

Decaying dark matter at IceCube and its signature on High Energy gamma experiments

The origin of neutrino flux observed in IceCube is still mainly unknown. Typically two flux components are assumed, namely: atmospheric neutrinos and an unknown astrophysical term. In principle the latter could also contain a top-down contribution coming for example from decaying dark matter. In this case one should also expect prompt and secondary gammas as well. This leads to the possibility of a multimessenger analysis based on the simultaneous comparison of the Dark Matter hypothesis both with neutrino and high energy gamma rays data. We have analyzed, for different decaying Dark Matter channels, the 7.5 years IceCube HESE data, and compared the results with previous exclusion limits coming from Fermi data. Finally, we have tested whether the Dark Matter hypothesis could be further scrutinised by using forthcoming high energy gamma rays experiments.

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