

Deciphering the Cygnus region

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The Cygnus region has become a gamma-ray source of prime interest since the detection of ultra-high energy photons by LHAASO. This likely indicates the presence of a hadronic source of PeV cosmic rays in the region, although the accelerator has not been yet identified. In this talk, I will summarize our knowledge of this star-forming complex and, using large-scale hydrodynamic simulations, I will critically assess possible acceleration mechanisms, in particular related to the Cygnus OB2 association. I will show that wind-wind interactions are not efficient enough to enhance particle acceleration, and that a cluster wind termination shock is not expected to form. Therefore, it seems that the gamma-ray spectrum can only be understood by considering recent supernovae explosions in the region.

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