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Simultaneous H.E.S.S. and RXTE observations of the microquasars GRS 1915+105, Circinus X-1 and V4641 Sgr

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Microquasars, Galactic binary systems showing extended and variable radio emission, are potential gamma-ray emitters. Indications of gamma-ray transient episodes have been reported in at least two systems, Cyg X-1 and Cyg X-3. The identification of additional gamma-ray emitting microquasars is key for a better understanding of these systems.

Very-high energy gamma-ray emission from microquasars has been predicted to happen during periods of transient outbursts potentially connected with the formation of a jet-like outflow. Observations of the microquasars GRS 1915+105, Circinus X-1 and V4641 Sgr were undertaken with the H.E.S.S. telescope array and the RXTE satellite with the aim of detecting a broadband flaring event in the very-high energy gamma-ray and X-ray bands. Contemporaneous observations using the H.E.S.S. telescope array and the RXTE satellite were obtained on three microquasars - GRS 1915+105, Circinus X-1, V4641 Sgr. We report here on the analysis of these data for each system, including a detailed X-ray analysis assessing the location of the sources in a hardness-intensity diagram during observations, and we discuss the derived upper limits on their very-high energy gamma-ray flux.

Collaboration

H.E.S.S.

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