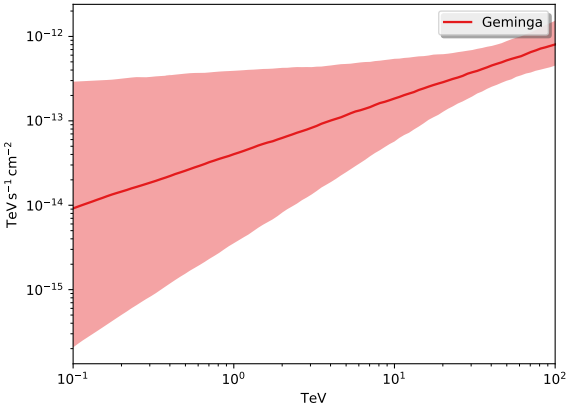
Geminga analysis

- Use 1D reco-energy binning since PSF is negligible compared to source extent.
- Only fit region within 5.5° of Geminga to exclude Monogem.
- Warmup model: point source (not correct) with power-law spectrum. Try to get fit to converge.

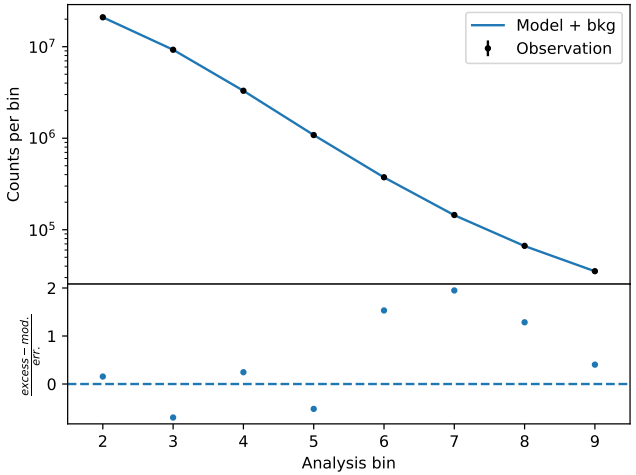
Point-source fit result

- Fit spectrum is extremely hard. $\alpha = 1.3 \pm 0.6$. Geminga paper contains 2.34 ± 0.07.
- Wrong morphological assumption maybe interfering with spectral fit.



Point-source fit result

- $p = 0.36$. A "good" fit.



Better modeling

- Better modeling of morphology may be needed to get correct spectrum.
- Trying with diffusion model implemented by Hao. Converges at edge of parameter ranges. Currently fiddling with ranges. Possibly usable result later today.
- Previous non-convergence may have resulted from incorrect model configuration. Forgot to set one of many pivots.

Plots for grant

- RMS error of estimators showing NN performs best at all energies. Retrained NN on curvature-0 MC.
- Crab log-parabola SED showing improvement over Crab paper.
- Likewise for Geminga if possible.
- Some kind of map showing we can see high-energy sources. Could be Galactic Plane.