



ID de Contribution: 129

Type: YSF (Young Scientists Forum)

Double-Cascade Events from New Physics in IceCube

jeudi 15 mars 2018 18:53 (5 minutes)

Heavy neutrino states can be up-scattered from neutral-current interactions between neutrinos and nuclei in several new physics models. If the incoming neutrino is energetic enough, the heavy neutrino may travel some distance before decaying. In this talk, we consider the tau neutrinos created by the flavor oscillation of the atmospheric muon neutrino flux as a source of such events. At IceCube, this would lead to a “double-bang” (DB) event topology, similar to what is predicted to occur for tau neutrinos at ultra-high energies. The DB event topology has an extremely low background rate from coincident atmospheric cascades, making this a distinctive signature of new physics. The results indicate that IceCube should already be able to derive new competitive constraints on the mixing between tau neutrinos and GeV-scale sterile neutrinos using existing data.

Summary

Auteur principal: MARTINEZ-SOLER, Ivan (IFT UAM-CSIC)

Orateur: MARTINEZ-SOLER, Ivan (IFT UAM-CSIC)

Classification de Session: YSF4

Classification de thématique: Theory