

# Constraining the production of cosmic rays by pulsars

*Monday, September 12, 2016 3:20 PM (20 minutes)*

One of the possible sources of hadronic cosmic rays (CRs) are newborn pulsars. If it is indeed the case, they should feature diffusive gamma-ray halos produced by interactions of CRs with interstellar gas. In my talk I will report on the attempts to identify extended gamma-ray emission around young pulsars making use of the 7-year Fermi-LAT data.

I will describe the method and the selected set of 8 pulsars that are most likely to possess detectable gamma-ray halos.

I will present the only one found candidate which might be interpreted as a gamma-ray halo and discuss its properties.

Irrespectively of the nature of this source I will put bounds on the luminosity of gamma - ray halos which suggest that pulsars' contribution to the overall energy budget of galactic CRs is subdominant in the GeV-TeV range.

## Summary

I will discuss pulsars as potential sources of GeV-TeV cosmic rays and constraints on the related cosmic-ray fluxes derived from gamma-ray observations.

**Primary author:** IVANOV, Mikhail (Ecole Polytechnique Federale de Lausanne (CH))

**Co-authors:** RUBTSOV, Grigory (INR RAS); PSHIRKOV, Maxim (Moscow State University)

**Presenter:** IVANOV, Mikhail (Ecole Polytechnique Federale de Lausanne (CH))

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