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Deposited on 27 July 2022

Introduction

This special issue sprung from the minisymposium "Recent Developments in Magnetohydrodynamics and Dynamo Theory", which formed part of the 2021 Combined British Mathematical Colloquium (BMC) and British Applied Mathematics Colloquium (BAMC) hosted online by the University of Glasgow in April 2021. The goal of this minisymposium was to bring together, in one forum, researchers from very different areas of magnetohydrodynamics and dynamo theory who do not normally share the same stage. This special issue is a continuation of the minisymposium and collates five original research articles that span several diverse and fascinating areas of theoretical magnetohydrodynamics.

D. Faraco and **S. Lindberg**, in *Rigorous results on conserved and dissipated quantities in ideal MHD turbulence*, present a very clear and comprehensive overview of classical and recent theoretical results related to the conservation of magnetic helicity and other important quantities in turbulent flows.

J.F. Hollins, G.R. Sarson et al., in *Mean fields and fluctuations in compressible magnetohydrodynamic flows*, continue to discuss the fundamental theme of MHD turbulence with particular emphasis on statistical modelling and applications to the interstellar medium.

L. Chen, in *Multiplicity in an optimized kinematic dynamo*, describes complex changes in the behaviour of optimized kinematic dynamos.

A.R. Yeates, in *On the limitations of magneto-frictional relaxation*, presents a detailed case study of the behaviour of magneto-frictional relaxation, a technique that is used widely in Solar Physics.

C. Prior and **P. Wyper**, in *An exact threshold for separator bifurcation*, discuss a method for describing the evolution of magnetic separators, a topic of importance for understanding the behaviour of solar flares.

We would like to thank all of the participants in both the minisymposium and this special issue. Their contributions provide a fascinating overview of many diverse, but related, areas of magnetohydrodynamics.

Radostin D. Simitev

Email: Radostin.Simitev@glasgow.ac.uk

http://orcid.org/0000-0002-2207-5789

University of Glasgow, UK

David MacTaggart

http://orcid.org/0000-0003-2297-9312

University of Glasgow, UK

Robert Teed

http://orcid.org/0000-0003-2831-3116

University of Glasgow, UK

Simon Candelaresi

http://orcid.org/0000-0002-7666-8504

University of Glasgow, UK