Deep Gamma-ray Observations of the Unidentified Source HESS J1303-631

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Abstract. **HESS J1303-631 was serendipitously discovered during observations of the binary pulsar PSR B1259-63 during periastron passage around its stellar companion, a massive Be star. The extended VHE gamma-ray source HESS J1303-631, having no known counterparts in radio or X-rays, was the first unidentified source discovered by the H.E.S.S. collaboration. The only plausible association for this source known to date is the high spindown power pulsar PSR J1301-6305. New observations since the original discovery have brought the amount of available data from 48 to a total of 110 hours of detector live time. Because of the extended nature of the source, and the large data set now available, this source is an ideal candidate for morphology studies. Results from this new data set will be discussed as well as the possible association of the VHE source with the pulsar PSR J1301-6305.**

Keywords**: H.E.S.S., HESS J1303-631, VHE gamma-rays**