Erratum: Dark matter and pulsar model constraints from Galactic Center Fermi-LAT gamma-ray observations [Phys. Rev. D 88, 083521 (2013)]

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DOI: 10.1103/PhysRevD.89.049901

PACS numbers: 95.35.+d, 98.80.-k, 99.10.Cd

Correction.—We correct an error in the description of how the required number of millisecond pulsars (MSPs) needed to explain the excess Galactic Center (GC) gamma-ray emission is calculated. The calculated number is not significantly different to what we reported in the original article and so our conclusions remain unchanged.

For an energy range of 100 MeV to 10 GeV, Ref. [1] found 47 Tuc had a flux of $2.6(\pm 0.8) \times 10^{-8}$ photons cm⁻² s⁻¹. The population of MSPs in 47 Tuc is taken to be 30 to 60. Following [2,3], we then use this to estimate the order of magnitude of the flux of a single MSP to be ~10⁻⁹ photons cm⁻² s⁻¹. The flux of our best fit exponential cutoff in the energy range 100 MeV to 10 GeV is obtained by integrating the parametric form with the best fit parameters and is found to be 1.7×10^{-6} photons cm⁻² s⁻¹. Therefore, we find the number of MSPs needed to explain the GC excess emission to be ~1000, which is compatible with what [2,3] found, as our flux estimates of the GC excess are compatible with theirs.

[1] A. A. Abdo et al., Science 325, 845 (2009).

[2] K. N. Abazajian and M. Kaplinghat, Phys. Rev. D 86, 083511 (2012).

[3] K. N. Abazajian and M. Kaplinghat, Phys. Rev. D 87, 129902 (2013).