Erratum: Dark photons from the center of the Earth: Smoking-gun signals of dark matter [Phys. Rev. D **93**, 015014 (2016)]

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The code used to produce the final results and plots in this paper contained a typographical error in the dark photon decay length. None of the equations in the paper needs to be modified, but Figs. 3, 4, and 7 should be replaced by the updated versions included here.

In accordance with the corrected results of our analysis, the range of values of ϵ accessible to a search for dark photons from the center of the Earth should be $10^{-10} \lesssim \epsilon \lesssim 10^{-8}$. The mass ranges of dark matter and dark photons accessible to our proposed search are unchanged.

Our paper includes two benchmark points to estimate the number of signal events and describe their kinematic properties. In Sec. IV. A, this benchmark point for IceCube should read, “As a benchmark for IceCube reach, the parameters $m_X = 1$ TeV, $m_{A'} = 500$ MeV, and $\epsilon = 5 \times 10^{-9}$ give an expected 40 muon events in ten live years.” Similarly,

FIG. 3. *Red*: IceCube event rates for $T = 10$ years live time in the $(m_{A'}, \epsilon)$ plane for $m_X = 100$ GeV in DeepCore (top left) and IceCube (top right), $m_X = 1$ TeV in IceCube (bottom left), and $m_X = 10$ TeV in IceCube (bottom right). The dark sector fine-structure constant is set to the value α_X^{th} , which realizes $\Omega_X \approx 0.23$. *Green*: Single event reach for the maximal dark fine-structure constant α_X^{max} allowed by cosmic microwave background distortion bounds [1]. *Blue*: current bounds from direct detection [2]. *Gray*: regions probed by beam dump and supernovae constraints [3–7].

FIG. 4. Comparison of indirect and direct detection sensitivities in the (m_X, σ_{Xn}) plane for $m_{A'} = 100$ MeV (left) and 1 GeV (right). The direct detection bounds are from the LUX Collaboration [8]. In this regime, the interaction is effectively pointlike in contrast to the low $m_{A'}$ region [2,9,10] in Fig. 1, where the direct detection bounds become independent of $m_{A'}$ for low $m_{A'}$. Also shown is the “neutrino floor,” where coherent neutrino scattering affects direct detection experiments [11]; the dashed line is an extrapolation.

FIG. 7. Ten year signal event rates for a space-based detector in low Earth orbit, such as Fermi/AMS. Colors and bounds are the same as in Fig. 1.

the benchmark point given for Fermi-LAT/AMS-02 in Sec. IV.B should read, “As a benchmark, consider the parameters $m_X = 1$ TeV, $m_{A'} = 400$ MeV, and $\epsilon = 10^{-8}$, for which one expects $N_{\text{sig}} = 10$ signal events in ten live years.”

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