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| Nota di contenuto       | 1. A selective overview / Jorgen Christensen-Dalsgaard and Michael J. Thompson -- 2. On the diversity of stellar pulsations / Wojciech A. Dziembowski -- 3. Acoustic radiation and mode excitation by turbulent convection / Gunter Houdek -- 4. Understanding roAp stars / Margarida S. Cunha -- 5. Waves in the magnetised solar atmosphere / Colin S. Rosenthal -- 6. Stellar rotation: a historical survey / Leon Mestel -- 7. The oscillations of rapidly rotating stars / Michel Rieutord -- 8. Solar tachocline dynamics: eddy viscosity, anti-friction, or something in between? / Michael E. McIntyre -- 9. Dynamics of the solar tachocline / Pascale Garaud -- 10. Dynamo processes: the interaction of turbulence and magnetic fields / Michael Proctor -- 11. Dynamos in planets / Chris Jones -- 12. Solar constraints on the equation of state / Werner Dappen -- 13. [superscript 3]He transport |

and the solar neutrino problem / Chris Jordinson -- 14. Mixing in stellar radiation zones / Jean-Paul Zahn -- 15. Element settling and rotation-induced mixing in slowly rotating stars / Sylvie Vauclair -- 16. Solar structure and the neutrino problem / Hiromoto Shibahashi -- 17. Helioseismic data analysis / Jesper Schou -- 18. Seismology of solar rotation / Takashi Sekii -- 19. Telechronohelioseismology / Alexander Kosovichev -- 20. Bridges between helioseismology and models of convection zone dynamics / Juri Toomre -- 21. Numerical simulations of the solar convection zone / Julian R. Elliott -- 22. Modelling solar and stellar magnetoconvection / Nigel Weiss -- 23. Nonlinear magnetoconvection in the presence of a strong oblique field / Keith Julien, Edgar Knobloch and Steven M. Tobias -- 24. Simulations of astrophysical fluids / Marcus Bruggen -- 25. A magic electromagnetic field / Donald Lynden-Bell -- 26. Continuum equations for stellar dynamics / Edward A. Spiegel and Jean-Luc Thiffeault -- 27. Formation of planetary systems / Douglas N.C. Lin -- 28. The solar-cycle global warming as inferred from sky brightness variation / Wasaburo Unno and Hiromoto Shibahashi.

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### Sommario/riassunto

In all phases of the life of a star, hydrodynamical processes play a major role. This volume gives a comprehensive overview of the state of knowledge in stellar astrophysical fluid dynamics, and its publication marked the 60th birthday of Douglas Gough, Professor of Theoretical Physics 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.

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