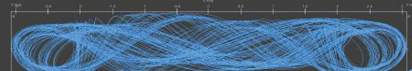
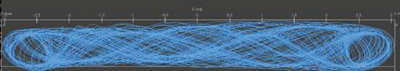
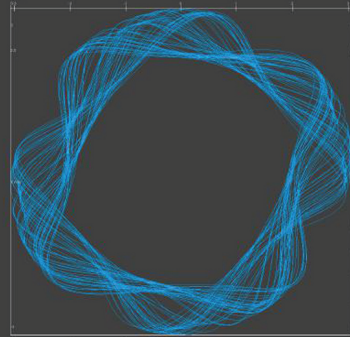
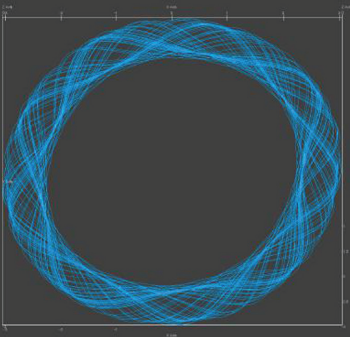
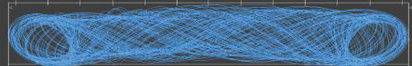
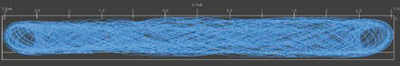
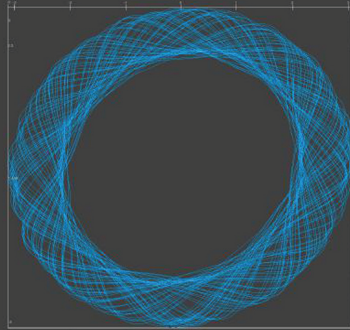
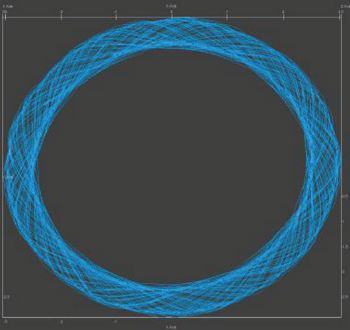


JFM JOURNAL OF FLUID MECHANICS



VOLUME 945
25 August 2022



CAMBRIDGE
UNIVERSITY PRESS

The JOURNAL OF FLUID MECHANICS exists for the publication of theoretical, computational and experimental investigations of all aspects of the mechanics of fluids.

EDITOR

Prof. C. P. Caulfield, University of Cambridge, c.p.caulfield@damtp.cam.ac.uk

DEPUTY EDITOR

Prof. C. Meneveau, Johns Hopkins University, meneveau@jhu.edu

BOOK REVIEW AND FOCUS ON FLUIDS EDITOR

Prof. A. Juel, University of Manchester, anne.juel@manchester.ac.uk

ASSOCIATE EDITORS

Prof. Silas Alben, University of Michigan,
alben@umich.edu

Prof. N. Balmforth, University of British Columbia,
njb@math.ubc.ca

Prof. O. Bühler, Courant Institute of Mathematical
Sciences, obuhler@cims.nyu.edu

Prof. C. Cenedese, Woods Hole Oceanographic
Institution, ccenedese@whoi.edu

Prof. H. Choi, Seoul National University,
choi@snu.ac.kr

Prof. P. A. Davidson, University of Cambridge,
pad3@eng.cam.ac.uk

Prof. J. M. Gordillo, University of Seville,
jgordill@us.es

Prof. M. Juniper, University of Cambridge,
mpj1001@cam.ac.uk

Prof. G. Kawahara, Osaka University,
kawahara@me.es.osaka-u.ac.jp

Prof. J. Kirby, University of Delaware,
kirby@udel.edu

Prof. J. Magnaudet, Institut de Mécanique des
Fluides de Toulouse, magnau_jfm@imft.fr

Prof. I. Marusic, University of Melbourne,
imarusic@unimelb.edu.au

Prof. J. F. Morris, Levich Institute, CUNY City
College of New York, jfm@ccny.cuny.edu

Prof. P. Nott, Indian Institute of Science,
prnott@iisc.ac.in

Prof. M. Onorato, University of Turin,
miguel.onorato@unito.it

Prof. C. Pantano, University of Southern California,
USA, pantanor@usc.edu

Prof. S. Sarkar, University of California,
San Diego, ssarkar@eng.ucsd.edu

Prof. S. Sherwin, Imperial College,
jfluidmech@imperial.ac.uk

Prof. R. Verzicco, Università di Roma 'Tor Vergata',
verzicco_jfm@uniroma2.it

Prof. P. Vlahovska, Northwestern University,
petia.vlahovska@northwestern.edu

Prof. J. S. Wettlaufer, Yale University,
john.wettlaufer@yale.edu

Prof. K.-Q. Xia, The Southern University of Science and
Technology, xiakq@sustech.edu.cn

Prof. T. A. Zaki, Johns Hopkins University,
TZaki-JFM@jhu.edu

RAPIDS EDITOR

Prof. É. Guazzelli, MSC, CNRS Université de Paris, elisabeth.guazzelli@univ-paris-diderot.fr

RAPIDS ASSOCIATE EDITORS

Prof. C. P. Caulfield, University of Cambridge, c.p.caulfield@damtp.cam.ac.uk

Prof. D. S. Henningson, KTH Mechanics, jfm@mech.kth.se

Prof. D. Lohse, University of Twente, lohse.jfm.tnw@utwente.nl

Prof. Sarah Waters, University of Oxford, UK, waters@maths.ox.ac.uk

PERSPECTIVES EDITOR

Prof. P. F. Linden, University of Cambridge, p.f.linden@damtp.cam.ac.uk

PERSPECTIVES ASSOCIATE EDITORS

Dr Berengere Dubrulle, Freanch National Centre for
Scientific Research CNRS, France,
berengere.dubrulle@cea.fr

Prof. Sarah Waters, University of Oxford, UK,
waters@maths.ox.ac.uk

Prof. Rich Kerswell, University of Cambridge, UK,
r.r.kerswell@damtp.cam.ac.uk

Cover image: Graphical abstract from Liu, Z. & Ladd, A. 2022 Onset of instabilities in rotating flows by direct numerical simulation. *J. Fluid Mech.* **945**, A31. doi:10.1017/jfm.2022.566.