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Titolo	Magnetic Fields in the Solar System : Planets, Moons and Solar Wind Interactions / / edited by Hermann Lühr, Johannes Wicht, Stuart A. Gilder, Matthias Holschneider
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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Scientific summary of the German Priority Program ”PlanetMag -- Modelling the Interior Dynamics of Gas Planets -- Global geomagnetic field reconstructions from centuries to excursions -- Sub-decadal and decadal variations in Earth core flow models for 1957 to 2008 -- Laboratory experiments and numerical simulations on magnetic instabilities -- Modeling magnetospheric fields in the Jupiter system -- Empirical models of currents in terrestrial planetary magnetospheres and their response to solar wind dynamics -- Kinetic Simulations of the Particle Acceleration at Mercury -- Physical processes in the dusty plasma of the Enceladus plume -- The ionospheric current system and its contributions to the Earth’s magnetic field -- Climatology of vertical plasma flow in the terrestrial cusp region: seasonal and IMF dependence -- The crustal magnetic field of Mars -- Magnetic signatures of terrestrial meteorite impact craters: A summary -- Magnetic Properties of the Iron-Nickel System: Pressure, Composition and Grain Size. .
Sommario/riassunto	This book addresses and reviews many of the still little understood

questions related to the processes underlying planetary magnetic fields and their interaction with the solar wind. With focus on research carried out within the German Priority Program ”PlanetMag”, it also provides an overview of the most recent research in the field. Magnetic fields play an important role in making a planet habitable by protecting the environment from the solar wind. Without the geomagnetic field, for example, life on Earth as we know it would not be possible. And results from recent space missions to Mars and Venus strongly indicate that planetary magnetic fields play a vital role in preventing atmospheric erosion by the solar wind. However, very little is known about the underlying interaction between the solar wind and a planet’s magnetic field. The book takes a synergistic interdisciplinary approach that combines newly developed tools for data acquisition and analysis, computer simulations of planetary interiors and dynamos, models of solar wind interaction, measurement of ancient terrestrial rocks and meteorites, and laboratory investigations.