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Probing Star-forming Environments with KM3NeT/ARCA: expectations for the full detector

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On behalf of the KM3NeT Collaboration.

Strong star-forming activity in astrophysical environments leads to an enhancement of hadronic gamma-ray and neutrino emissions. In this contribution, we explore the capability of the full KM3NeT/ARCA detector to trace TeVs neutrinos from star-forming environments, encompassing both diffuse and point-like signals. For the diffuse analysis,
we compute the 90% C.L. quasi-differential sensitivity for 10 years of the full detector operation, considering the whole energy range observable by KM3NeT/ARCA (100 GeV-100 PeV) and selecting upgoing track-like as well as all-sky cascade-like events. For the
point-like analysis, we compute the sensitivity for several declinations, focusing also on some particular Starburst Galaxies sources, such as NGC 1068, the Small Magellanic Cloud
(SMC) and Circinus Galaxy. The present contribution shows that KM3NeT/ARCA will be fundamental in strengthening the observations of the IceCube experiment and also in connecting the star formation processes with the high-energy neutrino production, within
a few years of operation in full configuration.

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