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## Comparison of the expected and observed supernova remnant counts with Fermi/LAT

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SNRs are commonly believed to be the accelerators of the galactic cosmic rays – mainly protons – and are expected to produce  $\gamma$ -rays through the inelastic proton-proton collisions. Fermi/LAT was expected to detect many of those, but only a dozen is listed in the most up to date Fermi/LAT 2nd Source catalogue. To test whether the observed number of SNRs is in agreement with the assumption that they are indeed the sources of the galactic cosmic rays, we use a simplified model of a SNR and calculate the predicted amount of the observable remnants taking into account their distribution in the Galaxy and the sensitivity of Fermi/LAT. We find that the observed number of SNRs agrees with the prediction of our model if we assume a low,  $\ll 1 \text{ cm}^{-3}$ , number density of the SNR's ambient medium.

### Summary

The results, presented here, agree well with the assumption, that on average the supernova explosions happen in the under-dense regions, such as bubbles, creating by the winds of the progenitor stars. Under this natural assumption our results find an agreement with the assumption, that the observed population of supernovae remnants is indeed responsible for the production of the galactic cosmic rays.

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