

Modeling neutrino emission for different gamma-ray burst production scenarios

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Gamma ray-bursts (GRBs) are among the least understood and most powerful transients occurring in our Universe. Different dissipation and emission processes have been proposed over the years to interpret their origin. However, we still lack an exhaustive theoretical explanation due to the failure of existing models in addressing all observations in the spectral and temporal domains. GRBs are also candidate sources of high energy neutrinos detected by IceCube Neutrino Observatory. I will discuss the neutrino emission in different dissipation scenarios, and show that the neutrino prediction strongly depends on the adopted jet model, highlighting the importance of neutrinos in pinpointing the GRB emission mechanism in the case of successful neutrino detection.

Based on Pitik, Tamborra, and Petropoulou, arXiv:2102.02223

Reference to paper (DOI or arXiv)

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