

# Revealing G150.3+4.5 as a dynamically young supernova remnant with gamma-ray data

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Supernova remnants (SNRs) are considered one of the best candidates to accelerate the bulk of Galactic cosmic rays. Studying gamma-ray emission from young SNRs allows us to understand the nature of accelerated particles and the maximum energy they can reach. The SNR G150.3+4.5 was recently detected in radio and exhibits a shell-like morphology with an angular size of  $3^\circ$ , suggesting either an old or a nearby SNR. We present a spectro-morphological analysis of G150.3+4.5 with Fermi-LAT data that reveals emission up to hundreds of GeV. Using radio and X-ray data, we estimate the distance and the surrounding density of the SNR to understand its evolutionary stage. We find that G150.3+4.5 is spectrally similar to the young shell-type SNRs observed with the Fermi-LAT such as RX J1713.7-3946 or Vela Junior. The broadband nonthermal emission of G150.3+4.5 is explained by a leptonic scenario that implies particle acceleration at least up to TeV energies, making G150.3+4.5 a new dynamically young SNR.

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supernova remnant, gamma rays

## Collaboration

Fermi-LAT

## other Collaboration

## Subcategory

Experimental Results

**Primary authors:** DEVIN, Justine (AstroParticule et Cosmologie - CNRS/IN2P3); Dr LEMOINE-GOUMARD, Marianne (CENBG - CNRS/IN2P3); Dr GRONDIN, Marie-Hélène (CENBG - CNRS/IN2P3); Dr CASTRO, Daniel (CFA - Harvard); Dr BALLEST, Jean (CEA); Prof. HEWITT, John (University of Florida); Dr COHEN, Jamie (CFA - Harvard)

**Presenter:** DEVIN, Justine (AstroParticule et Cosmologie - CNRS/IN2P3)

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