

Contributed Talk //

X-ray and Gamma-Ray Binaries (XRBs)



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Gamma-ray binaries are a small sub-class of high mass binaries with only nine known systems to date. HESS J0632+057 consists of a B0 Vpe star (MWC 148) and an undetected compact object in a $P=317.3\pm 0.7$ day orbit. Long-term X-ray and TeV monitoring shows two peaks in the light curves at phases 0.2-0.4 and 0.6-0.8 and a dip in emission between phases 0.4-0.6. However, the interpretation of the emission is complicated by the lack of a clear orbital solution. Casares et al. (2012) and Moritani et al. (2018) obtained two different orbital solutions from radial velocity measurements of the weak photospheric absorption lines and the $H\alpha$ emission line arising from the circumstellar disc of the Be star, respectively. In an attempt to resolve the confusion around the orbital solution, long-term high resolution monitoring of MWC 148 has been undertaken with the High Resolution Spectrograph on the Southern African Large Telescope. The results of the radial velocity measurements from the absorption features as well as the $H\alpha$, $H\beta$ and $H\gamma$ emission lines from three observing semesters, covering $\sim 60\%$ of the orbit, are presented.

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