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# Impact of light sterile neutrinos on the interpretation of NO $\nu$ A and T2K results

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We study in detail the impact of a light sterile neutrino on the interpretation of the recent data of the long baseline experiments NO $\nu$ A and T2K, assessing the robustness/fragility of the estimates of the standard 3-flavor parameters with respect to the perturbations induced in the 3+1 scheme. We find that all the basic features of the 3-flavor analysis, including the weak indication ( $\sim 1.4\sigma$ ) in favor of the inverted neutrino mass ordering, the preference for values of the CP-phase  $\delta_{13} \sim 1.2\pi$ , and the substantial degeneracy of the two octants of  $\theta_{23}$ , all remain basically unaltered in the 4-flavor scheme. Our analysis also demonstrates that it is possible to attain some constraints on the new CP-phase  $\delta_{14}$ . Finally, we point out that, differently from non-standard neutrino interactions, light sterile neutrinos are not capable to alleviate the tension recently emerged between NO $\nu$ A and T2K in the appearance channel.

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