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**The complex internal structure of the Sun can now be studied in detail through helioseismology and neutrino astronomy. The VI Canary Islands Winter School of Astrophysics was dedicated to examining these powerful new techniques. Based on this meeting, seven specially written chapters by world experts renowned for their teaching skills are presented in this timely volume.**

**With a clear and pedagogical style we are shown how the internal composition (density, He abundance, etc.) and dynamical structure (rotation, subsurface velocity fields, etc.) of the Sun can be deduced through helioseismology; and how the central temperature can be inferred from measurements of the flux of solar neutrinos.**

**This volume provides an excellent introduction for graduate students and an up-to-date overview for researchers working on the Sun, neutrino astronomy and helio- and asteroseismology**

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***THE STRUCTURE OF THE SUN***

***VI Canary Islands Winter School of Astrophysics***

**Edited by**

**T. Roca Cortés, University of La Laguna, Tenerife, Spain**

**F. Sánchez, Instituto de Astrofísica de Canarias, Tenerife, Spain**



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## PREFACE

Today, the study of *The Structure of the Sun* is one of the most exciting and rapidly evolving fields in physics. Helioseismology has provided us with a new tool to measure the physical state of the interior of a star, our Sun. This technique is successful to a depth of  $0.7 R_{\odot}$  (i.e.  $0.3 R_{\odot}$  from the centre). Deeper than this, observational data has been scarce. However, data are now becoming available from Earth-bound helioseismic networks (GONG, TON, IRIS, BISON,...) and from experiments on board SOHO (GOLF, MDI, VIRGO). These should allow the spectrum of gravity modes for the Sun to be determined, and thus the physical state of the solar core.

This book provides an up-to-date and comprehensive review of our current understanding of the Sun. Each chapter is written by a world expert. They are based on lectures given at the *Vth Canary Islands Winter School on Astrophysics*. This timely conference brought together leading scientists in the field, postgraduates and recent postdocs students. The aim was to take stock of the new understanding of the Sun and to focus on avenues for fruitful future research. Eight lecturers, around 60 students, and staff from the IAC met in the Hotel Gran Tinerfe in Playa de las Américas (Adeje, Tenerife) from the 5th to the 16th of December, 1994. It was a fortnight of intense and enjoyable scientific work.

At the meeting, outstanding lectures were given by Professors John Bahcall, Tim Brown, Jorgen Christensen-Dalsgaard, Douglas Gough, Jeff Kuhn, John Leibacher, Gene Parker and Yutaka Uchida. The students also presented their work in the form of poster papers which were discussed in special sessions. We are thankful to them all for making the meeting so scientifically profitable. Moreover, we benefited from the excellent work performed by our secretariat staff. Lourdes Gonzalez took care of all pre- and post-School organization; Nati García and Begoña López were on the everyday problems during the School; Carmen del Puerto and Begoña López surprised us with an excellent special issue of *Noticias* at the beginning of the School and Campbell Warden was there when we needed him. Nati García helped me in editing and assembling this manuscript. Without their help the School would not have been as profitable as it proved to be.

T. Roca Cortés and F. Sánchez, Editors.

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