## Darren Crowdy

List of Publications by Year in descending order

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150	2,806	30	42
papers	citations	h-index	g-index
153	153 does citations	153	824
all docs		times ranked	citing authors

#	Article	IF	CITATIONS
1	Conformal Mappings between Canonical Multiply Connected Domains. Computational Methods and Function Theory, 2006, 6, 59-76.	1.5	98
2	Analytical formulae for the Kirchhoff–Routh path function in multiply connected domains. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2005, 461, 2477-2501.	2.1	83
3	The Schwarz–Christoffel mapping to bounded multiply connected polygonal domains. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2005, 461, 2653-2678.	2.1	73
4	A class of exact multipolar vortices. Physics of Fluids, 1999, 11, 2556-2564.	4.0	71
5	Slip length for longitudinal shear flow over a dilute periodic mattress of protruding bubbles. Physics of Fluids, 2010, 22, .	4.0	69
6	Computing the Schottky-Klein Prime Function on the Schottky Double of Planar Domains. Computational Methods and Function Theory, 2007, 7, 293-308.	1.5	64
7	Analytical solutions for uniform potential flow past multiple cylinders. European Journal of Mechanics, B/Fluids, 2006, 25, 459-470.	2.5	63
8	Exact solutions for rotating vortex arrays with finite-area cores. Journal of Fluid Mechanics, 2002, 469, 209-235.	3.4	55
9	Wall effects on self-diffusiophoretic Janus particles: a theoretical study. Journal of Fluid Mechanics, 2013, 735, 473-498.	3.4	55
10	A new calculus for two-dimensional vortex dynamics. Theoretical and Computational Fluid Dynamics, 2010, 24, 9-24.	2.2	53
11	Schwarz–Christoffel mappings to unbounded multiply connected polygonal regions. Mathematical Proceedings of the Cambridge Philosophical Society, 2007, 142, 319-339.	0.4	52
12	Constructing Multiply Connected Quadrature Domains. SIAM Journal on Applied Mathematics, 2004, 64, 1334-1359.	1.8	46
13	The motion of a point vortex around multiple circular islands. Physics of Fluids, 2005, 17, 056602.	4.0	44
14	Two-dimensional point singularity model of a low-Reynolds-number swimmer near a wall. Physical Review E, 2010, 81, 036313.	2.1	43
15	Solving Problems in Multiply Connected Domains. , 2020, , .		42
16	General solutions to the 2D Liouville equation. International Journal of Engineering Science, 1997, 35, 141-149.	5.0	40
17	Stuart vortices on a sphere. Journal of Fluid Mechanics, 2004, 498, 381-402.	3.4	40
18	A two-dimensional model of low-Reynolds number swimming beneath a free surface. Journal of Fluid Mechanics, 2011, 681, 24-47.	3.4	40

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19	Analytical formulae for longitudinal slip lengths over unidirectional superhydrophobic surfaces with curved menisci. Journal of Fluid Mechanics, 2016, 791, .	3.4	40
20	Green's functions for Laplace's equation in multiply connected domains. IMA Journal of Applied Mathematics, 2007, 72, 278-301.	1.6	39
21	Frictional slip lengths for unidirectional superhydrophobic grooved surfaces. Physics of Fluids, 2011, 23, .	4.0	39
22	The Schottky–Klein prime function: a theoretical and computational tool for applications. IMA Journal of Applied Mathematics, 2016, 81, 589-628.	1.6	37
23	The construction of exact multipolar equilibria of the two-dimensional Euler equations. Physics of Fluids, 2002, 14, 257-267.	4.0	36
24	Calculating the lift on a finite stack of cylindrical aerofoils. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2006, 462, 1387-1407.	2.1	36
25	Circulation-induced shape deformations of drops and bubbles: Exact two-dimensional models. Physics of Fluids, 1999, 11, 2836-2845.	4.0	35
26	Geometric function theory: a modern view of a classical subject. Nonlinearity, 2008, 21, T205-T219.	1.4	35
27	Analytical solutions for von K $ ilde{A}_i$ rm $ ilde{A}_i$ n streets of hollow vortices. Physics of Fluids, 2011, 23, .	4.0	35
28	Exact Solutions for Steady Capillary Waves on a Fluid Annulus. Journal of Nonlinear Science, 1999, 9, 615-640.	2.1	32
29	The Schwarz problem in multiply connected domains and the Schottky–Klein prime function. Complex Variables and Elliptic Equations, 2008, 53, 221-236.	0.8	32
30	Treadmilling swimmers near a no-slip wall at low Reynolds number. International Journal of Non-Linear Mechanics, 2011, 46, 577-585.	2.6	32
31	Drawing of micro-structured fibres: circular and non-circular tubes. Journal of Fluid Mechanics, 2014, 755, 176-203.	3.4	31
32	Perturbation analysis of subphase gas and meniscus curvature effects for longitudinal flows over superhydrophobic surfaces. Journal of Fluid Mechanics, 2017, 822, 307-326.	3.4	31
33	The motion of a point vortex through gaps in walls. Journal of Fluid Mechanics, 2006, 551, 31.	3.4	29
34	Contour dynamics in complex domains. Journal of Fluid Mechanics, 2007, 593, 235-254.	3.4	28
35	Explicit integral solutions for the plane elastostatic semi-strip. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2004, 460, 1285-1309.	2.1	27
36	Quadrature Domains and Fluid Dynamics. , 2005, , 113-129.		27

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37	Hydrodynamic bound states of a low-Reynolds-number swimmer near a gap in a wall. Journal of Fluid Mechanics, 2011, 667, 309-335.	3.4	27
38	CONFORMAL SLIT MAPS IN APPLIED MATHEMATICS. ANZIAM Journal, 2012, 53, 171-189.	0.2	27
39	A transform method for Laplace's equation in multiply connected circular domains. IMA Journal of Applied Mathematics, 2015, 80, 1902-1931.	1.6	27
40	Viscous sintering of unimodal and bimodal cylindrical packings with shrinking pores. European Journal of Applied Mathematics, 2003, 14, 421-445.	2.9	26
41	Analytical solutions for distributed multipolar vortex equilibria on a sphere. Physics of Fluids, 2003, 15, 22-34.	4.0	26
42	The irrotational motion generated by two planar stirrers in inviscid fluid. Physics of Fluids, 2007, 19, 018103.	4.0	26
43	On a Class of Geometry-Driven Free Boundary Problems. SIAM Journal on Applied Mathematics, 2002, 62, 945-964.	1.8	25
44	Growing vortex patches. Physics of Fluids, 2004, 16, 3122-3130.	4.0	24
45	A Theory of Exact Solutions for Plane Viscous Blobs. Journal of Nonlinear Science, 1998, 8, 261-279.	2.1	22
46	Analytical solutions for rotating vortex arrays involving multiple vortex patches. Journal of Fluid Mechanics, 2005, 523, 307-337.	3.4	22
47	Point vortex motion on the surface of a sphere with impenetrable boundaries. Physics of Fluids, 2006, 18, 036602.	4.0	22
48	The Schottky-Klein Prime Function on the Schottky Double of Planar Domains. Computational Methods and Function Theory, 2011, 10, 501-517.	1.5	20
49	Elliptical pore regularisation of the inverse problem for microstructured optical fibreÂfabrication. Journal of Fluid Mechanics, 2015, 778, 5-38.	3.4	20
50	Frictional slip lengths and blockage coefficients. Physics of Fluids, 2011, 23, .	4.0	19
51	Microstructured optical fibre drawing with active channel pressurisation. Journal of Fluid Mechanics, 2015, 783, 137-165.	3.4	19
52	Slip length for transverse shear flow over a periodic array of weakly curved menisci. Physics of Fluids, 2017, 29, 091702.	4.0	19
53	Shapes of two-dimensional bubbles deformed by circulation. Nonlinearity, 2000, 13, 2131-2141.	1.4	18
54	Stability analysis of a class of two-dimensional multipolar vortex equilibria. Physics of Fluids, 2002, 14, 1862-1876.	4.0	18

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55	Compressible bubbles in Stokes flow. Journal of Fluid Mechanics, 2003, 476, 345-356.	3.4	18
56	Uniform flow past a periodic array of cylinders. European Journal of Mechanics, B/Fluids, 2016, 56, 120-129.	2.5	18
57	A New Approach to Free Surface Euler Flows with Capillarity. Studies in Applied Mathematics, 2000, 105, 35-58.	2.4	17
58	Vortex dynamics in complex domains on a spherical surface. Journal of Computational Physics, 2008, 227, 6058-6070.	3.8	17
59	Exact solutions for the viscous sintering of multiply-connected fluid domains. Journal of Engineering Mathematics, 2002, 42, 225-242.	1.2	16
60	Explicit solution for the potential flow due to an assembly of stirrers in an inviscid fluid. Journal of Engineering Mathematics, 2008, 62, 333-344.	1.2	16
61	Structure and stability of hollow vortex equilibria. Journal of Fluid Mechanics, 2012, 691, 178-200.	3.4	16
62	Translating hollow vortex pairs. European Journal of Mechanics, B/Fluids, 2013, 37, 180-186.	2.5	16
63	Fourier–Mellin Transforms for Circular Domains. Computational Methods and Function Theory, 2015, 15, 655-687.	1.5	16
64	Dynamics of a treadmilling microswimmer near a no-slip wall in simple shear. Journal of Fluid Mechanics, 2017, 821, 647-667.	3.4	16
65	Conformal mappings to a doubly connected polycircular arc domain. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2007, 463, 1885-1907.	2.1	15
66	Conformal Mappings to Multiply Connected Polycircular Arc Domains. Computational Methods and Function Theory, 2012, 11, 685-706.	1.5	15
67	Analytical formulae for source and sink flows in multiply connected domains. Theoretical and Computational Fluid Dynamics, 2013, 27, 1-19.	2.2	15
68	Effective slip lengths for immobilized superhydrophobic surfaces. Journal of Fluid Mechanics, 2017, 825, .	3.4	15
69	Polygonal N-vortex arrays: A Stuart model. Physics of Fluids, 2003, 15, 3710-3717.	4.0	14
70	Multiple steady bubbles in a Hele-Shaw cell. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2009, 465, 421-435.	2.1	14
71	Solving Wiener–Hopf problems without kernel factorization. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20140304.	2.1	14
72	Effective slip lengths for longitudinal shear flow over partial-slip circular bubble mattresses. Fluid Dynamics Research, 2015, 47, 065507.	1.3	14

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73	A transform method for the biharmonic equation in multiply connected circular domains. IMA Journal of Applied Mathematics, 2018, 83, 942-976.	1.6	14
74	Slip length formulas for longitudinal shear flow over a superhydrophobic grating with partially filled cavities. Journal of Fluid Mechanics, 2021, 925, .	3.4	14
75	Effect of shear thinning on superhydrophobic slip: Perturbative corrections to the effective slip length. Physical Review Fluids, 2017, 2, .	2.5	14
76	Accessory parameters in conformal mapping: exploiting the isomonodromic tau function for Painlev $\tilde{A}$ $\mathbb{Q}$ VI. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20180080.	2.1	13
77	Applying improved analytical methods for modelling flood displacement fronts in bounded reservoirs (Quitman field, east Texas). Journal of Petroleum Science and Engineering, 2018, 166, 1018-1041.	4.2	12
78	Superhydrophobic annular pipes: a theoretical study. Journal of Fluid Mechanics, 2021, 906, .	3.4	12
79	Steady nonlinear capillary waves on curved sheets. European Journal of Applied Mathematics, 2001, 12, 689-708.	2.9	11
80	Exact solutions for uniform vortex layers attached to corners and wedges. European Journal of Applied Mathematics, 2004, 15, 643-650.	2.9	11
81	An assembly of steadily translating bubbles in a Hele–Shaw channel. Nonlinearity, 2009, 22, 51-65.	1.4	11
82	Surfactant-induced stagnant zones in the Jeong-Moffatt free surface Stokes flow problem. Physics of Fluids, $2013, 25, \ldots$	4.0	11
83	Exact solutions for cylindrical â€~slip–stick' Janus swimmers in Stokes flow. Journal of Fluid Mechanics, 2013, 719, .	3.4	11
84	Periodic Schwarz–Christoffel mappings with multiple boundaries per period. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2019, 475, 20190225.	2.1	11
85	The Effect of Finiteness in the Saffman–Taylor Viscous Fingering Problem. Journal of Statistical Physics, 2004, 114, 1501-1536.	1.2	10
86	On a pair of interacting bubbles in planar Stokes flow. Journal of Fluid Mechanics, 2005, 541, 231.	3.4	10
87	Thermocapillary stress and meniscus curvature effects on slip lengths in ridged microchannels. Journal of Fluid Mechanics, 2020, 894, .	3.4	10
88	Speed of a von Kármán point vortex street in a weakly compressible fluid. Physical Review Fluids, 2017, 2, .	2.5	10
89	Collective viscous propulsion of a two-dimensional flotilla of Marangoni boats. Physical Review Fluids, 2020, 5, .	2.5	10
90	On rectangular vortex lattices. Applied Mathematics Letters, 2010, 23, 34-38.	2.7	9

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91	Stresslet asymptotics for a treadmilling swimmer near a two-dimensional corner: hydrodynamic bound states. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 3765-3783.	2.1	9
92	Hollow vortices, capillary water waves and double quadrature domains. Fluid Dynamics Research, 2014, 46, 031424.	1.3	9
93	Secondary Schottky–Klein prime functions associated with multiply connected planar domains. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20140688.	2.1	9
94	Stuart-type polar vortices on a rotating sphere. Discrete and Continuous Dynamical Systems, 2021, 41, 201-215.	0.9	9
95	Asymptotic Modelling of a Six-Hole MOF. Journal of Lightwave Technology, 2016, 34, 5651-5656.	4.6	9
96	A note on viscous sintering and quadrature identities. European Journal of Applied Mathematics, 1999, 10, 623-634.	2.9	8
97	Hele-Shaw flows and water waves. Journal of Fluid Mechanics, 2000, 409, 223-242.	3.4	8
98	Explicit solutions for a steady vortex–wave interaction. Journal of Fluid Mechanics, 2004, 513, 161-170.	3.4	8
99	An elliptical-pore model for late-stage planar viscous sintering. Journal of Fluid Mechanics, 2004, 501, 251-277.	3.4	8
100	The spreading phase in Lighthill's model of the Weis-Fogh lift mechanism. Journal of Fluid Mechanics, 2009, 641, 195-204.	3.4	8
101	Surface-tension-driven Stokes flow: A numerical method based on conformal geometry. Journal of Computational Physics, 2016, 317, 347-361.	3.8	8
102	The effect of core size on the speed of compressible hollow vortex streets. Journal of Fluid Mechanics, 2018, 836, 797-827.	3.4	8
103	Steady point vortex pair in a field of Stuart-type vorticity. Journal of Fluid Mechanics, 2019, 874, .	3.4	8
104	Longitudinal Thermocapillary Flow over a Dense Bubble Mattress. SIAM Journal on Applied Mathematics, 2020, 80, 1-19.	1.8	8
105	Genus-Nalgebraic reductions of the Benney hierarchy within a Schottky model. Journal of Physics A, 2005, 38, 10917-10934.	1.6	7
106	The effect of solid boundaries on pore shrinkage in Stokes flow. Journal of Fluid Mechanics, 2005, 531, 359-379.	3.4	7
107	Steady interaction of a vortex street with a shear flow. Physics of Fluids, 2010, 22, 096601.	4.0	7
108	Matched asymptotics for a treadmilling low-Reynolds-number swimmer near a wall. Quarterly Journal of Mechanics and Applied Mathematics, 2013, 66, 53-73.	1.3	7

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109	Stokes flow singularities in a two-dimensional channel: a novel transform approach with application to microswimming. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2013, 469, 20130198.	2.1	7
110	Thermocapillary flow between grooved superhydrophobic surfaces: transverse temperature gradients. Journal of Fluid Mechanics, 2019, 871, 775-798.	3.4	7
111	Liouville chains: new hybrid vortex equilibria of the two-dimensional Euler equation. Journal of Fluid Mechanics, 2021, 921, .	3.4	7
112	Uniformizing the boundaries of multiply connected quadrature domains using Fuchsian groups. Physica D: Nonlinear Phenomena, 2007, 235, 82-89.	2.8	6
113	Multiply Connected Quadrature Domains and the Bergman Kernel Function. Complex Analysis and Operator Theory, 2009, 3, 379-397.	0.6	6
114	Flipping and scooping of curved 2D rigid fibers in simple shear: The Jeffery equations. Physics of Fluids, 2016, 28, 053105.	4.0	6
115	Fay meets van der Pauw: the trisecant identity and the resistivity of holey samples. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, 20200796.	2.1	6
116	Matched asymptotics for a spherical low-Reynolds-number treadmilling swimmer near a rigid wall. IMA Journal of Applied Mathematics, 2015, 80, 634-650.	1.6	5
117	Phoretic self-propulsion of Janus disks in the fast-reaction limit. Physical Review Fluids, 2020, 5, .	2.5	5
118	Title is missing!. Journal of Engineering Mathematics, 2002, 44, 311-330.	1.2	4
119	Riemann–Hilbert Problem for Automorphic Functions and the Schottky–Klein Prime Function. Complex Analysis and Operator Theory, 2007, 1, 317-334.	0.6	4
120	Stokes flows past gaps in a wall. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2010, 466, 2727-2746.	2.1	4
121	Analytical solutions for two-dimensional Stokes flow singularities in a no-slip wedge of arbitrary angle. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2017, 473, 20170134.	2.1	4
122	Analytical solutions for two-dimensional singly periodic Stokes flow singularity arrays near walls. Journal of Engineering Mathematics, 2019, 119, 199-215.	1.2	4
123	â€~H-states': exact solutions for a rotating hollow vortex. Journal of Fluid Mechanics, 2021, 913, .	3.4	4
124	A transformation between stationary point vortex equilibria. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200310.	2.1	4
125	Exact solutions for the formation of stagnant caps of insoluble surfactant on a planar free surface. Journal of Engineering Mathematics, 2021, 131, 1.	1.2	4
126	Viscous Marangoni Flow Driven by Insoluble Surfactant and the Complex Burgers Equation. SIAM Journal on Applied Mathematics, 2021, 81, 2526-2546.	1.8	4

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127	Conformal mappings from annuli to canonical doubly connected Bell representations. Journal of Mathematical Analysis and Applications, 2008, 340, 669-674.	1.0	3
128	The dipolar field of rotating bodies in two dimensions. Journal of Fluid Mechanics, 2008, 607, 109-118.	3.4	3
129	Hybrid basis scheme for computing electrostatic fields exterior to close-to-touching discs. IMA Journal of Numerical Analysis, 2016, 36, 743-769.	2.9	3
130	Viscous propulsion of a two-dimensional Marangoni boat driven by reaction and diffusion of insoluble surfactant. Physical Review Fluids, 2021, 6, .	2.5	3
131	The Prime Function, the Fay Trisecant Identity, and the van der Pauw Method. Computational Methods and Function Theory, 2021, 21, 707-736.	1.5	3
132	Fast evaluation of the fundamental singularities of two-dimensional doubly periodic Stokes flow. Journal of Engineering Mathematics, 2018, 111, 95-110.	1.2	2
133	Spreading and Contact Resistance Formulae Capturing Boundary Curvature and Contact Distribution Effects. Journal of Heat Transfer, 2018, 140, .	2.1	2
134	Effect of Surface Curvature on Contact Resistance Between Cylinders. Journal of Heat Transfer, 2019, 141, .	2.1	2
135	The corotating hollow vortex pair: steady merger and break-up via a topological singularity. Journal of Fluid Mechanics, 2021, 907, .	3.4	2
136	A new approach to the complex Helmholtz equation with applications to diffusion wave fields, impedance spectroscopy and unsteady Stokes flow. IMA Journal of Applied Mathematics, 2021, 86, 1287-1326.	1.6	2
137	Vortex patch equilibria of the Euler equation and random normal matrices. Journal of Physics A: Mathematical and Theoretical, 2014, 47, 212002.	2.1	2
138	Zeros of the isomonodromic tau functions in constructive conformal mapping of polycircular arc domains: the n-vertex case. Journal of Physics A: Mathematical and Theoretical, 2022, 55, 025201.	2.1	2
139	Philip Geoffrey Saffman. 19 March 1931 â€" 17 August 2008. Biographical Memoirs of Fellows of the Royal Society, 2014, 60, 375-395.	0.1	1
140	A constructive method for plane-wave representations of special functions. Journal of Mathematical Analysis and Applications, 2016, 436, 149-167.	1.0	1
141	Geometry-Fitted Fourier-Mellin Transform Pairs. Springer Proceedings in Mathematics and Statistics, 2016, , 37-53.	0.2	1
142	A new calculus for two-dimensional vortex dynamics. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2009, , 25-40.	0.2	1
143	Exact solutions for rotating vortex arrays with finite-area cores. , 0, .		1
144	Equilibrium tilt of slippery elliptical rods in creeping simple shear. Journal of Fluid Mechanics, 2022, 931, .	3.4	1

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145	Harmonic-measure distribution functions for a class of multiply connected symmetrical slit domains. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2022, 478, .	2.1	1
146	Stress fields around two pores in an elastic body: exact quadrature domain solutions. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150240.	2.1	0
147	Some highlights from 50 years of the IMA Journal of Applied Mathematics. IMA Journal of Applied Mathematics, 2016, 81, 393-408.	1.6	O
148	Finite Gap Jacobi Matrices and the Schottky–Klein Prime Function. Computational Methods and Function Theory, 2017, 17, 319-341.	1.5	0
149	Special issue in honour of Professor John Blake FIMA CMath. IMA Journal of Applied Mathematics, 2018, 83, 553-555.	1.6	O
150	Uniformizing Real Hyperelliptic M-Curves Using the Schottky–Klein Prime Function. Lecture Notes in Mathematics, 2011, , 183-193.	0.2	0