Spectral classification of the main-sequence counterpart in the gamma-ray binary HESS J1832–093

Contributed Talk //

X-ray and Gamma-Ray Binaries (XRBs)

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Gamma-ray binaries are a rare class of high mass binary star systems which produce the majority of their non-thermal emission detected in the gamma-ray regime. Since there are less than 10 systems so far discovered, understanding the nature of all these systems is important in determining how gamma-ray emission is produced. HESS J1832–093 was discovered as a TeV point-like source by the H.E.S.S. telescope and was suggested to be a possible gamma-ray binary. A period of approximately 86 days has subsequently been detected in X-ray and gamma-ray observations, greatly strengthening this classification. However, the massive companion star in the system has been difficult to classify.While the X-ray counterpart is co-incident with a 2MASS source, the counterpart is not visible at optical wavelength, and previous infrared observations have suggested is the companion is an O or B type star, similar to other gamma-ray binaries. Here we report on new mid-infrared X-Shooter observations which unambiguously identify the counterpart as an O6V type star. We discuss the possible implications of this for the gamma-ray binary class, given that similarspectral types are found for all sources with O-type companions.

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