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A Time Dependent Analysis of the Interference between the Solar and the Sidereal Anisotropies using the 59 String IceCube Detector[1]
CRAIG PRICE, RASHA ABBASI, PAOLO DESIATI, Dept. of Physics, University of Wisconsin, Madison, ICECUBE COLLABORATION — IceCube is a kilometer scale neutrino observatory that collected 34 billion cosmic ray induced muon events from May 2009 to May 2010 in the 59-string configuration, or 324 days of lifetime. These events, which are background for neutrino searches, are sufficient to observe anisotropies in cosmic ray arrival direction with amplitude of about 10^{-4}. We present evidence that the leakage of the large-scale sidereal anisotropy into the solar reference frame explains all distortions of the solar dipole (due to the Earth's revolution around the Sun) throughout the year. This suggests that in the energy range IceCube is sensitive to, there are exactly two cosmic ray anisotropies, the sidereal anisotropy and the solar dipole.

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