

Abstract Submitted  
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**Sterile Neutrino Search with Starting Events in IceCube**<sup>1</sup> KEVIN GHORBANI, FRANCIS HALZEN, Univ of Wisconsin, Madison, ICECUBE COLLABORATION MEETING COLLABORATION — IceCube is a cubic kilometer neutrino detector at the South Pole which is sensitive to sterile neutrinos with masses and mixing angles at and around the range of LSND/MiniBooNE anomaly. In this analysis, we measure the up-going atmospheric neutrinos with energies from approximately  $100\text{GeV}$  to  $20\text{TeV}$  as a function of zenith angle which reflects the distance that the neutrinos traveled through the Earth. In the case of  $3 + 1$  sterile neutrino model, we anticipate a strong matter resonance resulting into the disappearance of muon anti-neutrinos and a weak disappearance of muon neutrinos, due to MSW-resonant oscillation. In this analysis we specialize to contained neutrino events with secondary muons that start in the detector to obtain a superior measurement of energy compared to previous analyses. I will present the event selection process and sensitivity to sterile neutrinos with IceCube starting events.

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