Broken Ergodicity in Two-Dimensional Homogeneous Magnetohydrodynamic Turbulence

By John V. Shebalin

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 32 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.Two-dimensional (2-D) homogeneous magnetohydrodynamic (MHD) turbulence has many of the same qualitative features as three-dimensional (3-D) homogeneous MHD turbulence. The se features include several ideal invariants, along with the phenomenon of broken ergodicity. Broken ergodicity appears when certain modes act like random variables with mean values that are large compared to their standard deviations, indicating a coherent structure or dynamo. Recently, the origin of broken ergodicity in 3-D MHD turbulence that is manifest in the lowest wavenumbers was explained. Here, a detailed description of the origins of broken ergodicity in 2-D MHD turbulence is presented. It will be seen that broken ergodicity in ideal 2-D MHD turbulence can be manifest in the lowest wavenumbers of a finite numerical model for certain initial conditions or in the highest wavenumbers for another set of initial conditions. T he origins of broken ergodicity in ideal 2-D homogeneous MHD turbulence are found through an eigen analysis of the covariance matrices of the modal probability density functions. It will also be shown that when the lowest wavenumber magnetic field becomes quasi-stationary, the higher wavenumber modes can...

READ ONLINE
[2.74 MB]

Reviews

The very best book i at any time read. It generally does not price an excessive amount of. I discovered this publication from my dad and i recommended this book to understand.
-- Joesph Hettinger

This written book is excellent. it absolutely was writtern extremely completely and useful. You may like how the article writer write this ebook.
-- Dayton Stracke I