows: back action of sound and global acoustic coupling. <i>Journal of Fluid Mechanics</i> , <b>2011</b> , 689, 279-316	3.7	17
35	Response and receptivity of the hypersonic boundary layer past a wedge to free-stream acoustic, vortical and entropy disturbances. <i>Journal of Fluid Mechanics</i> , <b>2016</b> , 797, 874-915	3.7	16
34	Linear and weakly nonlinear instability of a premixed curved flame under the influence of its spontaneous acoustic field. <i>Journal of Fluid Mechanics</i> , <b>2014</b> , 758, 180-220	3.7	15
33	On an active resonant triad of mixed modes in symmetric shear flows: a plane wake as a paradigm. <i>Journal of Fluid Mechanics</i> , <b>1996</b> , 317, 337-368	3.7	12
32	Nonlinear unsteady streaks engendered by the interaction of free-stream vorticity with a compressible boundary layer. <i>Journal of Fluid Mechanics</i> , <b>2017</b> , 817, 80-121	3.7	11
31	Generation of sound and instability waves due to unsteady suction and injection. <i>Journal of Fluid Mechanics</i> , <b>2002</b> , 453, 289-313	3.7	11
30	On the weakly nonlinear development of Tollmien-Schlichting wavetrains in boundary layers. <i>Journal of Fluid Mechanics</i> , <b>1996</b> , 323, 133-171	3.7	11
29	Entrainment of short-wavelength free-stream vortical disturbances in compressible and incompressible boundary layers. <i>Journal of Fluid Mechanics</i> , <b>2016</b> , 797, 683-728	3.7	11
28	A local scattering approach for the effects of abrupt changes on boundary-layer instability and transition: a finite-Reynolds-number formulation for isolated distortions. <i>Journal of Fluid Mechanics</i> , <b>2017</b> , 822, 444-483	3.7	10
27	A non-perturbative approach to spatial instability of weakly non-parallel shear flows. <i>Physics of Fluids</i> , <b>2015</b> , 27, 054102	4.4	9

26	Flame-acoustic resonance initiated by vortical disturbances. <i>Journal of Fluid Mechanics</i> , <b>2009</b> , 634, 321	3-7	8
25	Nonlinear dynamics of large-scale coherent structures in turbulent free shear layers. <i>Journal of Fluid Mechanics</i> , <b>2016</b> , 787, 396-439	3-7	8
24	Receptivity of inviscid modes in supersonic boundary layers due to scattering of free-stream sound by localised wall roughness. <i>Journal of Fluid Mechanics</i> , <b>2020</b> , 896,	3-7	7
23	Large-activation-energy theory for premixed combustion under the influence of enthalpy fluctuations. <i>Journal of Fluid Mechanics</i> , <b>2010</b> , 655, 3-37	3-7	7
22	Spectral broadening and flow randomization in free shear layers. <i>Journal of Fluid Mechanics</i> , <b>2012</b> , 706, 431-469	3-7	7
21	On the nonlinear evolution of a pair of oblique Tollmien-Schlichting waves in boundary layers. <i>Journal of Fluid Mechanics</i> , <b>1997</b> , 340, 361-394	3-7	7
20	Instability of a stratified boundary layer and its coupling with internal gravity waves. Part 1. Linear and nonlinear instabilities. <i>Journal of Fluid Mechanics</i> , <b>2008</b> , 595, 379-408	3-7	7
19	Instability of a stratified boundary layer and its coupling with internal gravity waves. Part 2. Coupling with internal gravity waves via topography. <i>Journal of Fluid Mechanics</i> , <b>2008</b> , 595, 409-433	3-7	7
18	Influence of small imperfections on the stability of plane Poiseuille flow: A theoretical model and direct numerical simulation. <i>Physics of Fluids</i> , <b>2004</b> , 16, 2852-2863	4-4	7
17	Generation of first Mack modes in supersonic boundary layers by slow acoustic waves interacting with streamwise isolated wall roughness. <i>Journal of Fluid Mechanics</i> , <b>2020</b> , 888,	3-7	6
16	Nonlinear evolution and acoustic radiation of coherent structures in subsonic turbulent free shear layers. <i>Journal of Fluid Mechanics</i> , <b>2020</b> , 884,	3-7	6
15	Receptivity of supersonic boundary layers over smooth and wavy surfaces to impinging slow acoustic waves. <i>Journal of Fluid Mechanics</i> , <b>2019</b> , 872, 849-888	3-7	5
14	Nonlinear development of subsonic modes on compressible mixing layers: a unified strongly nonlinear critical-layer theory. <i>Journal of Fluid Mechanics</i> , <b>2008</b> , 614, 105-144	3-7	5
13	Asymptotic approach to combustion instability. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , <b>2005</b> , 363, 1247-59	3	5
12	Stationary crossflow vortices near the leading edge of three-dimensional boundary layers: the role of non-parallelism and excitation by surface roughness. <i>Journal of Fluid Mechanics</i> , <b>2018</b> , 845, 93-140	3-7	4
11	Görtler vortices and streaks in boundary layer subject to pressure gradient: excitation by free stream vortical disturbances, nonlinear evolution and secondary instability. <i>Journal of Fluid Mechanics</i> , <b>2020</b> , 900,	3-7	3
10	First-principle description of acoustic radiation of shear flows. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , <b>2019</b> , 377, 20190077	3	2
9	On the role of acoustic feedback in boundary-layer instability. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , <b>2014</b> , 372,	3	2

8	Effects of streamwise-elongated and spanwise-periodic surface roughness elements on boundary-layer instability. <i>Journal of Fluid Mechanics</i> , <b>2020</b> , 899,	3-7	2
7	Effects of distributed roughness on crossflow instability through generalized resonance mechanisms. <i>Journal of Fluid Mechanics</i> , <b>2019</b> , 858, 787-831	3-7	2
6	Non-Parallel-Flow Effects on Stationary Crossflow Vortices at Their Genesis. <i>Procedia IUTAM</i> , <b>2015</b> , 14, 311-320		1
5	Surface-Roughness Effects on Crossflow Instability of Swept-Wing Boundary Layers Through Generalized Resonances. <i>AIAA Journal</i> , 1-18	2.1	1
4	Receptivity of inviscid modes in supersonic boundary layers to wall perturbations. <i>Journal of Engineering Mathematics</i> , <b>2021</b> , 128, 1	1.2	1
3	Nonlinear evolution of interacting sinuous and varicose modes in plane wakes and jets: Quasi-periodic structures. <i>Physics of Fluids</i> , <b>2020</b> , 32, 064104	4-4	0
2	Theoretical fluid dynamics in the twenty-first century. Preface. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , <b>2008</b> , 366, 2645-8	3	
1	Triadic Resonance Analysis of Distributed Roughness Effects on Crossflow Instability in Swept-Wing Boundary Layers. <i>IUTAM Symposium on Cellular, Molecular and Tissue Mechanics</i> , <b>2022</b> , 825-836	0-3	