Contribution ID: **313** Type: **Contributed talk**

The 2020 periastron of Eta Carinae at high-energies

Wednesday, 6 July 2022 16:15 (15 minutes)

Colliding-wind binaries are massive stellar systems featuring strong, interacting stellar winds. The resulting shocks may act as effective particle accelerators, making them good candidates for detection at high energies. However, only the massive binary Eta Carinae (with an orbital period of ~ 5.5 years) has been firmly identified as a gamma-ray source. A second system, Gamma^2 Velorum, was found positionally coincident with a gamma-ray signal, with solid evidence of orbital variability along its orbit. Thus massive binaries are a promising, emerging class of high-energy emitters.

However, the origin of the non-thermal emission in Eta Carinae is still unclear, with both leptonic and hadronic scenarios currently under discussion. Moreover, gamma-ray fluxes differ between the two periastrons previously observed by the Fermi Large Area Telescope (Fermi-LAT). Here we report the analysis of the 2020 periastron, together with a complete analysis of more than two orbits, allowing the first orbit-to-orbit variability study of Eta Carinae at GeV energies.

We discuss these results in the context of previous hard X-ray (NuSTAR) and very-high-energy (H.E.S.S.) observational results. This new analysis provides highly valuable information for the radiative scenarios and the conditions of the wind-collision region.

Primary author: MARTÍ-DEVESA, Guillem (University of Innsbruck)

Presenter: MARTÍ-DEVESA, Guillem (University of Innsbruck)

Session Classification: Contributed Talks