

1. Record Nr.	UNINA9910457836103321
Titolo	The solar tachocline // edited by David W. Hughes, Robert Rosner, Nigel O. Weiss [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2007
ISBN	1-107-16789-2 1-280-91695-8 9786610916955 0-511-32142-2 0-511-28954-5 0-511-29014-4 0-511-28822-0 0-511-53624-0 0-511-28890-5
Descrizione fisica	1 online resource (xi, 367 pages) : digital, PDF file(s)
Disciplina	523.76
Soggetti	Helioseismology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface; Part I. Setting the Scene: 1. An introduction to the solar tachocline D.O. Gough; 2. Reflections on the solar tachocline E.A. Spiegel; Part II. Observations: 3. Observational results and issues concerning the tachocline J. Christensen-Dalsgaard and M.J. Thompson; Part III. Hydrodynamic Models: 4. Hydrodynamic models of the tachocline J.-P. Zahn; 5. Turbulence in the tachocline M.S. Miesch; 6. Mean field modelling of differential rotation G. Rudiger and L.L. Kitchatinov; Part IV. Hydromagnetic Properties: 7. Magnetic confinement of the solar tachocline P. Garaud; 8. Magnetic confinement and the sharp tachopause M.E. McIntyre; 9. s-Plane MHD turbulence and dissipation in the solar tachocline P.H. Diamond, K. Itoh, S.-I. Itoh and L.J. Silvers; Part V. Instabilities: 10. Global MHD instabilities of the tachocline P.A. Gilman and P.S. Cally; 11. Magnetic buoyancy instabilities in the tachocline D.W. Hughes; 12. Instabilities, angular momentum transport and magnetohydrodynamic turbulence G.I.

Ogilvie; Part VI. Dynamo Action: 13. The solar dynamo and the tachocline S.M. Tobias and N.O. Weiss; Part VII. Overview: 14. On studying the rotating solar interior R. Rosner; Index.

---

Sommario/riassunto

Helioseismology has enabled us to probe the internal structure and dynamics of the Sun, including how its rotation varies in the solar interior. The unexpected discovery of an abrupt transition - the tachocline - between the differentially rotating convection zone and the uniformly rotating radiative interior has generated considerable interest and raised many fundamental issues. This volume contains invited reviews from distinguished speakers at the first meeting devoted to the tachocline, held at the Isaac Newton Institute. It provides a comprehensive account of the understanding of the properties and dynamics of the tachocline, including both observational results and major theoretical issues, involving both hydrodynamic and magnetohydrodynamic behaviour. The Solar Tachocline is a valuable reference for researchers and graduate students in astrophysics, heliospheric physics and geophysics, and the dynamics of fluids and plasmas.

---