Contribution ID: **264**   Type: **Poster**

Constraining TeV emission regions in gamma-ray binaries with gamma-gamma absorption

Friday 16 April 2021 08:10 (5 minutes)

Gamma-ray binaries are a class of high-mass binary systems which are distinguished by their spectral energy distributions peaking above 1 MeV. Gamma-ray binaries consist of an O or B type companion and an orbiting compact object which is either a neutron star or a black hole. Generally in these systems the nature of the compact object is unknown except for two cases, namely PSR B1259-63 and PSR J2032+4127, where the compact objects have been identified to be pulsars. For a neutron star compact object the non-thermal emission is believed to originate from the interaction between the stellar and pulsar winds. It has been suggested that there are multiple regions of emission in these systems with the GeV and TeV emission potentially originating from different locations. The influence of gamma-gamma absorption on the gamma-ray emission may, therefore, be a tool in constraining the location of the TeV emission region. We have calculated the gamma-gamma absorption expected around six of the seven known gamma-ray binaries and are studying the influence on the observed spectrum. With this we plan to place constraints on the TeV production location. The results of this study will be used for predictions based on the upcoming Cherenkov Telescope Array (CTA).

Primary author: PLOOY, Drikus

Presenter: PLOOY, Drikus

Session Classification: Binaries/Galactic/Pulsars/SNR/Solar-3

Track Classification: Binaries