ON THE VALIDITY OF A NONLOCAL APPROACH FOR MHD TURBULENCE

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We numerically determine the exponents of the structure function scaling laws in the case of a conducting flow, by performing direct numerical simulations of the MHD equations up to 2048^2 grid points.
We show that the behavior of such functions indicates that the physical quantities –velocity and magnetic field– are more intermittent than in the neutral fluid case. Moreover by studying the scaling laws of variables, which can be interpreted as the flux of the increments of the Elsässer variables ($\mathbf{v}^{\pm} = \mathbf{v} \pm \mathbf{b}$ with $\mathbf{v}$ the velocity and $\mathbf{b}$ the magnetic field), we observe the same exponents than in the neutral fluid case. This could be understood as the existence of an universality of the intermittency, when an appropriate variables are considered.