

# Xuesong Wu

## List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

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	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	
60	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
59	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
58	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
57	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
56	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
55	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
54	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
53	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
52	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
51	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
50	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
49	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
48	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
47	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
46	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
45	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

44	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
43	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
42	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
41	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
40	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
39	Non-Parallel-Flow Effects on Stationary Crossflow Vortices at Their Genesis. <i>Procedia IUTAM</i> , <b>2015</b> , 14, 311-320		1
38	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
37	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
36	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
35	Spectral broadening and flow randomization in free shear layers. <i>Journal of Fluid Mechanics</i> , <b>2012</b> , 706, 431-469	3-7	7
34	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
33	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
32	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
31	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
30	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
29	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
28	Flame-acoustic resonance initiated by vortical disturbances. <i>Journal of Fluid Mechanics</i> , <b>2009</b> , 634, 321	3-7	8
27	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

- 26 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 3-7 7
- 25 Nonlinear development of subsonic modes on compressible mixing layers: a unified strongly nonlinear critical-layer theory. *Journal of Fluid Mechanics*, **2008**, 614, 105-144 3-7 5
- 24 Theoretical fluid dynamics in the twenty-first century. Preface. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2008**, 366, 2645-8 3
- 23 On the catalytic role of the phase-locked interaction of Tollmien-Schlichting waves in boundary-layer transition. *Journal of Fluid Mechanics*, **2007**, 590, 265-294 3-7 19
- 22 Response of a compressible laminar boundary layer to free-stream vortical disturbances. *Journal of Fluid Mechanics*, **2007**, 587, 97-138 3-7 49
- 21 Acoustic radiation of Tollmien-Schlichting waves as they undergo rapid distortion. *Journal of Fluid Mechanics*, **2006**, 550, 307 3-7 27
- 20 Mach wave radiation of nonlinearly evolving supersonic instability modes in shear layers. *Journal of Fluid Mechanics*, **2005**, 523, 121-159 3-7 23
- 19 Asymptotic approach to combustion instability. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2005**, 363, 1247-59 3 5
- 18 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 4-4 7
- 17 Combustion instability due to the nonlinear interaction between sound and flame. *Journal of Fluid Mechanics*, **2003**, 497, 23-53 3-7 42
- 16 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 3-7 28
- 15 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 3-7 39
- 14 Generation of sound and instability waves due to unsteady suction and injection. *Journal of Fluid Mechanics*, **2002**, 453, 289-313 3-7 11
- 13 On local boundary-layer receptivity to vortical disturbances in the free stream. *Journal of Fluid Mechanics*, **2001**, 449, 373-393 3-7 28
- 12 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 3-7 58
- 11 Generation of Tollmien-Schlichting waves by convecting gusts interacting with sound. *Journal of Fluid Mechanics*, **1999**, 397, 285-316 3-7 42
- 10 On the nonlinear evolution of a pair of oblique Tollmien-Schlichting waves in boundary layers. *Journal of Fluid Mechanics*, **1997**, 340, 361-394 3-7 7
- 9 On the weakly nonlinear development of Tollmien-Schlichting wavetrains in boundary layers. *Journal of Fluid Mechanics*, **1996**, 323, 133-171 3-7 11

8	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
7	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
6	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
5	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
4	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
3	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
2	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
1	Surface-Roughness Effects on Crossflow Instability of Swept-Wing Boundary Layers Through Generalized Resonances. <i>AIAA Journal</i> , 1-18	2-1	1