Contribution ID: **10** Type: **not specified**

Looking at the flavor composition of solar neutrinos

Saturday 2 November 2024 11:53 (18 minutes)

We examine solar neutrinos in dark matter detectors, focusing on flavor-dependent radiative corrections to the coherent elastic neutrino-nucleus scattering (CEνNS) cross section within a three-flavor framework, incorporating matter effects from the Sun and Earth. Detectors with thresholds
$lesssim$1 keV and exposures of $\sim$ 100 ton-years could probe beyond-tree-level effects and offer unique insights into the muon and tau components of the solar neutrino flux. Recent CEνNS measurements by PandaX-4T and XENONnT provide sensitivity to non-standard interactions (NSI) and tau-flavor parameters, marking a significant advancement in neutrino physics. Complementary studies of neutrino-electron scattering in Borexino, and future data from JUNO, could further probe ν_μ and ν_τ contributions and test novel physics such as non-unitary evolution and U(1)$_{L_\mu - L_\tau}$ interactions.

Author: MISHRA, Nityasa

Co-authors: ARISTIZABAL, Diego (Universite de Liege); KELLY, Kevin (Texas A&M University); STRIGARI, Louis (Texas A&M); RAI, Mudit (Texas AM University)

Presenter: MISHRA, Nityasa

Session Classification: Neutrino Physics and Astrophysics 2