

Moffatt, H. Keith**Some remarks on topological fluid mechanics.** (English) Zbl 1100.76500

Ricca, Renzo L. (ed.), An introduction to the geometry and topology of fluid flows. Proceedings of the NATO Advanced Study Institute "Pedagogical workshop on geometry and topology of fluid flows", Cambridge, UK, September 11–22, 2000. Dordrecht: Kluwer Academic Publishers (ISBN 1-4020-0206-8/hbk). NATO Sci. Ser. II, Math. Phys. Chem. 47, 3-10 (2001).

Introduction: Topological fluid mechanics is primarily concerned with structures within a flow field which retain some coherence over a significant period of time. Under circumstances that may be described as 'ideal' relative to the type of structure considered, this 'significant period of time' is infinite; but insofar as circumstances are never ideal in reality, we must be equally concerned with the manner in which structural (or topological) properties of a flow may change with time (generally under the influence of some diffusive process).

These statements suffer from a degree of imprecision that can be removed only through consideration of particular problems. The purpose of this brief paper is to set out a number of such problems, all of which have at least a starting point that can be described as topological, and most of which are unsolved. There is no shortage of challenging problems of this type for which a combination of analytical, computational and experimental (ACE) techniques will be required if real progress is to be made.

For the entire collection see [[Zbl 1028.00036](#)].

MSC:

76-02 Research exposition (monographs, survey articles) pertaining to fluid mechanics Cited in **27** Documents

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