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Extraction of the Inclusive Muon Neutrino Charged Current Cross Section at MicroBooNE

The MicroBooNE detector has an active mass of 85 tons of liquid argon and is located along the Booster Neutrino Beam (BNB) at Fermilab. It has a rich physics program including the search for a low-energy excess observed at MiniBooNE and measurements of neutrino-Argon interaction cross sections. In this poster, we present a procedure, using the Wiener-SVD unfolding method, to extract the nominal neutrino flux-averaged total and differential cross sections of the inclusive muon neutrino charged-current interaction on argon. This procedure relies on a minimal set of assumptions while maximizing the power in comparing data results with predictions from theory and event generators. Taking advantage of the power of a Liquid Argon Time Projection Chamber (LArTPC) and the Wire-Cell tomographic event reconstruction paradigm, this procedure enables a new round of cross section measurements at MicroBooNE.

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