Contribution ID: **61** Type: **Poster**

Modelling the observability of neutrinos from quiescent blazars with KM3NeT

Tuesday 11 October 2022 10:55 (1 minute)

After the detection of neutrinos from blazar TXS 0506+056 in a flaring state, there have been advancements in neutrino astronomy including a detection of neutrinos from a tidal disruption event. Blazar TXS 0506+056 and other neutrino sources were detected by the first-generation neutrino telescopes during transient states. The spectral energy distributions of blazars jet emissions can be explained by two types of models, leptonic and hadronic models, whether in a steady state or a transient state. In leptonic models, the high energy contribution is only from leptonic interactions while in hadronic models, the high energy contribution is mainly from hadronic interactions. Both types of models were consistent with blazar observations until the detection of TXS 0506+056 as a neutrino source confirmed that blazars are sites of hadron acceleration. In this study, we simulated blazar jet emission using OneHaLe - a tool for numerical modelling of AGN jet emissions with hadronic models - and to determine the detectability of neutrinos from steady state blazars with KM3NeT, a second-generation neutrino telescope which is currently under construction. We will be presenting the preliminary simulations of the event rates in KM3NeT during one year of observation with the detector in its future completed configuration.

Track

Neutrinos

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Session Classification: Poster session