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Search for heavy neutrinos using T2K near detector ND280

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The analysis presented in this work aims at the study of heavy neutrinos (N) with masses < 493 MeV/c^2 produced in charged kaon and pion decays and subsequently decaying in the T2K off-axis near detector ND280. Two- and three-body decay modes are considered:

$N \to l_\alpha^\pm \pi^\mp,\ N \to l_\alpha^+ l_\beta^- \nu(\bar{\nu}),$ where $(\alpha, \beta = e, \mu)$

Time Projection Chambers (TPCs) volume is used to reduce background from neutrino interactions. The T2K data accumulated in years $2010 - 2018$ will be used. First estimations of signal selection efficiency show improvement in comparison with previous results [1,2]. Improvement of current upper limits on mixing elements between heavy and active neutrinos is expected due to increased statistics, inclusion of pion decays and additional heavy neutrino three-body decay channels. In this talk, systematic uncertainties, background estimations and expected sensitivity towards mixing elements will be presented.

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