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Updated secondary anti-helium cosmic ray fluxes

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AMS-02 might have discovered in its data a few anti-helium events. These are presumably ordinary cosmic rays that have been mis-reconstructed, owing to a very rare pattern of their tracks in the detector. To illustrate how problematic these anti-helium events would be, should they be confirmed, we have updated the calculation of the anti-helium cosmic ray fluxes at the Earth from secondary origin. We show that spallation from primary hydrogen and helium nuclei onto the interstellar medium yields an anti-He-3 flux typically one to two orders of magnitude below the sensitivity of AMS-02 after 5 years, and an anti-He-4 flux roughly 5 orders of magnitude below AMS sensitivity. I will present how these secondary anti-helium fluxes have been derived and also comment upon the difficulties of the annihilating dark matter explanation.

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