

XVth Quark Confinement and the Hadron Spectrum



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Exciting Prospects at Neutrino Detectors

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We propose a new approach to search for light dark matter (DM) in the mass range of keV-GeV via inelastic nucleus scattering at large-volume neutrino detectors such as Borexino, DUNE, JUNO, and Super-/Hyper-K. The approach uses inelastic nuclear scattering of cosmic-ray boosted DM, enabling a low-background search for DM in these experiments. The large-volume neutrino detectors with higher threshold can be used since the nuclear de-excitation lines are $O(10)$ MeV. Using a hadro-philic dark-gauge-boson-portal model as a benchmark, we show that the nuclear inelastic channels generally provide better sensitivity than the elastic scattering for a large region of light DM parameter space.

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