

## **New TeV halo candidate surrounding PSR J0359+5414 detected with the HAWC Observatory**

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The High Altitude Water Cherenkov (HAWC) Gamma-Ray Observatory surveys the gamma-ray sky between a hundreds of GeV and hundreds of TeV, and has detected emission surrounding a radio-quiet pulsar, PSR J0359+5414, in its almost 6 years of data. PSR J0359+5414 is gamma-ray pulsar with an age of 75 kyr and an extremely high spin-down power  $> 10^{36}$  erg/s. Its pulsar wind nebulae is detected in X-ray with a size of 30 arcseconds. We present results of the HAWC analysis of PSR J0359+5414. We show that the very-high-energy (VHE) emission around PSR J0359+5414 has a similar spectrum and extension as the TeV halo around the Geminga pulsar. Our observation of this relatively young middle-aged pulsar further confirms that particles diffuse slowly in the vicinity of pulsars.

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