

The Off-Axis Afterglow of GW170817: Flux Prediction at Very High Energies

The binary neutron star merger gravitational-wave event GW170817 and observations of the subsequent electromagnetic signals at different wavelengths have helped better understand the outflows that follow these mergers. In particular, the off-axis afterglow of the jetted ejecta has allowed to probe the lateral structure of such jets, especially thanks to VLBI imagery of the source. In this talk, I will present our model of this afterglow including a decelerating jet with lateral structure, while synchrotron emission and synchrotron self-Compton scatterings in the Thomson and Klein-Nishina regimes power the jet radiation. Allowing afterglow light-curve fitting, this new analysis also extends to very high energies and predicts the light curve in the energy range of H.E.S.S. and the CTA. Using these results, I will finally discuss how future detections of afterglows by these observatories can help break the degeneracies in some key physical parameter measurements like the viewing angle and the circumburst medium density, and allow to probe efficiently a sub-population of fast-merging binaries.

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