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Atmospheric neutrino oscillation measurements and BSM searches with IceCube and KM3NeT

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Precision measurements of the flavor oscillations of atmospheric neutrinos have the potential to reveal several phenomena beyond the Standard Model. The DeepCore sub-array of the IceCube neutrino telescope is capable of detecting large amounts of atmospheric neutrinos at energies as low as 5 GeV, which allows for observations of neutrino oscillations via muon neutrino disappearance. A new sample of atmospheric neutrino events from 8 years of DeepCore data with improved event selection and reconstruction methods has been created that will be the basis for several highly sensitive analyses of standard oscillations and BSM phenomena. This talk presents a standard oscillation measurement using a sub-selection of highly pure muon neutrino events from the new event sample as well as the sensitivity that will be achieved when the full sample is used. In addition, we will provide an outlook on the capabilities of future low-energy upgrades to IceCube and KM3NeT.

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