

1. Record Nr.	UNINA9910913787903321
Autore	Brajsa Roman
Titolo	Solar Rotation // by Roman Brajša, Arnold Hanslmeier
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2024
ISBN	9789819768790 9819768799
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (191 pages)
Collana	UNITEXT for Physics, , 2198-7890
Altri autori (Persone)	HanslmeierArnold
Disciplina	523.7
Soggetti	Sun Thermodynamics Astrophysics Solar system Cosmology Plasma (Ionized gases) Solar Physics Space Physics Plasma Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	The Sun as a star: fundamental properties -- Solar rotation elements -- Coordinate systems and coordinate transformation -- Methods for solar rotation measurements -- Analysis and reduction of observational data -- A comparison of various observational results of solar differential rotation -- Solar rotation and activity -- Literature.
Sommario/riassunto	The rotation of the Sun is a basic parameter which constrains the boundary conditions for the model of the MHD-dynamo mechanisms that generates solar activity. The Sun is a slowly rotating star with a convection zone below the surface which is the site of the solar dynamo. The solar rotation depends on the latitude, depth/height and time, i.e., the Sun rotates differentially. In the book several aspects of the solar rotation are covered. Only in the case of the Sun we can directly observe details in its atmosphere and so measure the rotation velocity using various tracers, which is one of the mostly used methods

for rotation determination. So, the Sun is a prototype for studying other stars. Different techniques that enable to determine solar rotation (e.g., tracer method, spectroscopic method, helioseismology) are presented and their results are compared and interpreted. In the current literature there is no book exclusively about solar rotation published in the last several decades. The book is intended for astrophysicists, both professionals as well as students and people interested in science in general. The reader would strongly benefit from the comprehensive description of several topics related to the solar rotation. The authors are highly experienced in teaching astrophysics both to astrophysicists, solar physicists as well as to the public. Therefore, from the didactical point of view the book is written basically as a textbook, so the reader that is not deep within that field can gain an overview. Moreover, for those who want to get deeper into the topics, additional information is given, and recommendations for further literature as well as many citations to recent publications. The reader will get both (i) a general introduction into the topics (ii) overview of recent publications on the topics. Therefore, the book can serve as a textbook but will be also very useful for research and thesis writing, for example.

---