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Pulsations from the Vela pulsar down to 30 GeV with H.E.S.S. II

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The Vela pulsar (PSR J0835-4510) is the brightest persistent source in the high-energy γ-ray sky. It is a relatively near, young and energetic rotation-powered pulsar. Vela was a key target for the High Energy Stereoscopic System phase II array (H.E.S.S. II). Observations were carried out following a hint of pulsed emission above 20 GeV seen using Fermi-LAT data. In this talk we present detailed results from the analysis of data only from the new 28 m telescope in monoscopic mode on the Vela pulsar. A high-significance pulsed emission is detected. The low-energy performance of the H.E.S.S. II instrument in monoscopic mode is clearly demonstrated given a distinct pulsed excess down to energies of 30 GeV. The H.E.S.S. II data provide a thorough insight into the general phase profile of the Vela pulsar and reveal the specific pulse shape at these energies.

Collaboration

H.E.S.S.

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