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Nota di contenuto	MHD Turbulence -- The Evolving Phenomenological View on Magnetohydrodynamic Turbulence -- Coronal Heating and Reduced MHD -- MHD Turbulence: Scaling Laws and Astrophysical Implications -- Numerical Approches -- Numerical Simulations of Magnetic Fields in Astrophysical Turbulence -- Adaptive Mesh Refinement in MHD Modeling. Realization, Tests and Application -- Turbulence in the ISM -- Observations of Interstellar Magnetic Fields -- MHD Turbulence in Star-Forming Regions and the Interstellar Medium -- Thermal Instability and Magnetic Pressure in the Turbulent Interstellar Medium -- Developing Diagnostics of Molecular Clouds Using Numerical MHD Simulations -- Star Formation and the Initial Mass Function -- The Structure and Dynamics of Filamentary Molecular Clouds -- Numerical Simulations of MHD Turbulence in Accretion Disks -- Current Issues in Reconnection and Astrophysical Dynamos -- Recent Developments in

Collisionless Reconnection Theory: Applications to Laboratory and Astrophysical Plasmas -- Problems and Progress in Astrophysical Dynamos -- The Helicity Issue in Large Scale Dynamos -- Recent Developments in Magnetic Dynamo Theory.

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Sommario/riassunto

The present set of lectures is devoted to magnetohydrodynamic turbulence in astrophysics, with strong emphasis on numerical simulations. The book strives for a balance between state-of-the-art reports and a tutorial approach. It is thus particularly suited as an introduction to the field for nonspecialist researchers and postgraduate students. In addition, experienced scientists in the field will find the book to be a comprehensive source of reference for their research.

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