# 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 | On the High Reynolds Number Theory of Laminar Flows. IMA Journal of Applied Mathematics, 1982, 28, 207-281. | 1.6 | 192 |
| 2 | 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 |
| 3 | 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 |
| 4 | Pulsatile flow in curved pipes. Journal of Fluid Mechanics, 1975, 71, 15-42. | 3.4 | 106 |
| 5 | 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 |
| 6 | Vortex-induced boundary-layer separation. Part 2. Unsteady interacting boundary-layer theory. Journal of Fluid Mechanics, 1991, 232, 133. | 3.4 | 106 |
| 7 | Finiteâ€time breakâ€up can occur in any unsteady interacting boundary layer. Mathematika, 1988, 35, 256-273. | 0.5 | 96 |
| 8 | Air cushioning with a lubricationinviscid balance. Journal of Fluid Mechanics, 2003, 482, 291-318. | 3.4 | 89 |
| 9 | A structure for laminar flow past a bluff body at high Reynolds number. Journal of Fluid Mechanics, 1985, 155, 175. | 3.4 | 88 |
| 10 | A two-dimensional boundary layer encountering a three-dimensional hump. Journal of Fluid Mechanics, 1977, 83, 163-176. | 3.4 | 86 |
| 11 | On boundary-layer flow past two-dimensional obstacles. Journal of Fluid Mechanics, 1981, 113, 123. | 3.4 | 83 |
| 12 | The separating flow through a severely constricted symmetric tube. Journal of Fluid Mechanics, 1979, 90, 725. | 3.4 | 80 |
| 13 | Upstream interactions in channel flows. Journal of Fluid Mechanics, 1977, 79, 631. | 3.4 | 72 |
| 14 | Droplet impact on a thin fluid layer. Journal of Fluid Mechanics, 2005, 542, 1. | 3.4 | 71 |
| 15 | The resonant-triad nonlinear interaction in boundary-layer transition. Journal of Fluid Mechanics, 1987, 179, 227-252. | 3.4 | 70 |
| 16 | Nonlinear critical layers and their development in streaming-flow stability. Journal of Fluid Mechanics, 1982, 118, 165. | 3.4 | 58 |
| 17 | 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 |
| 18 | Unsteady separation past moving surfaces. Journal of Fluid Mechanics, 1998, 375, 1-38. | 3.4 | 58 |

| # | Article | IF | Citations |
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| 19 | The onset of instability in unsteady boundary-layer separation. Journal of Fluid Mechanics, 1996, 315, 223-256. | 3.4 | 53 |
| 20 | 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 |
| 21 | 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 |
| 22 | Pipeflows distorted by nonâ€symmetric indentation or branching. Mathematika, 1976, 23, 62-83. | 0.5 | 46 |
| 23 | Trapping of air in impact between a body and shallow water. Journal of Fluid Mechanics, 2008, 611, 365-394. | 3.4 | 44 |
| 24 | On hypersonic selfâ€induced separation, hydraulic jumps and boundary layers with algebraic growth. Mathematika, 1983, 30, 77-93. | 0.5 | 43 |
| 25 | Concerning Dynamic Stall. Aeronautical Quarterly, 1982, 33, 331-352. | 0.2 | 41 |
| 26 | 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 |
| 27 | The interactive breakdown in supersonic ramp flow. Journal of Fluid Mechanics, 1991, 224, 197-215. | 3.4 | 38 |
| 28 | Dynamic stall due to unsteady marginal separation. Journal of Fluid Mechanics, 1987, 179, 489-512. | 3.4 | 35 |
| 29 | On entry-flow effects in bifurcating, blocked or constricted tubes. Journal of Fluid Mechanics, 1976, 78, 709. | 3.4 | 33 |
| 30 | An alternative approach to linear and nonlinear stability calculations at finite Reynolds numbers. Journal of Fluid Mechanics, 1984, 146, 313-330. | 3.4 | 33 |
| 31 | Nonlinear interaction of nearâ€planar TS waves and longitudinal vortices in boundaryâ€layer transition. Mathematika, 1989, 36, 262-289. | 0.5 | 33 |
| 32 | The structure of a three-dimensional turbulent boundary layer. Journal of Fluid Mechanics, 1993, 250, 43-68. | 3.4 | 33 |
| 33 | What happens to pressure when a flow enters a side branch?. Journal of Fluid Mechanics, 2003, 479, 231-258. | 3.4 | 33 |
| 34 | Interacting flow theory and trailing edge separation â€“ no stall. Journal of Fluid Mechanics, 1983, 131, 219. | 3.4 | 32 |
| 35 | Two-dimensional disturbance travel, growth and spreading in boundary layers. Journal of Fluid Mechanics, 1986, 169, 353. | 3.4 | 32 |
| 36 | On turbulent separation in the flow past a bluff body. Journal of Fluid Mechanics, 1992, 241, 443-467. | 3.4 | 32 |

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| 37 | Theoretical prediction and design for vortex generators in turbulent boundary layers. Journal of Fluid Mechanics, 1994, 270, 91-132. | 3.4 | 31 |
| 38 | Air-water interactions near droplet impact. European Journal of Applied Mathematics, 2004, 15, 853-871. | 2.9 | 30 |
| 39 | Steady streaming induced between oscillating cylinders. Journal of Fluid Mechanics, 1979, 91, 93. | 3.4 | 29 |
| 40 | Shortâ€length instabilities, breakdown and initial value problems in dynamic stall. Mathematika, 1984, 31, 163-177. | 0.5 | 27 |
| 41 | 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 |
| 42 | ON INTERACTION BETWEEN FALLING BODIES AND THE SURROUNDING FLUID. Mathematika, 2010, 56, 140-168. | 0.5 | 27 |
| 43 | Fluid motion for car undertrays in ground effect. Journal of Engineering Mathematics, 2003, 45, 309-334. | 1.2 | 26 |
| 44 | A three-dimensional boundary-layer separation. Journal of Fluid Mechanics, 1980, 99, 185-224. | 3.4 | 25 |
| 45 | Stability of Long's vortex at large flow force. Journal of Fluid Mechanics, 1989, 206, 405-432. | 3.4 | 25 |
| 46 | 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 |
| 47 | On the spiking stages in deep transition and unsteady separation. Journal of Engineering Mathematics, 2003, 45, 227-245. | 1.2 | 25 |
| 48 | Direct simulations and modelling of basic three-dimensional bifurcating tube flows. Journal of Fluid Mechanics, 2004, 519, 1-32. | 3.4 | 25 |
| 49 | Droplet Impact on to a Rough Surface. Quarterly Journal of Mechanics and Applied Mathematics, 2011, 64, 107-139. | 1.3 | 25 |
| 50 | 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 |
| 51 | On the severe non-symmetric constriction, curving or cornering of channel flows. Journal of Fluid Mechanics, 1980, 98, 727-753. | 3.4 | 23 |
| 52 | 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 |
| 53 | Complete breakdown of an unsteady interactive boundary layer (over a surface distortion or in a) Tj ETQq1 1 0.784314 rgBT /Overloc | 0.5 | 22 |
| 54 | One-to-few and one-to-many branching tube flows. Journal of Fluid Mechanics, 2000, 423, 1-31. | 3.4 | 22 |

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| 55 | Lifting multi-blade flows with interaction. Journal of Fluid Mechanics, 2000, 415, 203-226. | 3.4 | 22 |
| 56 | On the starting process of strongly nonlinear vortex/Rayleighâ€wave interactions. Mathematika, 1993, 40, 7-29. | 0.5 | 21 |
| 57 | AVM modelling by multi-branching tube flow: large flow rates and dual solutions. Mathematical Medicine and Biology, 2003, 20, 183-204. | 1.2 | 21 |
| 58 | Break-away separation for high turbulence intensity and large Reynolds number. Journal of Fluid Mechanics, 2011, 670, 260-300. | 3.4 | 21 |
| 59 | Fluid flow through various branching tubes. Journal of Engineering Mathematics, 2003, 47, 277-298. | 1.2 | 20 |
| 60 | Properties of strongly nonlinear vortex/Tollmienâ€“Schlichting-wave interactions. Journal of Fluid Mechanics, 1992, 244, 649. | 3.4 | 18 |
| 61 | 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 |
| 62 | 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 |
| 63 | Free motion of a body in a boundary layer or channel flow. Journal of Fluid Mechanics, 2017, 813, 279-300. | 3.4 | 16 |
| 64 | Body-rock or lift-off in flow. Journal of Fluid Mechanics, 2013, 735, 91-119. | 3.4 | 15 |
| 65 | Free convection boundary layers near corners and sharp trailing edges. Zeitschrift Fur Angewandte Mathematik Und Physik, 1982, 33, 36-52. | 1.4 | 14 |
| 66 | 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 |
| 67 | Fluidâ€“body interactions: clashing, skimming, bouncing. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 3007-3024. | 3.4 | 14 |
| 68 | 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 |
| 69 | Comparisons and comments concerning recent calculations for flow past a circular cylinder. Journal of Fluid Mechanics, 1981, 113, 407. | 3.4 | 12 |
| 70 | Wind-Up of a Spanwise Vortex in Deepening Transition and Stall. Theoretical and Computational Fluid Dynamics, 2000, 14, 135-165. | 2.2 | 12 |
| 71 | Computational modelling of the embolization process for the treatment of arteriovenous malformations (AVMs). Mathematical and Computer Modelling, 2013, 57, 1312-1324. | 2.0 | 12 |
| 72 | Improving Aircraft Safety in Icing Conditions. , 2016, , 145-151. | | 12 |

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| 73 | Multi-branching three-dimensional flow with substantial changes in vessel shapes. Journal of Fluid Mechanics, 2008, 614, 329-354. | 3.4 | 11 |
| 74 | Short-scale effects on model boundary-layer spots. Journal of Fluid Mechanics, 1995, 295, 395. | 3.4 | 10 |
| 75 | Separating shear flow past a surface-mounted blunt obstacle. Journal of Engineering Mathematics, 2001, 39, 47-62. | 1.2 | 10 |
| 76 | On turbulent separation. Journal of Engineering Mathematics, 2010, 68, 373-400. | 1.2 | 10 |
| 77 | Enhanced effects from tiny flexible in-wall blips and shear flow. Journal of Fluid Mechanics, 2015, 772, 16-41. | 3.4 | 10 |
| 78 | Hypersonic aerodynamics on thin bodies with interaction and upstream influence. Journal of Fluid Mechanics, 1994, 277, 85-108. | 3.4 | 9 |
| 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 | The effects of nonsymmetry in a branching flow network. Journal of Engineering Mathematics, 2009, 63, 213-239. | 1.2 | 9 |
| 81 | Collisions, rebounds and skimming. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130351. | 3.4 | 9 |
| 82 | Flooding and sinking of an originally skimming body. Journal of Engineering Mathematics, 2017, 107, 37-60. | 1.2 | 9 |
| 83 | A freely moving body in a boundary layer: Nonlinear separated-flow effects. Applied Ocean Research, 2019, 85, 107-118. | 4.1 | 9 |
| 84 | A body in nonlinear near-wall shear flow: impacts, analysis and comparisons. Journal of Fluid Mechanics, 2020, 904, . | 3.4 | 9 |
| 85 | A smoothly curved body skimming on shallow water. Journal of Engineering Mathematics, 2021, 128, 1. | 1.2 | 9 |
| 86 | The impact of static and dynamic roughness elements on flow separation. Journal of Fluid Mechanics, 2017, 830, 35-62. | 3.4 | 8 |
| 87 | Channel Flow Past A Near-Wall Body. Quarterly Journal of Mechanics and Applied Mathematics, 2019, 72, 359-385. | 1.3 | 8 |
| 88 | When a small thin two-dimensional body enters a viscous wall layer. European Journal of Applied Mathematics, 2020, 31, 1002-1028. | 2.9 | 8 |
| 89 | Pre-impact dynamics of a droplet impinging on a deformable surface. Physics of Fluids, 2021, 33, . | 4.0 | 8 |
| 90 | Interactive flow past multiple blades and wakes. Quarterly Journal of Mechanics and Applied Mathematics, 2000, 53, 207-251. | 1.3 | 7 |

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| 91 | Flow in a multi-branching vessel with compliant walls. Journal of Engineering Mathematics, 2009, 64, 353-365. | 1.2 | 7 |
| 92 | Wall shape effects on multiphase flow in channels. Theoretical and Computational Fluid Dynamics, 2012, 26, 339-360. | 2.2 | 7 |
| 93 | Modelling of sea-ice phenomena. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2018, 376, 20180157. | 3.4 | 7 |
| 94 | 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 |
| 95 | Theory and computations for breakup of unsteady subsonic or supersonic separating flows. Journal of Fluid Mechanics, 1994, 268, 147-173. | 3.4 | 6 |
| 96 | 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 |
| 97 | On internal fluid dynamics. Bulletin of Mathematical Sciences, 2012, 2, 125-180. | 0.7 | 6 |
| 98 | 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 |
| 99 | Particle movement in a boundary layer. Journal of Engineering Mathematics, 2021, 128, 1. | 1.2 | 6 |
| 100 | On Dynamic Interactions Between Body Motion and Fluid Motion. Studies in Systems, Decision and Control, 2019, , 45-89. | 1.0 | 6 |
| 101 | Skimming impacts and rebounds of smoothly shaped bodies on shallow liquid layers. Journal of Engineering Mathematics, 2020, 124, 41-73. | 1.2 | 5 |
| 102 | A body in nonlinear near-wall shear flow: numerical results for a flat plate. Journal of Fluid Mechanics, 2021, 915, . | 3.4 | 5 |
| 103 | On the Calculation of the Incompressible Flow Past an Aerofoil with a Jet Flap. Aeronautical Quarterly, 1978, 29, 44-59. | 0.2 | 4 |
| 104 | Nonlinear evolution of Rayleigh waves in an initial value context: nonâ€symmetric input and crossâ€flow. Mathematika, 1998, 45, 217-243. | 0.5 | 4 |
| 105 | On â€˜spotâ€™ evolution under an adverse pressure gradient. Journal of Fluid Mechanics, 2001, 430, 169-207. | 3.4 | 4 |
| 106 | Influence of Surface Roughness on Shear Flow. Journal of Applied Mechanics, Transactions ASME, 2004, 71, 459-464. | 2.2 | 4 |
| 107 | Inviscid and low-viscosity flows in multi-branching and reconnecting networks. Journal of Engineering Mathematics, 2017, 104, 1-18. | 1.2 | 4 |
| 108 | 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 |

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| 109 | On the nonlinear growth of single threeâ€dimensional disturbances in boundary layers. Mathematika, 1994, 41, 1-39. | 0.5 | 3 |
| 110 | Singular modes in Rayleigh instability of three-dimensional streamwise-vortex flows. Journal of Fluid Mechanics, 1997, 333, 139-160. | 3.4 | 3 |
| 111 | Vortex/inflectional-wave interactions with weakly three-dimensional input. Journal of Fluid Mechanics, 1997, 348, 247-294. | 3.4 | 3 |
| 112 | Rapid plunging of a body partly submerged in water. Journal of Engineering Mathematics, 2002, 42, 303-319. | 1.2 | 3 |
| 113 | Swirl-flow effects in a duct bending through a substantial angle. Journal of Engineering Mathematics, 2002, 43, 315-346. | 1.2 | 3 |
| 114 | Non-Local Interactions and Feedback Instability in a High Reynolds Number Flow. Theoretical and Computational Fluid Dynamics, 2003, 17, 1-18. | 2.2 | 3 |
| 115 | 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 |
| 116 | The impact of dynamic roughness elements on marginally separated boundary layers. Journal of Fluid Mechanics, 2018, 855, 351-370. | 3.4 | 3 |
| 117 | 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 |
| 118 | Skimming impact of a thin heavy body on a shallow liquid layer. Journal of Fluid Mechanics, 2022, 940, . | 3.4 | 3 |
| 119 | Computations on flow past an inclined flat plate of finite length. Journal of Engineering Mathematics, 1990, 24, 311-321. | 1.2 | 2 |
| 120 | On generation of horseshoe vortices by corrugated surfaces, surface roughnesses or pipe bends. Journal of Engineering Mathematics, 2003, 45, 5-20. | 1.2 | 2 |
| 121 | A three-dimensional pipe flow adjusts smoothly to the sudden onset of a bend. Physics of Fluids, 2005, 17, 048102. | 4.0 | 2 |
| 122 | The development of the turbulent flow in a bent pipe. Journal of Fluid Mechanics, 2007, 578, 467-494. | 3.4 | 2 |
| 123 | SUPERCRITICAL TWOâ€FLUID INTERACTIONS WITH SURFACE TENSION AND GRAVITY. Mathematika, 2010, 56, 93-106. | 0.5 | 2 |
| 124 | Turbulent interactions for rotating blades and wakes. Journal of Engineering Mathematics, 2011, 69, 185-198. | 1.2 | 2 |
| 125 | A Uniformly Valid Theory of Turbulent Separation. Springer Proceedings in Physics, 2012, , 85-89. | 0.2 | 2 |
| 126 | On effects of increasing amplitude in a boundaryâ€layer spot. Mathematika, 1998, 45, 1-24. | 0.5 | 1 |

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| 127 | Spreading of Nonuniform Jets in Wind. Journal of Fluids Engineering, Transactions of the ASME, 2002, 124, 694-699. | 1.5 | 1 |
| 128 | On the evolving flow of grains down a chute. Journal of Engineering Mathematics, 2010, 68, 233-247. | 1.2 | 1 |
| 129 | Numerical and Analytical Study of Bladder-Collapse Flow. International Journal of Differential Equations, 2012, 2012, 1-14. | 0.8 | 1 |
| 130 | Rate effects on the growth of centres. European Journal of Applied Mathematics, 2017, 28, 221-242. | 2.9 | 1 |
| 131 | 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 |
| 132 | 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 |
| 133 | On flow through bends and branchings. Biorheology, 2002, 39, 373-8. | 0.4 | 1 |
| 134 | Composite, Navier-Stokes and Euler unsteady-flow computations in boundary layers. Journal of Engineering Mathematics, 1996, 30, 307-320. | 1.2 | 0 |
| 135 | Collisions, rebounds and skimming. , 2013, , . | | 0 |
| 136 | Interference in a three-dimensional array of jets. European Journal of Applied Mathematics, 2015, 26, 795-819. | 2.9 | 0 |
| 137 | Internal Fluid Dynamics. , 2016, , 135-168. | | 0 |
| 138 | A simplified model of glycoprotein production within cell culture. European Journal of Applied Mathematics, 2017, 28, 535-561. | 2.9 | 0 |
| 139 | Stretching hollow jets in potential flow. AIP Conference Proceedings, 2018, , . | 0.4 | 0 |
| 140 | NONSYMMETRIC BRANCHING OF FLUID FLOWS IN 3D VESSELS. ANZIAM Journal, 2018, 59, 533-561. | 0.2 | 0 |
| 141 | Modelling, computation and analysis on combustion of explosives. European Journal of Applied Mathematics, 2022, 33, 27-57. | 2.9 | 0 |