Contribution ID: **648**   Type: **Parallel talk**

Latest Results from Double Chooz

Thursday 11 July 2019 11:30 (20 minutes)

On behalf of the Double Chooz (DC) collaboration, we'd like to propose a talk to report our latest results as of the latest publication (arXiv:1901.09445). We hereby report our latest measurement of Theta13. Special emphasis has been done for the validation of the systematics accuracy by the articulation of redundant measurements while DC exploits its unique simpler geometry to cancel almost completely the impact of questioned reactor flux model. Our Theta13 measurement continues to exhibit an inconclusive slightly higher value within an acceptable $\leq 2\sigma$ effect of the latest Daya Bay and RENO results. Additionally, we also report the world most precise mean cross-section per fission (σ_f) in good agreement to all experiments so far, thus superseding Bugey4 results for the first time. DC also scrutinises the reactor model prediction discrepancies in terms of both rate and shape, including inter-experiment comparison and addressing the possible impact to the accuracy of Theta13 measurement. DC thus concludes that the reactor prediction model uncertainties are likely underestimated and we quantify using an empirical neutrino data driven approach. Also, an empirical prescription for a new reactor model systematics is presented as temporary empirical solution for as long as the prediction accuracy appears questioned and compromised.

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