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High Energy Physics - Phenomenology

Evidence of theta(13)>0 from global neutrino data analysis

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The neutrino mixing angle theta(13) is at the focus of current neutrino research. From a global analysis of the available oscillation data in a 3-neutrino framework, we previously reported [Phys. Rev. Lett. 101, 141801 (2008)] hints in favor of theta(13)>0 at the 90 % C.L. Such hints are consistent with the recent indications of nu(mu)-->nu(e) appearance in the T2K and MINOS long-baseline accelerator experiments. Our global analysis of all the available data currently provides >3 sigma evidence for nonzero theta (13), with 1-sigma ranges sin^2 theta(13) = 0.021+-0.007 or 0.025+-0.007, depending on reactor neutrino flux systematics. Updated ranges are also reported for the other 3-neutrino oscillation parameters (delta m^2, sin^2 theta (12)) and (Delta m^2, sin^2 theta(23)).

Comments:	Slightly revised text; results unchanged. To appear in Phys. Rev. D
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