

Determining the orbital parameters for the gamma-ray binaries LMC P3 and 1FGL J1018.6-5856 using SALT/HRS

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Gamma-ray binaries are a rare class of binary system which produce non-thermal emission which peaks in the gamma-ray regime and so far, only seven sources have been firmly identified. These systems consist of a O/B type star and either a neutron star or a black hole compact object. Establishing the orbital parameters of gamma-ray binaries is a crucial requirement for modelling the emission production in these systems and for the sources where no pulsed emission is detected the best orbital parameters are obtained from radial velocity observations of the O/B-type companion. We present results of high resolution spectroscopy undertaken with SALT of two gamma-ray binaries, LMC P3 and 1FGL J1018.6-5856. For LMC P3 we show the peak in the Fermi-LAT and H.E.S.S. light curves can be associated with the phases of superior and inferior conjunction respectively. In addition we present the preliminary results for observations of 1FGL J1018.6-5856 being undertaken to improve the accuracy of the orbital parameters. The consequences for modelling the non-thermal emission in these systems is also briefly discussed.

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