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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Solar Wind -- Plasma description -- Turbulence -- Solar Wind turbulence -- Plan of this thesis -- The Maltese Cross revisited -- Parameters and initial conditions -- Dening spectral properties in EBM simulations -- Results -- Discussion -- Can the Maltese Cross heat? -- Paper ApJ 2018: "Turbulent Heating between 0.2 and 1 au: A Numerical Study" -- Heating fast winds -- Conclusions and future work -- Conclusions -- Future work: Anisotropy temperature description -- Appendix.
Sommario/riassunto	This book presents two important new findings. First, it demonstrates from first principles that turbulent heating offers an explanation for the non-adiabatic decay of proton temperature in solar wind. Until now, this was only proved with reduced or phenomenological models. Second, the book demonstrates that the two types of anisotropy of

turbulent fluctuations that are observed in solar wind at 1AU originate not only from two distinct classes of conditions near the Sun but also from the imbalance in Alfvén wave populations. These anisotropies do not affect the overall turbulent heating if we take into account the relation observed in solar wind between anisotropy and Alfvén wave imbalance. In terms of the methods used to obtain these achievements, the author shows the need to find a very delicate balance between turbulent decay and expansion losses, so as to directly solve the magnetohydrodynamic equations, including the wind expansion effects. .