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978-0-521-81809-4 - Stellar Astrophysical Fluid Dynamics

Edited by Michael J. Thompson and Jørgen Christensen-Dalsgaard

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## STELLAR ASTROPHYSICAL FLUID DYNAMICS

In all phases of the life of a star, hydrodynamical processes play a major role. This volume gives a comprehensive overview of the current state of knowledge in stellar astrophysical fluid dynamics, and marks the 60th birthday of Douglas Gough, Professor of Theoretical Astrophysics at the University of Cambridge and leading contributor to stellar astrophysical fluid dynamics. Topics include properties of pulsating stars, helioseismology, convection and mixing in stellar interiors, dynamics of stellar rotation, planet formation, and the generation of stellar and planetary magnetic fields. Each chapter is written by leading experts in the field, and the book provides an overview that is central to any attempt to understand the properties of stars and their evolution. With extensive references to the technical literature, this is a valuable text for researchers and graduate students in stellar astrophysics.

MICHAEL THOMPSON is Professor of Physics at the Imperial College of Science, Technology and Medicine, London.

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*Edited by*

MICHAEL J. THOMPSON

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## Preface

This volume, “Stellar Astrophysical Fluid Dynamics”, arises from a meeting held 25–29 June 2001 to celebrate the sixtieth birthday earlier that year of Douglas Gough. Douglas has been and continues to be an inspiring and enthusiastic teacher and colleague to many, as well as a highly original and influential researcher in astrophysical fluid dynamics. Many colleagues and former research students (the categories are far from mutually exclusive) came together to celebrate, of course, but also for scientific discussions of the highest quality. The meeting fully lived up to its title of “New Developments in Astrophysical Fluid Dynamics”, and although the title of the present volume has been specialised a little to emphasise the dominant stellar aspect, the full breadth of the meeting’s science is retained.

The choice of venue at the Chateau de Mons, an armagnac-producing chateau in the Gers region of south-west France, was inspired and highly appropriate given Douglas’s love of the region and its spirit. The food, wine and armagnac blended with the science, celebration and personal interactions to make a truly memorable week. One particular high spot occurred during a banquet after the first day of the meeting when Douglas was initiated as a Mousquetaire d’Armagnac, a brotherhood dedicated to promoting the enjoyment of armagnac throughout the World. Another was Mike McIntyre’s performance at the piano of an original composition of his based on Rosanne and Douglas’s telephone number (“DR, ou je te veux, encore”); and shall we ever forget Sylvie and Gerard Vauclair’s persuasively feline rendition of Rossini’s Cat Duet?

Of course, the meeting could not have happened without the hard work of many people. Although Douglas was unaware until the day, the plans were formed over nearly five years, in places as diverse as the Serendipity Cafe in Boulder, Colorado, and the IAU general assembly in Kyoto. We are grateful for guidance in the scientific planning of the meeting from Nigel Weiss, Wojciech Dziembowski and Juri Toomre. Rosanne Gough, Kate Thompson and Karen Christensen-Dalsgaard were involved from beginning to end particularly in planning the social side of the week. The

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whole thing could not have happened without our co-organiser Sylvie Vauclair, who from the first time we discussed plans with her in Kyoto put a huge amount of effort into making the meeting the success it was. As well as playing a full part in the scientific planning, Sylvie found and arranged the venue, made all local arrangements for excursions, music, banquets, handled the finances, successfully sought support for the meeting from numerous sources, and carried the brunt of all local liaison. Sylvie, thank you.

We gratefully acknowledge and thank the following organisations for financial or other support of the meeting:

- Conseil Régional Midi-Pyrénées
- Conseil Général du Gers
- Université Paul Sabatier (Toulouse)
- Lycée Bossuet de Condom
- Ferme des Etoiles (Mauroux)
- Theoretical Astrophysics Center (Denmark)

We also thank Gerard Vauclair for his help in the planning and execution of the meeting, Birte Christensen-Dalsgaard for the photograph used for the frontispiece to this book (Douglas wearing the sash and regalia of a Mousquetaire d'Armagnac), and Simon Mitton for his encouragement in bringing this volume to fruition. Last but by no means least we thank the staff of the Chateau de Mons for looking after us so well, and special thanks to their director, M. Michel Pourquet, who calmly assured us that things would happen (and they did) and made our stay at the chateau so pleasant and successful.

M.J.T., J.C.-D.

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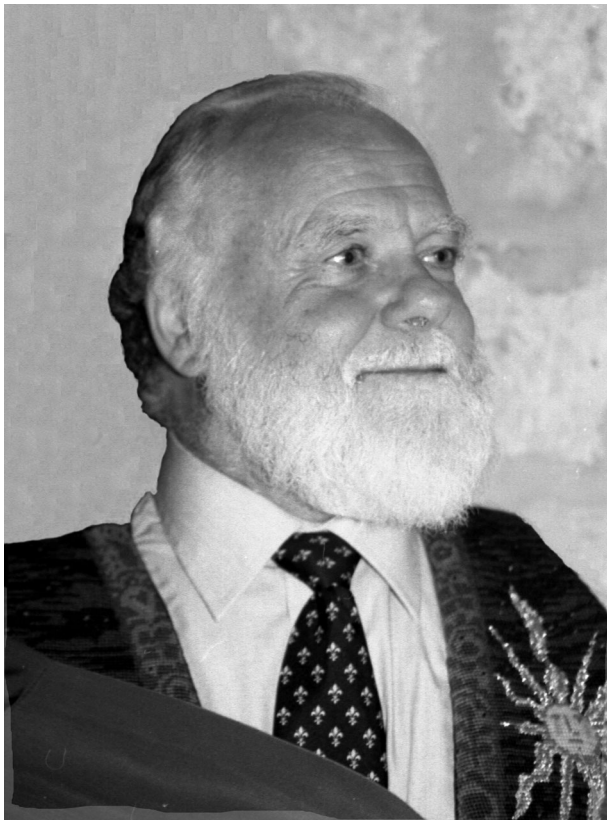
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Professor Douglas Gough – June 2001, Condom, France