

The VHE gamma-ray periodicity of PG1553+113: a possible probe of a system of binary supermassive black hole

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The blazar PG1553+113 is an active galaxy with uncertain redshift detected at very high energies (VHE; $E > 100$ GeV) both during high and quiescent states. We have observed with the MAGIC telescopes from La Palma PG 1553+113 at VHE since 2005, making this blazar one of the best studied MAGIC sources.

Recently, the Fermi/LAT collaboration has reported the detection of a hint of a 2-year periodicity in the integral flux emitted by the source both at high energy gamma rays ($E > 100$ MeV) and at optical wavelengths. Remarkably, this periodicity, if confirmed, might be interpreted as an evidence of the presence of a binary supermassive black hole system in the nucleus of PG1553+113. In this contribution, we present the result of our analysis of 10 years of PG 1553+113 MAGIC data. In particular, we test the hypothesis of a periodic modulation of the overall emitted flux at VHE, search for evidences of correlation with the emission detected at other wavelengths, and critically discuss our findings in the framework of the binary supermassive black hole model.

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