1. Record Nr. UNINA9910139816003321

Titolo	Nonlinear MHD waves and turbulence : proceedings of the workshop held in Nice, France, 1-4 December 1998 / / edited by Thierry Passot, Pierre-Louis Sulem, editors
Pubbl/distr/stampa	Berlin ; ; Heidelberg : , : Springer, , [1999] Â©1999
ISBN	3-540-47038-7
Edizione	[1st ed. 1999.]
Descrizione fisica	1 online resource (X, 385 p.)
Collana	Lecture Notes in Physics
Disciplina	531.11330151636
Soggetti	Nonlinear waves
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Nonlinear Phenomena Involving Dispersive Alfvén Waves -- Whistler Solitons, Their Radiation and the Self-Focusing of Whistler Wave Beams -- Alfvén Wave Filamentation and Plasma Heating -- Nonlinear Quasiresonant Alfvén Oscillations in a One-Dimensional Magnetic Cavity -- On the Reflection of Alfvén Waves in the Inhomogeneous Solar Wind -- Relativistic Alfvén Solitons and Acceleration of Cosmic Rays -- Reduced Models of Magnetohydrodynamic Turbulence in the Interstellar Medium and the Solar Wind -- Alfvénic Turbulence and Wave Propagation in the Corona and Heliosphere -- Nonlinear Alfvén Wave Interaction with Large-Scale Heliospheric Current Sheet -- Coherent Electrostatic Nonlinear Waves in Collisionless Space Plasmas -- Modeling the Dissipation Range of Magnetofluid Turbulence -- A Weak Turbulence Theory for Incompressible Magnetohydrodynamics -- Shell Models for MHD Turbulence -- Dynamics of Vortex and Magnetic Lines in Ideal Hydrodynamics and MHD -- Quasi-Two-Dimensional Hydrodynamics and Interaction of Vortex Tubes.
Sommario/riassunto	The workshop "Nonhnear MHD Waves and Turbulence" was held at the - servatoire de Nice, December 1-4, 1998 and brought together an international group of experts in plasma physics, fluid dynamics and applied mathematics. The aim of the meeting was to survey the current knowledge on two main topics: (i) propagation of plasma waves (like Alfven, whistler or ion-acoustic waves), their instabilities and the

development of a nonlinear dynamics lea- ding to solitonic structures, wave collapse or weak turbulence; (ii) turbulence in magnetohydrodynamic flows and its reduced description in the presence of a strong ambient magnetic fleld. As is well known, both aspects play an important role in various geophysical or astrophysical media such as the - gnetospheres of planets, the heliosphere, the solar wind, the solar corona, the interplanetary and interstellar media, etc. This volume, which includes expanded versions of oral contributions pre- sented at this meeting, should be of interest for a large community of resear- chers in space plasmas and nonlinear sciences. Special effort was made to put the new results into perspective and to provide a detailed literature review. A main motivation was the attempt to relate more closely the theoretical un- derstanding of MHD waves and turbulence (both weak and strong) with the most recent observations in space plasmas. Some papers also bring interesting new insights into the evolution of hydrodynamic or magnetohydrodynamic structures, based on systematic asymptotic methods.