

Non-thermal emission from colliding-wind binaries

Wednesday, 6 July 2022 16:00 (15 minutes)

Here we present an overview of the physics behind the non-thermal emission from massive colliding-wind binaries (CWBs). In these systems the hypersonic and powerful stellar winds collide and give rise to strong shocks capable of accelerating relativistic particles. We introduce a model for CWBs that takes into account how relativistic particles travel along the shocked region while cooling and radiating by different mechanisms, as well as the absorption processes that affect their broadband emission. We present results from applying this model to the CWBs HD 93129A and Apep. In particular, we investigate the relativistic particle content and magnetic field intensity in the wind-collision region. We highlight the great synergy between observations at low radio frequencies and high-energy X-rays and γ -rays for studying the non-thermal processes in CWBs.

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Session Classification: Contributed Talks