

List of publications

H.K. Moffatt

August 26, 2021

Curriculum Vitae

2021

- 224. MOFFATT, H., GUEST, H. & HUPPERT, H. E. 2021 Spreading or contraction of viscous drops between plates: single, multiple or annular drops. *J. Fluid Mech.* **925**, A26. DOI:<https://doi.org/10.1017/jfm.2021.668>. [PDF](#).
- 223. MOFFATT, H. K. 2021*a* Extreme events in turbulent flow. *J. Fluid Mech.* **914**, F1–1 – F1–4. [PDF](#).
- 222. MOFFATT, H. K. 2021*b* Some topological aspects of fluid dynamics. *J. Fluid Mech.* **914**, P1–1 – P1–56. Doi:[10.1017/jfm.2020.230](https://doi.org/10.1017/jfm.2020.230). [PDF](#).

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- 221. DORMY, E. & MOFFATT, H. K. 2020 Flow induced by rotation of two circular cylinders in a viscous fluid. <https://arxiv.org/pdf/2008.04432.pdf> p. 39 p. [PDF](#).

2019

- 220. MOFFATT, H. K. 2019 Singularities in fluid mechanics. *Phys. Rev. Fluids* **4** (11), 110502. [PDF](#).
- 219. MOFFATT, H. K. & VLADIMIROV, V. A. 2019 Chiral transfer of angular momentum. *Phys. Rev. Fluids* **4** (10), 104102. <https://link.aps.org/doi/10.1103/PhysRevFluids.4.104102>. [PDF](#).
- 218. MOFFATT, H. K. & KIMURA, Y. 2019*b* Towards a finite-time singularity of the Navier-Stokes equations. Part 2. Vortex reconnection and singularity evasion. *J. Fluid Mech.* **870**, R1. <https://doi.org/10.1017/jfm.2019.263> (See also CORRIGENDUM, JFM, 887, 25 MAR. 2020, doi: [10.1017/jfm.2020.57](https://doi.org/10.1017/jfm.2020.57)). [PDF](#).
- 217. MOFFATT, H. K. & KIMURA, Y. 2019*a* Towards a finite-time singularity of the Navier-Stokes equations. Part 1. Derivation and analysis of dynamical system. *J. Fluid Mech.* **861**, 930–967. [PDF](#).
- 216. MOFFATT, H. K. & DORMY, E. 2019 *Self-Exciting Fluid Dynamos*. Cambridge University Press. Cambridge Texts in Applied Mathematics, 520+xviii pp.

2018

- 215. MIZERSKI, K. A. & MOFFATT, H. K. 2018 Dynamo generation of a magnetic field by decaying Lehnert waves in a highly conducting plasma. *Geophys. Astrophys. Fluid Dyn.* **112**, 165–174. [PDF](#).
- 214. KIMURA, Y. & MOFFATT, H. K. 2018*a* Scaling properties towards vortex reconnection under the Biot-Savart law. *Fluid Dyn. Res.* **50**, 011409. [PDF](#).

213. KIMURA, Y. & MOFFATT, H. K. 2018*b* A tent model of vortex reconnection under Biot-Savart evolution. *J. Fluid Mech.* **834**, R1. Doi=10.1017/jfm.2017.769. [PDF](#).
212. MOFFATT, H. K. 2018 Helicity. *Comptes Rendus Mécanique* **346** (3), 165–169. <https://doi.org/10.1016/j.crme.2017.12.002>. [PDF](#).
- 2017
211. MOFFATT, H. K. & MIZERSKI, K. 2017 Pinch dynamics in a low- β plasma. *Fluid Dyn. Res.* **50** (1), 011401. [PDF](#).
210. ILIN, K. I., MOFFATT, H. K. & VLADIMIROV, V. A. 2017 Dynamics of a rolling robot. *Proc. Nat. Acad. Sci.* **114** (49), 12858–12863. [PDF](#).
209. MOFFATT, H. K. 2017*d* Helicity, invariant even in a viscous fluid. *Science* **357** (6350), 448–449. [PDF](#).
208. MOFFATT, H. K. 2017*c* The early years of the *Journal of Fluid Mechanics*. Style and international impact. *Comptes Rendus Mécanique* **345** (7), 498–504. [PDF](#).
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206. MOFFATT, H. K. 2017*a* Clerk Maxwell and the complex behaviour of an object released from rest in a fluid. *Newsletter of the James Clerk Maxwell Foundation* (9), 1–2. [PDF](#).
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204. MOFFATT, H. K., GOLDSTEIN, R. E. & PESCI, A. I. 2016 Soap-film dynamics and topological transitions under continuous deformation. *Phys. Rev. Fluids* **1** (6), 060503. [PDF](#).
203. MOFFATT, H. K. 2016*a* Book Review – Singularities: Formation, Structure, and Propagation. Eggers J. & Fontelos M.A. Cambridge Texts in Applied Mathematics, Cambridge University Press, 2015. Paperback, 453+ xvi pp. isbn 9781107485495. £39.99. *J. Fluid Mech.* **804**, 749–750.
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198. PESCI, A. I., GOLDSTEIN, R., ALEXANDER, G. & MOFFATT, H. K. 2015 Instability of a Möbius strip minimal surface and a link with systolic geometry. *Phys. Rev. Lett.* **114**, 127801. [PDF](#).
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196. MOFFATT, H. K. 2014*b* Note on the triad interactions of homogeneous turbulence. *J. Fluid Mech.* **741**, R3. [PDF](#).

195. MOFFATT, H. K. 2014c The fluid dynamics of James Clerk Maxwell. In *James Clerk Maxwell: Perspectives on his Life and Work* (ed. R. Flood, M. McCartney & A. Whitaker), pp. 223–230. Oxford University Press. [PDF](#).
194. GOLDSTEIN, R. E., HUPPERT, H. E., MOFFATT, H. K. & PESCI, A. I. 2014a Instability of a gravity current within a soap-film. *J. Fluid Mech.* **753**, R1. [PDF](#).
193. GOLDSTEIN, R. E., MCTAVISH, J., MOFFATT, H. K. & PESCI, A. I. 2014b Boundary singularities produced by the motion of soap films. *Proc. Natl. Acad. Sci.* **111**, 8339–8344. [PDF](#).
192. KIMURA, Y. & MOFFATT, H. K. 2014 Reconnection of skewed vortices. *J. Fluid Mech* **751**, 329–345. [PDF](#).

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191. ELIMELECH, Y., KOLOMENSKIY, D., DALZIEL, S. B. & MOFFATT, H. K. 2013 Evolution of the leading-edge vortex over an accelerating rotating wing. In *Moffatt et al. (2013)*, pp. 233–242. [PDF](#).
190. MOFFATT, H. K., BAJER, K. & KIMURA, Y. (ed.) 2013 *Topological Fluid Dynamics: Theory and Applications. Procedia IUTAM 7*. Elsevier, Proceedings of the IUTAM Symposium, Isaac Newton Institute for Mathematical Sciences, 23–27 July 2012, Cambridge, UK. [URL](#)
189. SCHNEIDER, K., KOLOMENSKIY, D., ENGELS, T., MOFFATT, H. K. & FARGE, M. 2013 Numerical simulations of the clap-fling-sweep mechanism of hovering insects. In *Mining Smartness from Nature* (ed. P. Vincenzini, L. Schenato, N. C. Seeman & F. C. Simmel), *Advances in Science and Technology*, vol. 84, pp. 57–58. Trans Tech Publications. CIMTEC 2012 - 4th International Conference on Smart Materials, Structures and Systems, June 10-14, 2012, Montecatini Terme, Italy. [PDF](#). [URL](#)
188. FARGE, M., MOFFATT, H. K. & SCHNEIDER, K. 2013 Fundamental Problems of Turbulence, 50 years after the Marseille 1961 Conference, Centre International de Rencontres Mathématiques (CIRM), Marseille, 28-30 September 2011. *J. Turbul.* **14**, 39–42. [PDF](#). [URL](#)
187. BAJER, K. & MOFFATT, H. K. 2013 Magnetic relaxation, current sheets, and structure formation in an extremely tenuous fluid medium. *Astrophys. J.* **779**, 169–182. [PDF](#).
186. MOFFATT, P. G. & MOFFATT, H. K. 2013 Giffen goods and their reflexion property. *The Manchester School* <https://doi.org/10.1111/manc.12003>. [PDF](#).
185. MOFFATT, H. K. 2013b Three coins in a fountain. *J. Fluid Mech.* **720**, 1–4. Focus on Fluids. [PDF](#).
184. MOFFATT, H. K. 2013a Relaxation to steady vortical flows, and knots in the quark-gluon plasma. In *Mechanics Down Under* (ed. J. P. Denier & M. D. Finn), pp. 155–164. Springer. Proceedings of the XXII International Congress of Theoretical and Applied Mechanics (ICTAM2008), 24-29 August 2008, Adelaide, Australia. [PDF](#).

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- 179. KOLOMENSKIY, D., MOFFATT, H. K., FARGE, M. & SCHNEIDER, K. 2011*b* Two- and three-dimensional numerical simulations of the clap-fling-sweep of hovering insects. *J. Fluid Struct.* **27** (5-6), 784–791. Special issue: IUTAM Symposium on Bluff Body Wakes and Vortex-Induced Vibrations, Capri, Italy, Jun 22-25, 2010. [PDF](#).
- 178. KOLOMENSKIY, D., MOFFATT, H. K., FARGE, M. & SCHNEIDER, K. 2011*a* The Lighthill-Weis-Fogh clap-fling-sweep mechanism revisited. *J. Fluid Mech.* **676**, 572–606. [PDF](#).
- 177. MOFFATT, H. K. 2011*a* A brief introduction to vortex dynamics and turbulence. In [Moffatt & Shuckburgh \(2011\)](#), pp. 1–27. [PDF](#).
- 176. MOFFATT, H. K. & SHUCKBURGH, E. (ed.) 2011 *Environmental Hazards: The Fluid Dynamics and Geophysics of Extreme Events*. World Scientific. [URL](#)
- 175. MOFFATT, H. K. 2011*b* George Keith Batchelor and the post-war renaissance of research in turbulence. In [Davidson et al. \(2011\)](#), pp. 276–304. [PDF](#).
- 174. DAVIDSON, P. A., KANEDA, Y., MOFFATT, H. K. & SREENIVASAN, K. R. (ed.) 2011 *A Voyage Through Turbulence*. Cambridge University Press. [PDF](#). [URL](#). See also [video recordings](#) of lectures given at the Symposium on Turbulence - the Historical Perspective, Warsaw 2011.

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- 173. MOFFATT, H. K. 2010*a* George Batchelor: a personal tribute, ten years on. *J. Fluid Mech.* **663**, 2–7. [PDF](#).
- 172. GOLDSTEIN, R. E., MOFFATT, H. K., PESCI, A. I. & RICCA, R. L. 2010 Soap-film Möbius strip changes topology with a twist singularity. *Proc. Natl. Acad. Sci.* **107** (51), 21979–21984. [PDF](#).
- 171. MOFFATT, H. K. 2010*b* Note on the suppression of transient shear-flow instability by a spanwise magnetic field. *J. Eng. Math.* **68** (3-4), 263–268. [PDF](#).
- 170. MOFFATT, H. K. 2010*c* The persistence of spin. In *150 Years of Vortex Dynamics* (ed. H. Aref). Springer. Proceedings of the IUTAM Symposium, Technical University of Denmark, October 12–16, 2008. [PDF](#).
- 169. KOLOMENSKIY, D., MOFFATT, H. K., FARGE, M. & SCHNEIDER, K. 2010 Vorticity generation during the clap-fling-sweep of some hovering insects. *Theor. Comp. Fluid Dyn.* **24** (1-4, SI), 209–215. [PDF](#).

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- 166. MOFFATT, H. K. & TOKIEDA, T. 2008 Celt reversals: a prototype of chiral dynamics. *Proc. Roy. Soc. Edinb. A* **138** (2), 361–368. [PDF](#).
- 165. FUKUMOTO, Y. & MOFFATT, H. K. 2008 Kinematic variational principle for motion of vortex rings. *Physica D* **237** (14-17), 2210–2217. [PDF](#).

164. MOFFATT, H. K. 2008a Magnetostrophic turbulence and the geodynamo. In *Computational Physics and New Perspectives in Turbulence* (ed. Y. Kaneda), pp. 339–346. Springer. Proceedings of the IUTAM Symposium, Nagoya University, Japan, 11-14 September 2006. [PDF](#).
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163. MOFFATT, H. K. 2007a The birth and adolescence of MHD turbulence. In *Magnetohydrodynamics: Historical Evolution and Trends* (ed. S. Molokov, R. Moreau & H. K. Moffatt), pp. 213–222. Springer. International Workshop on the History of Magnetohydrodynamics, Coventry University, UK, May 26-28, 2004. [PDF](#).
162. MOFFATT, H. K. 2007c Professor D. Howell Peregrine - 30 December 1938 - 20 March 2007. Obituary. *J. Fluid Mech.* **580**, 1–2. [PDF](#).
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137. MOFFATT, H. K. 2001a Dynamo theory. In *The Encyclopedia of Astronomy and Astrophysics* (ed. P. Murdin), pp. 666–671. Institute of Physics. [PDF](#).
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