



Addendum

Addendum to “Updating neutrino magnetic moment constraints” [Phys. Lett. B 753 (2016) 191–198]



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After the publication of this work we noticed that the uncertainties in the considered backgrounds in Borexino may affect our reported limit on the neutrino magnetic moment from Borexino data. Indeed, we have found that a more precise treatment of the uncertainties in the total normalization of these backgrounds results in a weaker sensitivity on the neutrino magnetic moment. This point will be hopefully improved in the near future thanks to the purification processes carried out in the second phase of the Borexino experiment. Meanwhile, however, we think it would be more reliable to adopt the bound on the neutrino magnetic moment reported by Borexino: $\mu_\nu < 5.4 \times 10^{-11} \mu_B$ [1]. In this case, our Fig. (3) should be replaced by the new version shown below (see Fig. 1). There, we have added a new region obtained by allowing the free normalization of backgrounds in Borexino. The grey region, in contrast, has been obtained for fixed normalization of the backgrounds in Borexino. We thank Gianpaolo Bellini from the Borexino Collaboration for pointing out this issue.

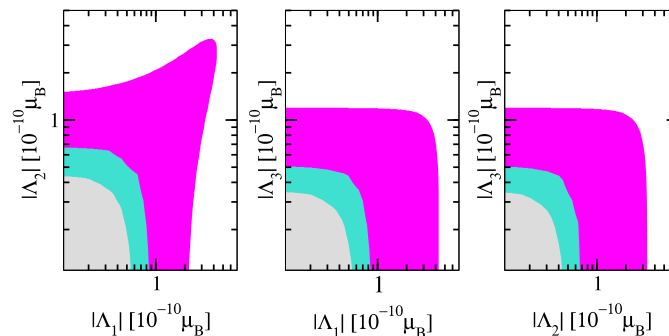


Fig. 1. 90% C.L. allowed regions for the transition neutrino magnetic moments in the mass basis. The result of this plot was obtained for the two parameters $|\Lambda_i|$ vs $|\Lambda_j|$ marginalizing over the third component. We show the result of a combined analysis of reactor and accelerator data with all phases set to zero except for $\delta = 3\pi/2$ (magenta region). The phase-independent results from Borexino are shown in grey (turquoise) for fixed (free) normalization backgrounds in the Borexino data analysis. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

References

- [1] C. Arpesella, et al., Borexino Collaboration, *Phys. Rev. Lett.* 101 (2008) 091302, arXiv:0805.3843.

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