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Improved Limits on Sterile Neutrino Mixing from a Joint Search of the MINOS, MINOS+, Daya Bay, and Bugey-3 Experiments

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The Daya Bay, MINOS and MINOS+ experiments have searched for sterile neutrino mixing using electron antineutrino and muon (anti)neutrino disappearance, respectively, within a minimally extended four-neutrino scenario. They have recently combined their results, together with those from the Bugey-3 reactor neutrino experiment, to set the most stringent limits to date on the $\theta_{\mu e}$ mixing angle over five orders of magnitude in the sterile mass-squared difference Δm^2_{41}. The new constraints are significantly more stringent than the previous ones and exclude the sterile-neutrino parameter space allowed by the LSND and MiniBooNE observations at 90% CL$_s$ for $\Delta m^2_{41} < 5$ eV^2, weakening the interpretation of these observations by the presence of a sterile neutrino. The result of the joint Daya Bay, MINOS, MINOS+ and Bugey-3 search along with a brief overview of the searches done by each experiment will be presented in this poster.

I read the instructions

Secondary track (number)

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