K2K experiment is the first accelerator experiment in the world and has completed the data taking in November 2004. K2K accumulated data for five years and has analyzed all the data. The results established the existence of neutrino oscillation at the confidence level of 99.998% (4.3σ). The results have been published in Physical Review Letters **94**, 081802 (2005). The results excelled the proposed confidence level of '99.9%'. Also the oscillation parameters ($\sin^2 2\theta, \Delta m^2$) have been determined to be ($1.0, 2.8\times10^{-3}\mathrm{eV}^2$).

During the entire run, Super Kamiokande detected 112 neutrino events from KEK 12 GeV PS. Based on the near detector measurements of neutrino flux, the predicted number of events at Super Kamiokande is 158.4 events, in case there is no neutrino oscillation. Muon neutrinos have decreased significantly. This can be interpreted as some muon neutrinos have turned into tau neutrinos. From the rate measurements, the confidence level of the existence of neutrino oscillation is 99.94% (3.4 σ)

Figure 1 shows the shape of reconstructed neutrino energy distribution at Super Kamiokande in K2K experiment. This distribution can be predicted from the measurements in near detectors. In the figure, points are data, solid (dotted) line shows the expectation without (with) oscillation. Data show apparent departure from no oscillation case. The statistical significance is 99.6% (2.9 σ).

Combining both rates measurements and spectrum shape measurements, the neutrino oscillation of in muon neutrinos has been established at the confidence level 99.998% (4.3 σ).

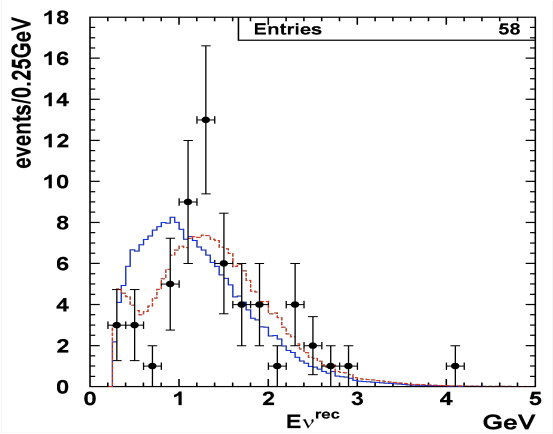

Fig.1 : Neutrino energy distribution at Super-Kamiokande.

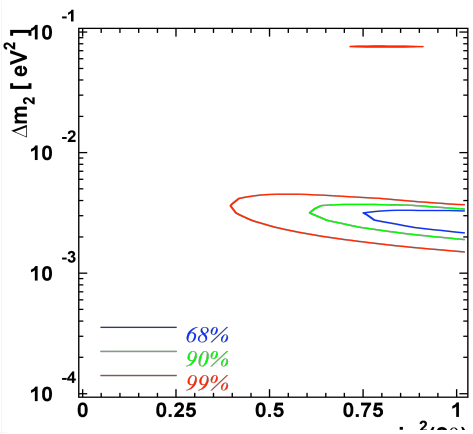

Fig.2 : Allowed regions of oscillation parameters.

K2K also searched for the oscillation of muon neutrinos to electron neutrinos. The result is negative and obtained an upper limit of mixing angle $\sin^2 2\theta_{\mu e}<0.13$. (hep-ex/0603004, accepted by PRL.