**Preface**

**Coupling between large and small scale turbulence in space and laboratory plasmas**

This volume gathers several comprehensive articles contributing to the understanding of turbulence in space plasmas. They cover theoretical aspects such as wave turbulence in MHD, Hall-MHD or electron MHD, and the applicability of these descriptions for collisionless plasmas, the link between plasma heterogeneity and the PDF of magnetic field intensity in the solar wind. They also include numerical simulations of three-dimensional Hall-MHD turbulence (attempting in particular to understand the abrupt change of slope in the power law magnetic energy spectrum at the ion gyroscale), of the formation of small-scale structures able to trigger dissipative processes and of the interplay between turbulence and micro-processes such as reconnection. Extensions to satellite data of statistical methods often used for the analysis of wind-tunnel turbulence are also discussed. Observational and theoretical progresses on electrostatic solitary waves in environments such as the solar wind, the magnetosphere, the plasma-sheet boundary layer, the auroral regions, or the ionosphere are presented. Furthermore, astrophysical turbulence in accretion disks and observational constraints on its role in the heating of the solar corona are addressed.

Support for the organization of the meeting was provided by grants from CNRS Program “Soleil-Terre”, from the Laboratoires Cassiopée and CETP, from the CNRS Fédération de Recherche W. Doeblin, and from the Observatoire de la Côte d’Azur.

T. Passot, R. Pottelette, B. T. Tsurutani, T. Hada, and P.-L. Sulem

*Special Issue Editors*