

Search for VHE emission from PSR J0218+4232

Thursday, 15 April 2021 18:22 (4 minutes)

PSR J0218+4232 is one of the most energetic millisecond pulsars (MSP) known and has been considered as one of the best candidates for very high energy (>100 GeV) γ -ray emission. It has a period of 2.3 ms in a 2-day orbit with a $\sim 0.2M_{\odot}$ white dwarf companion. With a characteristic age $\tau < 0.5$ Gyr it is one of the youngest MSPs known, with an extremely strong magnetic field at the light cylinder (BLC $\sim 3.2 \times 10^5$ G), only slightly weaker than young Crab-like pulsars. PSR J0218+4232 is in the Third Fermi-LAT Catalog of High-Energy Sources and was shown to have pulsations above 10 and 25 GeV.

Using 11.5 years of Fermi Large Area Telescope (LAT) data (2008-2020) and ~ 90 hours of MAGIC observations (from 2018 November 2 to 2019 November 4), we have searched for high energy gamma-ray pulsed emission from PSR J0218+4232. The MAGIC data were collected in stereoscopic mode with the Sum-Trigger-II system, designed to improve the performance of the telescopes in the sub-100 GeV energy range.

In this contribution we will show the results of our searches for gamma-ray emission, together with our theoretical modeling.

Primary author: SPOLON, Alessia

Presenter: SPOLON, Alessia

Session Classification: Binaries/Galactic/Pulsars/SNR/Solar-2

Track Classification: Pulsar