Nonlinear Processes
in Geophysics
Discussions

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Interactive
comment

Interactive comment on "Lifetime estimate for plasma turbulence" *by* Yasuhito Narita and Zoltán Vörös

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Review of "Lifetime estimate for plasma turbulence" by Y. Narita and Z. Vörös

In this innovative paper the authors introduce the Breit-Wigner spectral distribution function in order to fit the observed data and extract the underlying turbulence decay rate. I believe that this is a worthwhile approach that should be made aware to the space physics community in general, since this method may be useful for unraveling some underlying physical processes. I have some questions, which I suggest the authors to consider in order to clarify the model.

(Question) From the comparative plots of spectral distributions in Figure 1, Breit-Wigner distribution appears to have a superficial similarity with the kappa distribution. It seems

to be that one may alternatively use the kappa spectral distribution to fit the data in Figure 5. So, the question is, why should one prefer BW distribution over the kappa or Lorentzian spectral function? Is there a rationale for choosing Breit-Wigner distribution over other models?

(Question) Please specify what xxx's are in the following:

Lines 19-20: wavenumber of xxx and a frequency of xxx?

Line 21: mean flow speed, xxx km/s

(Question) In Figure 4, can the angular frequency versus wave number plot be fitted with some known dispersion relations? Fast, slow, or Alfven mode?

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