

The unexpected multiwavelength behaviour of PSR B1259-63 during 2021 periastron passage.

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PSR B1259-63 is a gamma-ray binary system hosting a radio pulsar orbiting around a massive young star, LS 2883, with a period of ~ 3.4 years. The interaction of the pulsar wind with the LS 2883 outflow leads to unpulsed broadband emission in the radio, X-ray, GeV, and TeV domains. One of the most unusual features of the system is an outburst of GeV energies around the periastron, during which the energy release substantially exceeds the spin down luminosity under the assumption of the isotropic emission. Our recent intensive multi-wavelength campaign (radio, optical, X-ray and GeV bands) covered a period of more than 100 days around the 2021 periastron and revealed substantial differences from previously observed passages. In particular, these observations demonstrated substantial delay of the peak of the GeV flare and its relative weakness on short (~ 15 minutes) time scale. In addition to this we observed, for the first time, the presence of a 3rd peak in the X-ray lightcurve during which the previously observed correlation with the radio band disappears. In this talk I will discuss these and other features of the 2021 periastron passage and compare the obtained data set with the predictions of the emission cone model.

Track

Binaries

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