

Dark matter searches at neutrino experiments

Millicharged particles can be created in the atmosphere when high energy cosmic rays collide with nuclei, resulting in potentially observable signals at neutrino detectors. We analyse the resulting single scatter and multiple scatter signals at SuperK and JUNO. Searches for low energy coincident signals at JUNO will be sensitive to MCPs with masses between 2 GeV and 10 GeV with milli-charges up to an order of magnitude beyond current constraints. Similarly, the decay of asymmetric dark matter (ADM) can lead to distinct neutrino signatures characterized by an asymmetry between neutrinos and antineutrinos. We examine the neutrino signal stemming from ADM decay and set the first stringent constraints on ADM lifetime based on the current observation of Glashow resonance at IceCube.

Primary author: SONG, Ningqiang (Institute of Theoretical Physics, Chinese Academy of Sciences)

Presenter: SONG, Ningqiang (Institute of Theoretical Physics, Chinese Academy of Sciences)

Session Classification: 分会场一

Track Classification: TeV 物理和超出标准模型新物理