Dear SciPost Team,

Many thanks for your email.

We thank the anonymous referee for a very thorough and thoughtful review. We have considered all the points raised by the referee and implemented each of the corrections as suggested in the revised manuscript. Therefore we do not mention these separately. However, below we are commenting on a few points which need a brief discussion and/or clarification using the equation numbers from the revised manuscript:

- We want to thank the referee for bringing the paper by Martin and Morpurgo (Ref. 28 in the revised manuscript) to our attention. We have included this reference along with a line of motivation in the Introduction section in the second paragraph of page 2 in the revised manuscript. We also have included a paragraph in the Discussion and Outlook section developing on the points mentioned by the referee as a future direction of research.

- In point 7 of the "requested Changes" the referee has asked us to use the notation $|\mathbf{M}| = \mu$ throughout the manuscript. In the revised manuscript we have followed that suggestion and used this notation for magnitude of magnetization $\mathbf{M}$. However, in some of the equations in section V of the revised manuscript we have used the notation M_0 for the number of spin per unit volume which is mentioned explicitly at those places to avoid confusion.

- In point 14 of the "requested Changes" the referee has correctly pointed out that the Eq. 44 can be obtained by completing the square in Eq. 39, thus avoiding differentiation to find a minimum. This change has been implemented in the revised manuscript.

- In point 16 of the "requested Changes" the referee has mentioned that the part between Eq. 52 to 54 in the revised manuscript is making the discussion unnecessarily complicated. While we understand the concern of the referee, we respectfully hold a differing perspective. The derivation from Eq. 52 to 54 shows a step-by-step procedure to determine the magnetic field starting from the field equation of magnetic field in Eq. 50. Although this may seem trivial to the experts, we believe that the additional steps might be helpful to new researchers. Therefore, we would like to keep this part unchanged.

- In point 17 in the "requested changes" the referee has asked why we have not considered the quadratic term in the expansion in Eq. 58 of the revised manuscript while we have considered that in Eq. 67. We have now considered the quadratic term in Eq. 58 in the revised manuscript and added a few lines of discussion after Eq. 58 on how the earlier result follows from a suitable approximation.

We hope that the answers provided here and the changes made in the revised manuscript are satisfactory to the referee and the manuscript will be accepted for publication without further delay. We shall look forward to your response.

Yours sincerely,

Shantonu Mukherjee
Amitabha Lahiri