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T2K far detector event reduction, reconstruction and selection
XIAOYUE LI, State Univ of NY- Stony Brook, T2K COLLABORATION — T2K is a long baseline neutrino experiment designed for observation of neutrino oscillations and measurement of cross sections. An intense muon neutrino beam generated at the J-PARC facility is directed to the far detector Super-Kamiokande (Super-K) 295 km away. T2K beam events detected in Super-K can be separated from Super-K non-beam events using precision timing. Further data reduction procedures guarantee the high quality of T2K data and classify events into different categories. Super-K is a 50 kiloton water Cherenkov detector. Events at Super-K are reconstructed based on the PMT charge and timing information from observed Cherenkov radiation generated by relativistic charged particles. In particular, electron-like and muon-like events have different patterns, which allows for particle identification. Event selections are applied to obtain electron-like and muon-like subsamples for T2K oscillation analyses. This talk will review the event reduction, reconstruction and selection of T2K far detector.

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