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# Constraints on EFT from neutrino oscillations

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We study constraints on the Standard Model Effective Field Theory (SMEFT) from neutrino oscillations in short-baseline reactor experiments. We calculate the survival probability of reactors antineutrinos at the leading order in the SMEFT expansion, that is including linear effects of dimension-6 operators. It is shown that, at this order, reactor experiments alone cannot probe charged-current contact interactions between leptons and quarks that are of the (pseudo)vector (V±A) or pseudo-scalar type. We also note that flavor-diagonal (pseudo)vector coefficients do not have observable effects in oscillation experiments. In this we reach novel or different conclusions than prior analyses of non-standard neutrino interactions. On the other hand, reactor experiments offer a unique opportunity to probe tensor and scalar SMEFT operators that are off-diagonal in the lepton-flavor space. We derive constraints on the corresponding SMEFT parameters using the most recent data from the Daya Bay and RENO experiments.

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