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Distinctive nuclear signatures of low-energy atmospheric neutrinos

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We examine the possibility of detecting atmospheric neutrinos using the nuclear reactions in large-scale neutrino detectors. The proposed methods allow to measure the low-energy atmospheric rate to a level of approximately 10-30\% depending on the efficiency of the background discrimination techniques. In addition, a better understanding of the low-energy atmospheric neutrino background is essential to improve the detection perspective of the diffuse supernova neutrino background and the direct detection of dark matter.

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