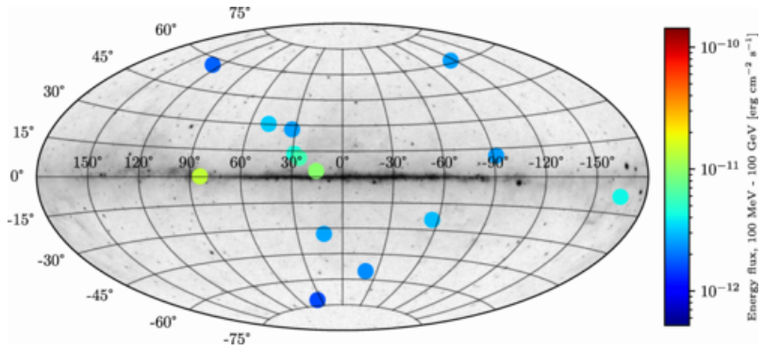
Constraints on the antistar fraction in the Solar system neighborhood from the 10-years *Fermi* Large Area Telescope gamma-ray source catalog

Context

- AMS-02 tentatively detected 8 antiheliums
- Point to existence of nearby antistars ? [1]
- We use the 10 year Fermi-LAT catalog to constraint the existence of these objects [2]

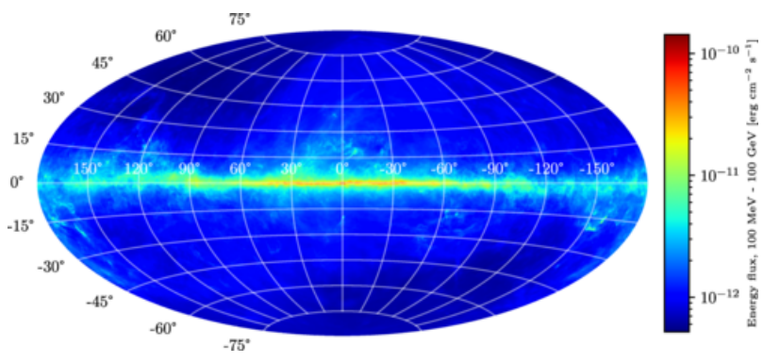
Antistar candidates in 4FGL-DR2

- Selection of sources with spectral criteria
- 14 objects remain —> Upper limits



Monte Carlo method

- Synthetic antistar population
- Comparison with Fermi sensitivity
- Derivation of 95% c.l upper limits



Results [3]

- At most 1 antistar for 400 000 regular stars in the disk
- Cannot exclude a big number of antistars in the halo

[1] Poulin, V., Salati, P., Cholis, I., Kamionkowski, M., & Silk, J. 2019, Physical Review D, 99,023016
[2] Abdollahi, S., Acero, F., Ackermann, M., et al. 2020, The Astrophysical Journal SupplementSeries, 247, 33
[3] Dupourqué, S., Tibaldo, L., & von Ballmoos, P. 2021, Phys. Rev. D, 103, 083016

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Simon Dupourqué (Speaker), Luigi Tibaldo, Peter von Ballmoos