



## Erratum

## Erratum to “Results from the search for dark matter in the Milky Way with 9 years of data of the ANTARES neutrino telescope” [Phys. Lett. B 769 (2017) 249–254]



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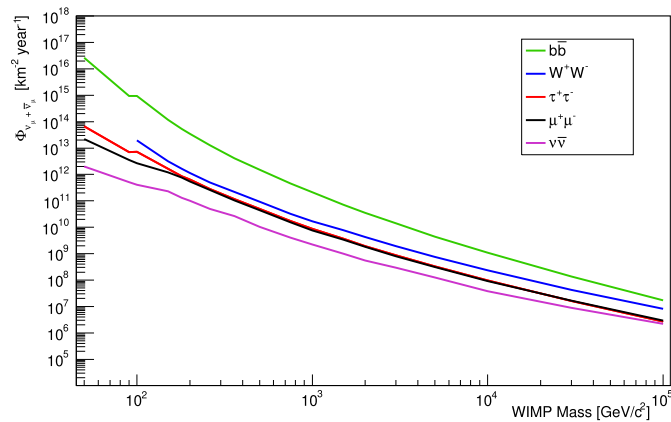
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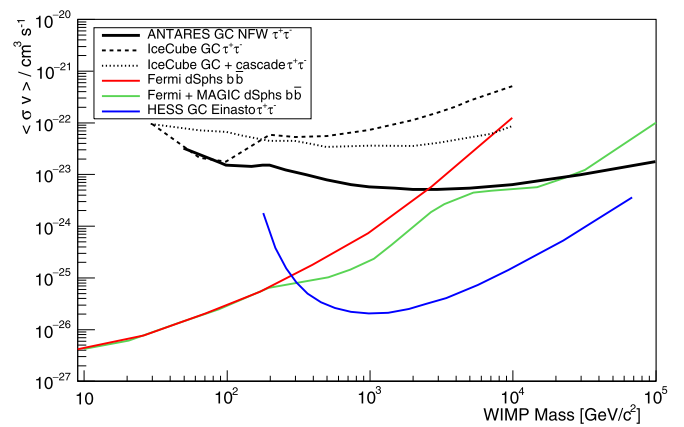
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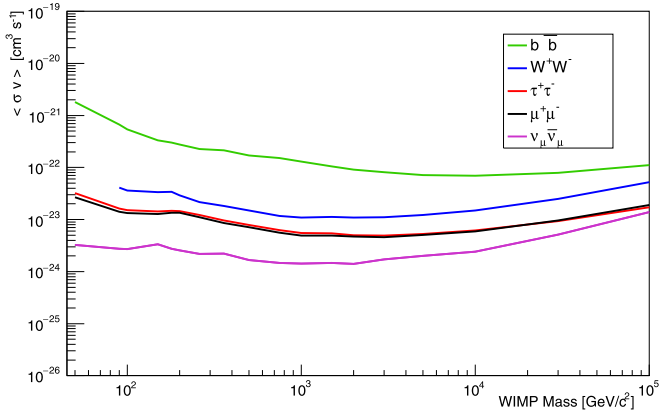
**Fig. 3.** 90% C.L. upper limits on the neutrino flux from WIMP annihilations in the Milky Way as a function of the WIMP masses for the different channels considered. For this plot the NFW profile was used.

Limits on the neutrino flux for a given mass  $M_{\text{WIMP}}$  and annihilation channel are calculated as in Eq. (7) (page 252), with the integrated acceptances defined in Eq. (8) (page 252) as the effective area averaged over the neutrino energy. A numerical approximation of WIMP annihilation spectra, adapted from [1] with a too coarse binning, led to an overestimation of the integrated



**Fig. 4.** 90% C.L. limits on the thermally averaged annihilation cross-section,  $\langle \sigma v \rangle$ , as a function of the WIMP mass in comparison to the limits from other experiments [2–6]. The results from IceCube and ANTARES were obtained with the NFW profile.

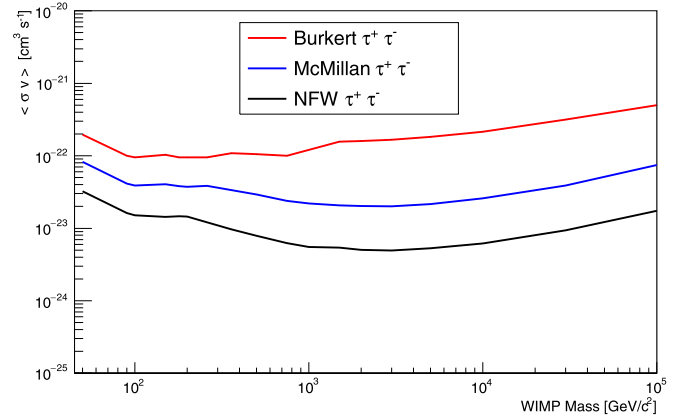
acceptances for dark-matter induced neutrino events. The spectra were replaced with a fine-binned version both in the likelihood and in the acceptances. The main change is a weaker limit for WIMP masses larger than 1 TeV/ $c^2$ . Updated versions of Figs. 3–6 are provided.



**Fig. 5.** 90% C.L. limits on the thermally averaged annihilation cross-section,  $\langle \sigma v \rangle$ , as a function of the WIMP mass for all annihilation channels using the NFW halo profile.

## References

- [1] M. Cirelli, et al., *J. Cosmol. Astropart. Phys.* 1103 (2011) 051.
- [2] M.G. Aartsen, et al., *IceCube Collaboration*, *Eur. Phys. J. C* 75 (2015) 492.
- [3] M.G. Aartsen, et al., *IceCube Collaboration*, *Eur. Phys. J. C* 76 (2016) 531.



**Fig. 6.** 90% C.L. limits on the thermally averaged annihilation cross-section,  $\langle \sigma v \rangle$ , as a function of the WIMP mass for the three considered halo models for the  $\tau^+\tau^-$  channel.

- [4] M. Ackermann, et al., *Fermi-LAT Collaboration*, *Phys. Rev. Lett.* 115 (2015) 231301.
- [5] R. Caputo, M.R. Buckley, P. Martin, E. Charles, A.M. Brooks, A. Drlica-Wagner, J.M. Gaskins, M. Wood, *Phys. Rev. D* 93 (2016) 062004.
- [6] H. Abdallah, et al., *HESS Collaboration*, *Phys. Rev. Lett.* 117 (2016) 111301.