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Search for very high energy gamma-ray emission from parts of the Gould belt with the H.E.S.S. ground based Cherenkov telescopes

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Abstract content

The Gould belt, a well-known region of enhanced star formation in the solar neighborhood, is observed to be an expanding rim with a diameter of a few hundred parsecs and a width of approximately 100 pc. Most of the nearby OB stellar associations and molecular clouds are found to be aligned with the Gould belt. With the high star formation rate along the Gould belt, the local supernova rate during the last few million years is believed to be three to four times larger than the Galactic average. Under the assumption that supernova remnants are efficient accelerators of cosmic rays, the Gould belt and its environment should show an increased cosmic ray density with respect to the Galactic average. The cosmic rays are expected to interact with the dense molecular gas which results mainly in pi-meson production with subsequent decay in gamma-rays and neutrinos. We have searched for gamma-ray emission from various nearby (d=100-200 pc) parts of the Gould belt with the HESS Cherenkov telescopes. Results will be presented at the conference.

If this papers is presented for a collaboration, please specify the collaboration

HESS Collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 2 (OG part 1), pages 653-654

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