Frank Smith

List of Publications by Year
in descending order

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141 papers	3,436 citations	136950 32 h-index	168389 53 g-index
141 all docs	141 docs citations	141 times ranked	867 citing authors

#	Article	IF	Citations
1	Modelling, computation and analysis on combustion of explosives. European Journal of Applied Mathematics, 2022, 33, 27-57.	2.9	0
2	The effect of inertia and vertical confinement on the flow past a circular cylinder in a Hele-Shaw configuration. Journal of Fluid Mechanics, 2022, 934, .	3.4	4
3	A heavy body translating in a boundary layer: â€˜crashâ€™, â€˜fly awayâ€™ and â€˜bouncingâ€™ responses. Journal of Fluid Mechanics, 2022, 936, .	3.4	3
4	Skimming impact of a thin heavy body on a shallow liquid layer. Journal of Fluid Mechanics, 2022, 940, .	3.4	3
5	A body in nonlinear near-wall shear flow: numerical results for a flat plate. Journal of Fluid Mechanics, 2021, 915, .	3.4	5
6	Particle movement in a boundary layer. Journal of Engineering Mathematics, 2021, 128, 1.	1.2	6
7	A smoothly curved body skimming on shallow water. Journal of Engineering Mathematics, 2021, 128, 1.	1.2	9
8	Pre-impact dynamics of a droplet impinging on a deformable surface. Physics of Fluids, 2021, 33, .	4.0	8
9	A body in nonlinear near-wall shear flow: impacts, analysis and comparisons. Journal of Fluid Mechanics, 2020, 904, .	3.4	9
10	Skimming impacts and rebounds of smoothly shaped bodies on shallow liquid layers. Journal of Engineering Mathematics, 2020, 124, 41-73.	1.2	5
11	When a small thin two-dimensional body enters a viscous wall layer. European Journal of Applied Mathematics, 2020, 31, 1002-1028.	2.9	8
12	Channel Flow Past A Near-Wall Body. Quarterly Journal of Mechanics and Applied Mathematics, 2019, 72, 359-385.	1.3	8
13	Stability of two competing populations in chemostat where one of the population changes its average mass of division in response to changes of its population. PLoS ONE, 2019, 14, e0213518.	2.5	1
14	A freely moving body in a boundary layer: Nonlinear separated-flow effects. Applied Ocean Research, 2019, 85, 107-118.	4.1	9
15	On Dynamic Interactions Between Body Motion and Fluid Motion. Studies in Systems, Decision and Control, 2019, , 45-89.	1.0	6
16	Shear flow over flexible three-dimensional patches in a surface. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2018, 376, 20170348.	3.4	1
17	Fluid flow lifting a body from a solid surface. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20180286.	2.1	6
18	Stretching hollow jets in potential flow. AIP Conference Proceedings, 2018, , .	0.4	0

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19	The impact of dynamic roughness elements on marginally separated boundary layers. Journal of Fluid Mechanics, 2018, 855, 351-370.	3.4	3
20	Modelling of sea-ice phenomena. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2018, 376, 20180157.	3.4	7
21	NONSYMMETRIC BRANCHING OF FLUID FLOWS IN 3D VESSELS. ANZIAM Journal, 2018, 59, 533-561.	0.2	0
22	Ice formation on a smooth or rough cold surface due to the impact of a supercooled water droplet. Journal of Engineering Mathematics, 2017, 102, 35-64.	1.2	17
23	Free motion of a body in a boundary layer or channel flow. Journal of Fluid Mechanics, 2017, 813, 279-300.	3.4	16
24	The impact of static and dynamic roughness elements on flow separation. Journal of Fluid Mechanics, 2017, 830, 35-62.	3.4	8
25	Rate effects on the growth of centres. European Journal of Applied Mathematics, 2017, 28, 221-242.	2.9	1
26	A simplified model of glycoprotein production within cell culture. European Journal of Applied Mathematics, 2017, 28, 535-561.	2.9	0
27	Inviscid and low-viscosity flows in multi-branching and reconnecting networks. Journal of Engineering Mathematics, 2017, 104, 1-18.	1.2	4
28	Flooding and sinking of an originally skimming body. Journal of Engineering Mathematics, 2017, 107, 37-60.	1.2	9
29	Movement of a finite body in channel flow. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2016, 472, 20160164.	2.1	13
30	Internal Fluid Dynamics. , 2016, , 135-168.		0
31	Improving Aircraft Safety in Icing Conditions. , 2016, , 145-151.		12
32	Interference in a three-dimensional array of jets. European Journal of Applied Mathematics, 2015, 26, 795-819.	2.9	0
33	Enhanced effects from tiny flexible in-wall blips and shear flow. Journal of Fluid Mechanics, 2015, 772, 16-41.	3.4	10
34	Collisions, rebounds and skimming. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130351.	3.4	9
35	Computational modelling of the embolization process for the treatment of arteriovenous malformations (AVMs). Mathematical and Computer Modelling, 2013, 57, 1312-1324.	2.0	12
36	Collisions, rebounds and skimming. , 2013, , .		0

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37	Body-rock or lift-off in flow. Journal of Fluid Mechanics, 2013, 735, 91-119.	3.4	15
38	Numerical and Analytical Study of Bladder-Collapse Flow. International Journal of Differential Equations, 2012, 2012, 1-14.	0.8	1
39	On internal fluid dynamics. Bulletin of Mathematical Sciences, 2012, 2, 125-180.	0.7	6
40	Wall shape effects on multiphase flow in channels. Theoretical and Computational Fluid Dynamics, 2012, 26, 339-360.	2.2	7
41	A Uniformly Valid Theory of Turbulent Separation. Springer Proceedings in Physics, 2012, , 85-89.	0.2	2
42	Fluidâ€"body interactions: clashing, skimming, bouncing. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 3007-3024.	3.4	14
43	Turbulent interactions for rotating blades and wakes. Journal of Engineering Mathematics, 2011, 69, 185-198.	1.2	2
44	Droplet Impact on to a Rough Surface. Quarterly Journal of Mechanics and Applied Mathematics, 2011, 64, 107-139.	1.3	25
45	Skimming impacts and rebounds on shallow liquid layers. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2011, 467, 653-674.	2.1	25
46	Break-away separation for high turbulence intensity and large Reynolds number. Journal of Fluid Mechanics, 2011, 670, 260-300.	3.4	21
47	ON INTERACTION BETWEEN FALLING BODIES AND THE SURROUNDING FLUID. Mathematika, 2010, 56, 140-168.	0.5	27
48	On the evolving flow of grains down a chute. Journal of Engineering Mathematics, 2010, 68, 233-247.	1.2	1
49	On turbulent separation. Journal of Engineering Mathematics, 2010, 68, 373-400.	1.2	10
50	SUPERCRITICAL TWOâ€FLUID INTERACTIONS WITH SURFACE TENSION AND GRAVITY. Mathematika, 2010, 56, 93-106.	0.5	2
51	The effects of nonsymmetry in a branching flow network. Journal of Engineering Mathematics, 2009, 63, 213-239.	1.2	9
52	Flow in a multi-branching vessel with compliant walls. Journal of Engineering Mathematics, 2009, 64, 353-365.	1.2	7
53	Surface tension effects on interaction between two fluids near a wall. Quarterly Journal of Mechanics and Applied Mathematics, 2008, 61, 117-128.	1.3	6
54	Multi-branching three-dimensional flow with substantial changes in vessel shapes. Journal of Fluid Mechanics, 2008, 614, 329-354.	3.4	11

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55	Trapping of air in impact between a body and shallow water. Journal of Fluid Mechanics, 2008, 611, 365-394.	3.4	44
56	Turbulent flow on a planar moving belt and a rotating disk: modelling and comparisons. Journal of Fluid Mechanics, 2007, 587, 255-270.	3.4	3
57	The development of the turbulent flow in a bent pipe. Journal of Fluid Mechanics, 2007, 578, 467-494.	3.4	2
58	Multi-branching flows from one mother tube to many daughters or to a network. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2005, 363, 1045-1055.	3.4	14
59	A three-dimensional pipe flow adjusts smoothly to the sudden onset of a bend. Physics of Fluids, 2005, 17, 048102.	4.0	2
60	Droplet impact on water layers: post-impact analysis and computations. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2005, 363, 1209-1221.	3.4	27
61	Droplet impact on a thin fluid layer. Journal of Fluid Mechanics, 2005, 542, 1.	3.4	71
62	Air-water interactions near droplet impact. European Journal of Applied Mathematics, 2004, 15, 853-871.	2.9	30
63	Influence of Surface Roughness on Shear Flow. Journal of Applied Mechanics, Transactions ASME, 2004, 71, 459-464.	2.2	4
64	Direct simulations and modelling of basic three-dimensional bifurcating tube flows. Journal of Fluid Mechanics, 2004, 519, 1-32.	3.4	25
65	Fluid flow through various branching tubes. Journal of Engineering Mathematics, 2003, 47, 277-298.	1.2	20
66	On generation of horseshoe vortices by corrugated surfaces, surface roughnesses or pipe bends. Journal of Engineering Mathematics, 2003, 45, 5-20.	1.2	2
67	Fluid motion for car undertrays in ground effect. Journal of Engineering Mathematics, 2003, 45, 309-334.	1.2	26
68	On the spiking stages in deep transition and unsteady separation. Journal of Engineering Mathematics, 2003, 45, 227-245.	1.2	25
69	What happens to pressure when a flow enters a side branch?. Journal of Fluid Mechanics, 2003, 479, 231-258.	3.4	33
70	Non-Local Interactions and Feedback Instability in a High Reynolds Number Flow. Theoretical and Computational Fluid Dynamics, 2003, 17, 1-18.	2.2	3
71	Air cushioning with a lubricationinviscid balance. Journal of Fluid Mechanics, 2003, 482, 291-318.	3.4	89
72	AVM modelling by multi-branching tube flow: large flow rates and dual solutions. Mathematical Medicine and Biology, 2003, 20, 183-204.	1.2	21

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73	Spreading of Nonuniform Jets in Wind. Journal of Fluids Engineering, Transactions of the ASME, 2002, 124, 694-699.	1.5	1
74	Rapid plunging of a body partly submerged in water. Journal of Engineering Mathematics, 2002, 42, 303-319.	1.2	3
75	Swirl-flow effects in a duct bending through a substantial angle. Journal of Engineering Mathematics, 2002, 43, 315-346.	1.2	3
76	On flow through bends and branchings. Biorheology, 2002, 39, 373-8.	0.4	1
77	On â€˜spotâ€™ evolution under an adverse pressure gradient. Journal of Fluid Mechanics, 2001, 430, 169-207.	3.4	4
78	Separating shear flow past a surface-mounted blunt obstacle. Journal of Engineering Mathematics, 2001, 39, 47-62.	1.2	10
79	On physical mechanisms in twoâ€“ and threeâ€“dimensional separations. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2000, 358, 3091-3111.	3.4	9
80	One-to-few and one-to-many branching tube flows. Journal of Fluid Mechanics, 2000, 423, 1-31.	3.4	22
81	Lifting multi-blade flows with interaction. Journal of Fluid Mechanics, 2000, 415, 203-226.	3.4	22
82	Wind-Up of a Spanwise Vortex in Deepening Transition and Stall. Theoretical and Computational Fluid Dynamics, 2000, 14, 135-165.	2.2	12
83	Interactive flow past multiple blades and wakes. Quarterly Journal of Mechanics and Applied Mathematics, 2000, 53, 207-251.	1.3	7
84	Flow past a twoâ€“ or threeâ€“dimensional steepâ€“edged roughness. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 1998, 454, 31-69.	2.1	17
85	Unsteady separation past moving surfaces. Journal of Fluid Mechanics, 1998, 375, 1-38.	3.4	58
86	Short-scale break-up in unsteady interactive layers: local development of normal pressure gradients and vortex wind-up. Journal of Fluid Mechanics, 1998, 374, 335-378.	3.4	39
87	On effects of increasing amplitude in a boundaryâ€layer spot. Mathematika, 1998, 45, 1-24.	0.5	1
88	Nonlinear evolution of Rayleigh waves in an initial value context: nonâ€symmetric input and crossâ€flow. Mathematika, 1998, 45, 217-243.	0.5	4
89	Singular modes in Rayleigh instability of three-dimensional streamwise-vortex flows. Journal of Fluid Mechanics, 1997, 333, 139-160.	3.4	3
90	Vortex/inflectional-wave interactions with weakly three-dimensional input. Journal of Fluid Mechanics, 1997, 348, 247-294.	3.4	3

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91	The onset of instability in unsteady boundary-layer separation. Journal of Fluid Mechanics, 1996, 315, 223-256.	3.4	53
92	Composite, Navier-Stokes and Euler unsteady-flow computations in boundary layers. Journal of Engineering Mathematics, 1996, 30, 307-320.	1.2	0
93	Short-scale effects on model boundary-layer spots. Journal of Fluid Mechanics, 1995, 295, 395.	3.4	10
94	Hypersonic aerodynamics on thin bodies with interaction and upstream influence. Journal of Fluid Mechanics, 1994, 277, 85-108.	3.4	9
95	Theoretical prediction and design for vortex generators in turbulent boundary layers. Journal of Fluid Mechanics, 1994, 270, 91-132.	3.4	31
96	Theory and computations for breakup of unsteady subsonic or supersonic separating flows. Journal of Fluid Mechanics, 1994, 268, 147-173.	3.4	6
97	On the nonlinear growth of single threeâ€dimensional disturbances in boundary layers. Mathematika, 1994, 41, 1-39.	0.5	3
98	The structure of a three-dimensional turbulent boundary layer. Journal of Fluid Mechanics, 1993, 250, 43-68.	3.4	33
99	On the starting process of strongly nonlinear vortex/Rayleighâ€wave interactions. Mathematika, 1993, 40, 7-29.	0.5	21
100	Three-dimensional nonlinear blow-up from a nearly planar initial disturbance, in boundary-layer transition: theory and experimental comparisons. Journal of Fluid Mechanics, 1992, 244, 79.	3.4	25
101	Properties of strongly nonlinear vortex/Tollmienâ€“Schlichting-wave interactions. Journal of Fluid Mechanics, 1992, 244, 649.	3.4	18
102	On turbulent separation in the flow past a bluff body. Journal of Fluid Mechanics, 1992, 241, 443-467.	3.4	32
103	The interactive breakdown in supersonic ramp flow. Journal of Fluid Mechanics, 1991, 224, 197-215.	3.4	38
104	Vortex-induced boundary-layer separation. Part 1. The unsteady limit problem Re [rightward arrow] [infty infinity]. Journal of Fluid Mechanics, 1991, 232, 99.	3.4	134
105	Vortex-induced boundary-layer separation. Part 2. Unsteady interacting boundary-layer theory. Journal of Fluid Mechanics, 1991, 232, 133.	3.4	106
106	Computations on flow past an inclined flat plate of finite length. Journal of Engineering Mathematics, 1990, 24, 311-321.	1.2	2
107	The inviscid instability of a Blasius boundary layer at large values of the Mach number. Journal of Fluid Mechanics, 1990, 219, 499.	3.4	58
108	Nonlinear interaction of nearâ€planar TS waves and longitudinal vortices in boundaryâ€layer transition. Mathematika, 1989, 36, 262-289.	0.5	33

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109	Linear instability of the wake behind a flat plate placed parallel to a uniform stream. Journal of Fluid Mechanics, 1989, 208, 67-89.	3.4	49
110	Stability of Long's vortex at large flow force. Journal of Fluid Mechanics, 1989, 206, 405-432.	3.4	25
111	Finiteâ€time breakâ€up can occur in any unsteady interacting boundary layer. Mathematika, 1988, 35, 256-273.	0.5	96
112	Complete breakdown of an unsteady interactive boundary layer (over a surface distortion or in a) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 6	0.5	22
113	The resonant-triad nonlinear interaction in boundary-layer transition. Journal of Fluid Mechanics, 1987, 179, 227-252.	3.4	70
114	Dynamic stall due to unsteady marginal separation. Journal of Fluid Mechanics, 1987, 179, 489-512.	3.4	35
115	Two-dimensional disturbance travel, growth and spreading in boundary layers. Journal of Fluid Mechanics, 1986, 169, 353.	3.4	32
116	On the global instability of free disturbances with a time-dependent nonlinear viscous critical layer. Journal of Fluid Mechanics, 1985, 157, 53-77.	3.4	22
117	A structure for laminar flow past a bluff body at high Reynolds number. Journal of Fluid Mechanics, 1985, 155, 175.	3.4	88
118	CONCERNING UPSTREAM INFLUENCE IN SEPARATING BOUNDARY LAYERS AND DOWNSTREAM INFLUENCE IN CHANNEL FLOW. Quarterly Journal of Mechanics and Applied Mathematics, 1984, 37, 389-399.	1.3	6
119	Shortâ€length instabilities, breakdown and initial value problems in dynamic stall. Mathematika, 1984, 31, 163-177.	0.5	27
120	An alternative approach to linear and nonlinear stability calculations at finite Reynolds numbers. Journal of Fluid Mechanics, 1984, 146, 313-330.	3.4	33
121	Interacting flow theory and trailing edge separation â€“ no stall. Journal of Fluid Mechanics, 1983, 131, 219.	3.4	32
122	Breakdown of boundary layers: (i) on moving surfaces; (ii) in semi-similar unsteady flow; (iii) in fully unsteady flow. Geophysical and Astrophysical Fluid Dynamics, 1983, 25, 77-138.	1.2	106
123	On hypersonic selfâ€induced separation, hydraulic jumps and boundary layers with algebraic growth. Mathematika, 1983, 30, 77-93.	0.5	43
124	Concerning Dynamic Stall. Aeronautical Quarterly, 1982, 33, 331-352.	0.2	41
125	Nonlinear critical layers and their development in streaming-flow stability. Journal of Fluid Mechanics, 1982, 118, 165.	3.4	58
126	On the High Reynolds Number Theory of Laminar Flows. IMA Journal of Applied Mathematics, 1982, 28, 207-281.	1.6	192

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127	Free convection boundary layers near corners and sharp trailing edges. Zeitschrift Fur Angewandte Mathematik Und Physik, 1982, 33, 36-52.	1.4	14
128	On boundary-layer flow past two-dimensional obstacles. Journal of Fluid Mechanics, 1981, 113, 123.	3.4	83
129	Comparisons and comments concerning recent calculations for flow past a circular cylinder. Journal of Fluid Mechanics, 1981, 113, 407.	3.4	12
130	Removal of Goldstein's singularity at separation, in flow past obstacles in wall layers. Journal of Fluid Mechanics, 1981, 110, 1-37.	3.4	47
131	A three-dimensional boundary-layer separation. Journal of Fluid Mechanics, 1980, 99, 185-224.	3.4	25
132	On the severe non-symmetric constriction, curving or cornering of channel flows. Journal of Fluid Mechanics, 1980, 98, 727-753.	3.4	23
133	Laminar flow of an incompressible fluid past a bluff body: the separation, reattachment, eddy properties and drag. Journal of Fluid Mechanics, 1979, 92, 171-205.	3.4	124
134	Steady streaming induced between oscillating cylinders. Journal of Fluid Mechanics, 1979, 91, 93.	3.4	29
135	The separating flow through a severely constricted symmetric tube. Journal of Fluid Mechanics, 1979, 90, 725.	3.4	80
136	On the Calculation of the Incompressible Flow Past an Aerofoil with a Jet Flap. Aeronautical Quarterly, 1978, 29, 44-59.	0.2	4
137	A two-dimensional boundary layer encountering a three-dimensional hump. Journal of Fluid Mechanics, 1977, 83, 163-176.	3.4	86
138	Upstream interactions in channel flows. Journal of Fluid Mechanics, 1977, 79, 631.	3.4	72
139	On entry-flow effects in bifurcating, blocked or constricted tubes. Journal of Fluid Mechanics, 1976, 78, 709.	3.4	33
140	Pipeflows distorted by nonâ€symmetric indentation or branching. Mathematika, 1976, 23, 62-83.	0.5	46
141	Pulsatile flow in curved pipes. Journal of Fluid Mechanics, 1975, 71, 15-42.	3.4	106