

# Preface

This book is a revised edition of my earlier book of the same title. The current edition adopts the structure of the earlier version but is much changed. The introduction now contains definitions of stability. Chapters 2 to 4 explain stability and the energy method in more depth and new sections dealing with porous media are provided. Chapters 5 to 13 are revisions of those in the earlier edition. However, chapters 6 to 12 are substantially revised, brought completely up to date, and have much new material in.

Throughout the book new results are provided which are not available elsewhere.

Six new chapters, 14 - 19, are provided dealing with topics of current interest. These cover the topics of multi-component convection diffusion, convection in a compressible fluid, convection with temperature dependent viscosity and thermal conductivity, the subject of penetrative convection whereby part of the fluid layer can penetrate into another, nonlinear stability in the oceans, and finally in chapter 19 practical methods for solving numerically the eigenvalue problems which arise are presented.

The book presents convection studies in a variety of fluid and porous media contexts. It should be accessible to a wide audience and begins at an elementary level. Many new references are provided.

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