

Measurement of the Neutrino Time of Flight at MINOS

The MINOS experiment uses two detectors separated by 734km between Fermilab and the Soudan Underground Laboratory. A new measurement of the neutrino Time of Flight (TOF) was conducted between the two detectors. This analysis extends the initial measurement based on Run I data published in PhysRevD in 2007, benefitting from the statistics accumulated during 6 years of data taking. The systematics of the published analysis are reevaluated and the recent detailed studies of the timing system and of its performance significantly improved the precision of the measurement. We present the results of the neutrino TOF measurement obtained with two different analysis methods: the first one essentially identical to the one adopted in 2007, and a second one that fits the relative time and resolution to a distribution resulting from folding over the booster batches in the NuMI spill.

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