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Soggetti	Observations, Astronomical Astronomy—Observations Astrophysics Geophysics Elementary particles (Physics) Quantum field theory Nuclear physics Heavy ions Nuclear fusion Astronomy, Observations and Techniques Astrophysics and Astroparticles Geophysics/Geodesy Elementary Particles, Quantum Field Theory Nuclear Physics, Heavy Ions, Hadrons Nuclear Fusion Sun Congresses
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Nota di contenuto	The Sun today -- Recent results from helioseismology -- The structure of the solar core -- New sub-barrier nuclear fusion cross sections as a possible solution to the solar neutrino problem -- Helioseismic evidence for mixing in the radiative interior -- Microscopic settling and turbulent diffusion induced by rotation in the sun -- Mean-field theory

of the solar dynamo -- Hydrodynamical simulations of the solar dynamo -- The asymmetric behaviour of solar activity -- On the possibility of supergiant stable flows in the convection zone of the sun -- Stellar dynamos -- On magnetic fields, Rossby numbers and dynamo action in late-type stars -- The magnetic field of the solar corona -- The control of the corona by the convective zone magnetic fields -- Line-tying in a gravitationally stratified atmosphere -- Magnetic fields surrounding coronal holes -- Coronal heating mechanisms -- Coronal heating via nanoflares -- Magnetic structures of the intermediate corona -- Oscillations in quiescent prominences -- Pressure diagnostics of coronal loops observed by NIXT -- Quiet sun from multifrequency radio observations on RATAN-600 -- Frequency spectra of solar microwave bursts associated with coronal mass ejections -- Observations of high-energy ( $E \geq 10$  MeV) gamma-rays with the PHEBUS instrument -- Observational characteristics of explosive events -- Plasma physics of explosive phenomena -- A search for small solar flares with BATSE -- Solar flares and laboratory experiments -- Particle acceleration and radiation generation by nonlinear mode-mode coupling processes in the solar corona -- A fast mechanism for the acceleration of solar energetic particles in solar flares -- Acceleration and storage of energetic particles in the solar corona -- Electromagnetic signatures of particle acceleration and propagation -- Proton acceleration in long duration flares -- Signatures of proton beams in the Ly $\alpha$  profile: Sensitivity of the diagnostics -- Ground — based instrumentation -- Space instrumentation -- The Yohkoh mission: Instruments and recent results -- High resolution solar observations: Spectropolarimetry with THEMIS -- Conference summary.

## Sommario/riassunto

This book begins with a very readable survey "The Sun Today" by J.-C. Pecker. It is followed by thorough reviews from leading experts covering theory and observations. The focus shifts from the solar core, studied via neutrino emissions and helioseismology, through the interface regions where it is believed the large-scale magnetic fields are generated, to the corona, where most of the high temperature phenomena characteristic of this region may be studied directly. As energetic particles play such a vigorous role in this part of the sun, a separate session was devoted to their transport and storage in the corona.