Keith Moffatt

List of Publications by Citations

95 papers	5,512 citations	30 h-index	74 g-index
103 ext. papers	6,050 ext. citations	5.1 avg, IF	5.96 L-index

#	Paper	IF	Citations
95	Viscous and resistive eddies near a sharp corner. *Journal of Fluid Mechanics*, **1964**, 18, 1-18	3.7	1174
94	The degree of knottedness of tangled vortex lines. *Journal of Fluid Mechanics*, **1969**, 35, 117-129	3.7	1009
93	Magnetostatic equilibria and analogous Euler flows of arbitrarily complex topology. Part 1. Fundamentals. *Journal of Fluid Mechanics*, **1985**, 159, 359	3.7	279
92	Stretched vortices the sinews of turbulence; large-Reynolds-number asymptotics. *Journal of Fluid Mechanics*, **1994**, 259, 241-264	3.7	215
91	Turbulent dynamo action at low magnetic Reynolds number. *Journal of Fluid Mechanics*, **1970**, 41, 435-452	3.7	176
90	On a class of steady confined Stokes flows with chaotic streamlines. *Journal of Fluid Mechanics*, **1990**, 212, 337	3.7	168
89	The energy spectrum of knots and links. *Nature*, **1990**, 347, 367-369	50.4	157
88	Free-surface cusps associated with flow at low Reynolds number. *Journal of Fluid Mechanics*, **1992**, 241, 1-22	3.7	145
87	Topological constraints associated with fast dynamo action. *Journal of Fluid Mechanics*, **1985**, 154, 493-507	3.7	144
86	On the suppression of turbulence by a uniform magnetic field. *Journal of Fluid Mechanics*, **1967**, 28, 571	3.7	144
85	Dynamo action associated with random inertial waves in a rotating conducting fluid. *Journal of Fluid Mechanics*, **1970**, 44, 705	3.7	141
84	Some developments in the theory of turbulence. *Journal of Fluid Mechanics*, **1981**, 106, 27	3.7	135
83	Magnetostatic equilibria and analogous Euler flows of arbitrarily complex topology. Part 2. Stability considerations. *Journal of Fluid Mechanics*, **1986**, 166, 359	3.7	126
82	An approach to a dynamic theory of dynamo action in a rotating conducting fluid. *Journal of Fluid Mechanics*, **1972**, 53, 385-399	3.7	108
81	Fluid dynamical aspects of the levitation-melting process. *Journal of Fluid Mechanics*, **1982**, 117, 45-70	3.7	103
80	Motion and expansion of a viscous vortex ring. Part 1. A higher-order asymptotic formula for the velocity. *Journal of Fluid Mechanics*, **2000**, 417, 1-45	3.7	100
79	The Magnetostrophic Rise of A Buoyant Parcel In the Earth's Core. *Geophysical Journal International*, **1994**, 117, 394-402	2.6	93

78	The mean electromotive force generated by turbulence in the limit of perfect conductivity. *Journal of Fluid Mechanics*, **1974**, 65, 1-10	3.7	71
77	The structure of the vortices in freely decaying two-dimensional turbulence. *Journal of Fluid Mechanics*, **1996**, 313, 209-222	3.7	69
76	Electromagnetic stirring. *Physics of Fluids A, Fluid Dynamics*, **1991**, 3, 1336-1343		66
75	Reconnection of skewed vortices. *Journal of Fluid Mechanics*, **2014**, 751, 329-345	3.7	45
74	The interaction of skewed vortex pairs: a model for blow-up of the Navier Stokes equations. *Journal of Fluid Mechanics*, **2000**, 409, 51-68	3.7	42
73	On general transformations and variational principles for the magnetohydrodynamics of ideal fluids. Part 1. Fundamental principles. *Journal of Fluid Mechanics*, **1995**, 283, 125-139	3.7	38
72	On general transformations and variational principles for the magnetohydrodynamics of ideal fluids. Part 4. Generalized isovorticity principle for three-dimensional flows. *Journal of Fluid Mechanics*, **1999**, 390, 127-150	3.7	37
71	Effects of inertia in forced corner flows. *Journal of Fluid Mechanics*, **1981**, 112, 315	3.7	36
70	Self-Exciting Fluid Dynamos **2019**,		36
69	Soap-film Mobius strip changes topology with a twist singularity. *Proceedings of the National Academy of Sciences of the United States of America*, **2010**, 107, 21979-21984	11.5	35
68	Classical dynamics: spinning eggs--a paradox resolved. *Nature*, **2002**, 416, 385-6	50.4	35
67	Celt reversals: a prototype of chiral dynamics. *Proceedings of the Royal Society of Edinburgh Section A: Mathematics*, **2008**, 138, 361-368	1	33
66	The role of the helicity spectrum function in turbulent dynamo theory. *Geophysical and Astrophysical Fluid Dynamics*, **1982**, 21, 265-283	1.4	30
65	On the existence of localized rotational disturbances which propagate without change of structure in an inviscid fluid. *Journal of Fluid Mechanics*, **1986**, 173, 289-302	3.7	29
64	The degree of knottedness of tangled vortex lines CORRIGENDUM. *Journal of Fluid Mechanics*, **2017**, 830, 821-822	3.7	27
63	MAGNETIC RELAXATION, CURRENT SHEETS, AND STRUCTURE FORMATION IN AN EXTREMELY TENUOUS FLUID MEDIUM. *Astrophysical Journal*, **2013**, 779, 169	4.7	27
62	Dynamics of an axisymmetric body spinning on a horizontal surface. I. Stability and the gyroscopic approximation. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2004**, 460, 3643-3672	2.4	26
61	Flow of fluid of non-uniform viscosity in converging and diverging channels. *Journal of Fluid Mechanics*, **1982**, 117, 283-304	3.7	26

60	Note on the triad interactions of homogeneous turbulence. *Journal of Fluid Mechanics*, **2014**, 741,	3.7	23
59	Rotary honing: a variant of the Taylor paint-scraper problem. *Journal of Fluid Mechanics*, **2000**, 418, 119-135	3.7	23
58	Exact solutions of the Navier Stokes equations having steady vortex structures. *Journal of Fluid Mechanics*, **2005**, 541, 55	3.7	22
57	The Lighthill Weis-Fogh clap ling sweep mechanism revisited. *Journal of Fluid Mechanics*, **2011**, 676, 572-606	3.7	20
56	Report on the NATO Advanced Study Institute on magnetohydrodynamic phenomena in rotating fluids. *Journal of Fluid Mechanics*, **1973**, 57, 625-649	3.7	20
55	Towards a finite-time singularity of the Navier Stokes equations Part 1. Derivation and analysis of dynamical system. *Journal of Fluid Mechanics*, **2019**, 861, 930-967	3.7	19
54	Towards a finite-time singularity of the Navier Stokes equations. Part 2. Vortex reconnection and singularity evasion. *Journal of Fluid Mechanics*, **2019**, 870,	3.7	17
53	Magnetic relaxation and the Taylor conjecture. *Journal of Plasma Physics*, **2015**, 81,	2.7	16
52	On general transformations and variational principles for the magnetohydrodynamics of ideal fluids. Part III. Stability criteria for axisymmetric flows. *Journal of Plasma Physics*, **1997**, 57, 89-120	2.7	15
51	A similarity solution for viscous source flow on a vertical plane. *European Journal of Applied Mathematics*, **1997**, 8, 37-47	1	15
50	Boundary singularities produced by the motion of soap films. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 8339-44	11.5	14
49	G.K. BATCHELOR AND THEHOMOGENIZATION OFTURBULENCE. *Annual Review of Fluid Mechanics*, **2002**, 34, 19-35	22	14
48	Similarity solutions for unsteady stagnation point flow. *Journal of Fluid Mechanics*, **2012**, 711, 394-410	3.7	12
47	Dynamics of a rolling robot. *Proceedings of the National Academy of Sciences of the United States of America*, **2017**, 114, 12858-12863	11.5	11
46	Three coins in a fountain. *Journal of Fluid Mechanics*, **2013**, 720, 1-4	3.7	11
45	Evolving eddy structures in oscillatory Stokes flows in domains with sharp corners. *Journal of Fluid Mechanics*, **2006**, 551, 63	3.7	11
44	The annihilation of a two-dimensional jet by a transverse magnetic field. *Journal of Fluid Mechanics*, **1967**, 30, 65-82	3.7	11
43	Helicity and celestial magnetism. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2016**, 472, 20160183	2.4	9

42	Singularities in fluid mechanics. *Physical Review Fluids*, **2019**, 4,	2.8	9
41	On the effect of a central vortex on a stretched magnetic flux tube. *Journal of Fluid Mechanics*, **1997**, 339, 121-142	3.7	8
40	Dynamics of an axisymmetric body spinning on a horizontal surface. II. Self-induced jumping. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2005**, 461, 1753-1774	2.4	8
39	Report on workshop on small-diffusivity dynamos and dynamical systems. *Geophysical and Astrophysical Fluid Dynamics*, **1990**, 52, 263-270	1.4	8
38	A tent model of vortex reconnection under Biot–Savart evolution. *Journal of Fluid Mechanics*, **2018**, 834,	3.7	8
37	Scaling properties towards vortex reconnection under Biot–Savart evolution. *Fluid Dynamics Research*, **2018**, 50, 011409	1.2	7
36	Evolution of toroidal magnetic eddies in an ideal fluid. *Journal of Fluid Mechanics*, **2006**, 558, 253	3.7	7
35	On the behaviour of a suspension of conducting particles subjected to a time-periodic magnetic field. *Journal of Fluid Mechanics*, **1990**, 218, 509	3.7	6
34	Report on the AFOSR-IFP-Stanford conference on computation of turbulent boundary layers. *Journal of Fluid Mechanics*, **1969**, 36, 481	3.7	6
33	Deflection of a stream of liquid metal by means of an alternating magnetic field. *Journal of Fluid Mechanics*, **1988**, 194, 309	3.7	5
32	A dynamic runaway effect associated with flux expulsion in magnetohydrodynamic channel flow. *Journal of Fluid Mechanics*, **1982**, 121, 107	3.7	5
31	Soap-film dynamics and topological transitions under continuous deformation*. *Physical Review Fluids*, **2016**, 1,	2.8	4
30	Extreme events in turbulent flow. *Journal of Fluid Mechanics*, **2021**, 914,	3.7	4
29	Homogeneous turbulence: an introductory review. *Journal of Turbulence*, **2012**, 13, N39	2.1	3
28	George Batchelor: a personal tribute, ten years on. *Journal of Fluid Mechanics*, **2010**, 663, 2-7	3.7	3
27	Instability of magnetic modons and analogous Euler flows. *Journal of Plasma Physics*, **1996**, 56, 677-691	2.7	3
26	Helicity and the Călugăreanu invariant. *Series on Knots and Everything*, **1995**, 251-269	2	3
25	Spreading or contraction of viscous drops between plates: single, multiple or annular drops. *Journal of Fluid Mechanics*, **2021**, 925,	3.7	2

24	Towards a finite-time singularity of the Navier–Stokes equations. Part 2. Vortex reconnection and singularity evasion – CORRIGENDUM. *Journal of Fluid Mechanics*, **2020**, 887,	3.7	1
23	Some topological aspects of fluid dynamics. *Journal of Fluid Mechanics*, **2021**, 914,	3.7	1
22	Basic Theory and Observations **2019**, 1-2		
21	Magnetokinematic Preliminaries **2019**, 20-58		
20	Advection, Distortion and Diffusion **2019**, 59-98		
19	The Magnetic Field of the Earth and Planets **2019**, 99-120		
18	Astrophysical Magnetic Fields **2019**, 121-142		
17	Foundations of Dynamo Theory **2019**, 143-144		
16	Laminar Dynamo Theory **2019**, 145-184		
15	Mean-Field Electrodynamics **2019**, 185-215		
14	Nearly Axisymmetric Dynamos **2019**, 216-230		
13	Solution of the Mean-Field Equations **2019**, 231-278		
12	The Fast Dynamo **2019**, 279-296		
11	Dynamic Aspects of Dynamo Action **2019**, 297-298		
10	Low-Dimensional Models of the Geodynamo **2019**, 299-314		
9	Dynamic Equilibration **2019**, 315-355		
8	The Geodynamo: Instabilities and Bifurcations **2019**, 356-395		
7	Astrophysical dynamic models **2019**, 396-416		

6 Helical Turbulence **2019**, 417-440

5 Magnetic Relaxation under Topological Constraints **2019**, 441-462

4 Magnetic Relaxation in a Low- Plasma **2019**, 463-481

3 Orthogonal Curvilinear Coordinates **2019**, 482-484

2 The Earth Magnetism: Past Achievements and Future Challenges. *Special Publications*, **2013**, 1-20

1 Magnetohydrodynamic phenomena in rotating fluids. *Geophysical Fluid Dynamics*, **1972**, 3, 89-90