## Electroweak Radiative Corrections to Neutrino-Neucleon Scattering at NuTeV

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The W boson mass extracted by the NuTeV collaboration from the ratios of neutral and charged-current neutrino and anti-neutrino cross sections differs from direct measurements performed at LEP2 and the Fermilab Tevatron by about  $3\sigma$ . Several possible sources for the observed difference have been discussed in the literature, including new physics beyond the Standard Model (SM). However, in order to be able to pin down the cause of this discrepancy and to interpret this result as a deviation to the SM, it is important to include the complete electroweak one-loop corrections when extracting the W boson mass from neutrino scattering cross sections. We will present results of a Monte Carlo program for  $\nu N$  ( $\bar{\nu}N$ ) scattering in both massless and massive calculations including the complete electroweak  $calO(\alpha)$  corrections, which will be used to study the effects of these corrections on the extracted values for the electroweak parameters. We included also in our calculation the full fermion-mass dependence, which has not been studied before. We found that using the calculation with fermion-mass dependence shifts the W boson mass.

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