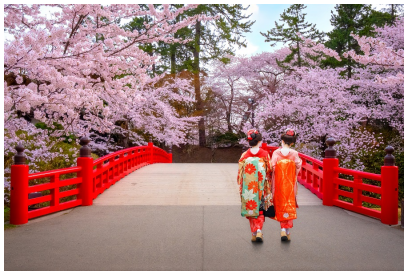

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New physics effects on quantum correlations in neutrino oscillations

mercredi 29 mars 2023 09:00 (15 minutes)

We study the effects of new physics on several measures of quantum correlations in the context of neutrino oscillating systems for a number of accelerator and reactor experimental set-ups. Non-local correlations are generally measured in terms of Bell's inequality parameter. Recently, it was shown that the non-local advantage of quantum coherence (NAQC) is a stronger measure of non-locality as compared to the Bell's inequality parameter in the neutrino systems. We study the effects of nonstandard interaction (NSI) on these measures and observe that although NAQC is a stronger measure of non-locality, Bell's inequality parameter is more sensitive to NSI effects. We then study NSI effects on several measurements of entanglement such as entanglement of formation, concurrence, and negativity for three flavor neutrino oscillations. Finally, for the first time in the context of neutrino systems, we study accord which is a measure quantifying the deviation from the pure state.

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