Review of: "Slow diffusion around pulsar -ray halos and its impact on cosmic rays propagation"

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Potential competing interests: No potential competing interests to declare.

It is a nice work that works on the diffusion coefficient of cosmic mass. It newly explains the experimental discovering. Here are the comments and the questions given by the referee.

(1) At the initial of Sec. 2, the author mentioned that the injected particle can transport superluminally in the scheme of non-relativistic model. The referee hence wondered the correctness of this statement. And how to understand normally the fact that beams transport over the light speed.

(2) Also in this place of the article, the author mentioned the coherence length of magnetic field can divide two schemes of transport, i.e., propagating ballistically (when distance is around coherence length) and diffusion process (when distance is larger than coherence length). The referee hence understood this is the dividing line between the quantum field and classic field. In the latter, when vibration is not happened, the translational transport is occurred, here like the diffusion of continuum media. Is the author correct? Please comment on this conjecture.

(3) Still here, please formally explain the definition of coherence length of magnetic field, and give the general value of it.

(4) In this article, the author several times mentioned the fact that the transfer from the pulsar spin-down energy to electron / positron pairs. Will the author explain the mechanism for such a transfer? How can the spin energy of astrophysical body be transferred into translational energy of beams?

(5) The author spent a great of effort on explaining the positron excess phenomenon. Nevertheless, the behavior of positron excess is not explained clearly. The author probably adds more related introduction for this phenomenon.

(6) In the end, the author please explains the positron spectrum terminology.