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Titolo	Solar-Terrestrial Relations : From Solar Activity to Heliobiology / / by Leonty Miroshnichenko
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Nota di contenuto	Introduction: The Problem of Solar-Terrestrial Relations -- Main Characteristics of the Sun -- Solar Activity -- Structure and Dynamics of the Interplanetary Environment -- Anomalous Component of Cosmic Rays -- Transport of Particles in the Heliosphere -- Acceleration of Particles on the Sun -- Accelerated Particles in the Solar Atmosphere -- Occurrence Rate of Extreme Solar Events -- Energetic Particles in the Geosphere -- Hierarchy of Solar-Earth Relations -- Influence of the Sun on the Biosphere -- Future of Solar-Terrestrial Physics.
Sommario/riassunto	This books presents a brief review of modern concepts of the Sun-

Earth problem and proposed physical mechanisms of solar-terrestrial relations (STR). This field covers a wide range of fundamental and actual applied problems of paramount importance (Space Weather, radiation hazard in space, functioning of space-borne and ground-based technological systems, heliobiology etc.). It is also closely tied with some general gnosiological problems. The author provides state-of-the-art information about existing problems and discusses different channels for extraterrestrial influences at the up-to-date level: electromagnetic waves and fields, total solar irradiance, solar wind, energetic solar particles, galactic cosmic rays, cosmic dust, etc. Some of the well-known and suggested STR effects and corresponding physical mechanisms are illustrated by several examples. In particular, a number of different external “signals” in observed changes of terrestrial climate and weather are considered. Especially, an expected impact of geophysical disturbances on the accuracy of some precise physical measurements and experiments is analysed. Due attention is paid to the heliobiological aspects of STR. Particular emphasis is on the multifactor nature of magneto-biological effect (MBE), its non-stationary and non-linear behaviour. The author also discusses main features of different physical mechanisms (electromagnetic fields, ionising radiation, triggers, rhythmic and resonances in solar-terrestrial systems) and their applicability to the Sun-Earth problem. The most of them are still needed in more sophisticated theoretical development and experimental confirmation. The main goals of interdisciplinary studies in this field are to determine partial impacts of solar-geomagnetic variability on the terrestrial environments and estimate (separate) relative contributions of different factors into various STR phenomena. The book is based on lectures given on advanced undergraduate level and will also benefit newcomers (physicists and engineers) to the field.