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Soggetti	Observations, Astronomical Astronomy—Observations Astrophysics Space sciences Atoms Physics Elementary particles (Physics) Quantum field theory Astronomy, Observations and Techniques Astrophysics and Astroparticles Space Sciences (including Extraterrestrial Physics, Space Exploration and Astronautics) Atomic, Molecular, Optical and Plasma Physics Elementary Particles, Quantum Field Theory
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Nota di contenuto	The structure and dynamics of the sun from helioseismology, and the neutrino problem -- Modulation of solar and stellar activity cycles -- Dynamics of flux tubes in the solar atmosphere: Observations -- Dynamics of flux tubes in the solar atmosphere: Theory -- Observations of energetic ions during the ulysses mission -- Solar wind and interstellar medium coupling -- Flows through the magnetically

structured solar atmosphere -- Chromospheric dynamics — What can be learnt from numerical simulations -- Topologically forced reconnection -- Energy release processes in active regions -- Production of flare accelerated particles at the sun -- New ground-based solar instrumentation -- Future space instrumentation for solar physics.

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## Sommario/riassunto

This volume brings together theoretical ideas on the plasma physics of both hot and dense plasmas in the solar atmosphere and similar physics applied to the tenuous and cooler plasmas found in the heliosphere. It is complemented by recent observations. Helioseismology covers the solar interior and the neutrino problem. Solar and stellar activity cycles are addressed. The dynamics of magnetic flux tubes in the solar atmosphere and material flows through the chromosphere into the upper atmosphere are comprehensively reviewed. Energy release processes and the production of energetic particles are important to understanding events in the solar atmosphere and to the dynamics of the tenuous heliosphere. A glimpse of the future is offered by concluding chapters on new ground-based and space instrumentation.

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