

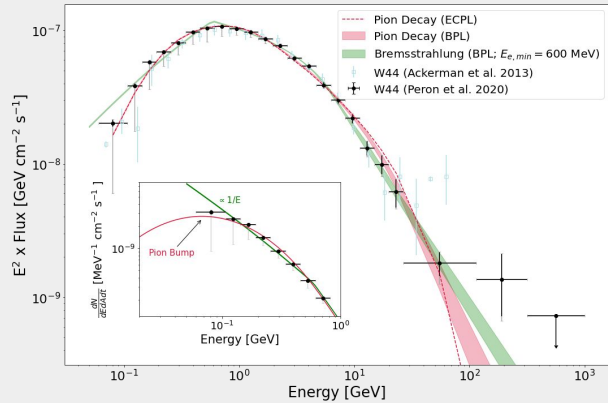
On the gamma-ray emission of W44 and its surroundings

G. Peron, F. Aharonian, S. Casanova, R. Zanin, & C. Romoli, ApJL 896.2 (2020)

Motivation

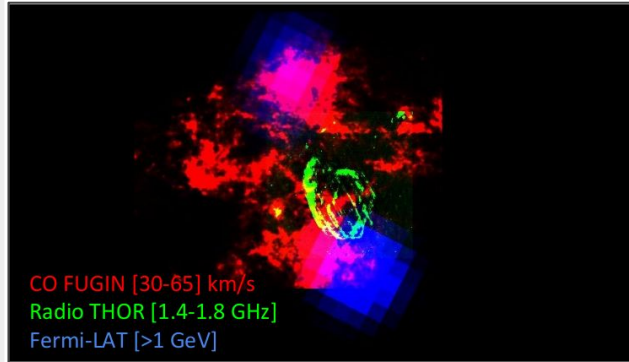
- Study of runaway particles to understand previous acceleration power of the SNR and escape;
- W44 is a favorable target: middle-age and in a dense molecular cloud medium;

W44



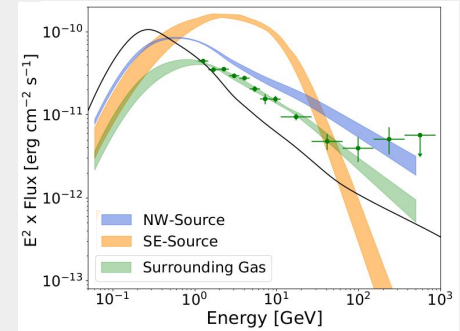
- Low-energy spectrum compatible with the hadronic scenario;
- High-energy spectrum compatible with energy-dependent escape;

Two extended sources are revealed at the edges of W44 which do not correlate with the gas



Interpretation: CR “clouds” of particles escaping collectively the SNR

The Surroundings



- Enhanced spectrum with respect of the surrounding medium and with respect to the local emissivity;
- The two clouds have a different spectrum between each other;