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Measurement of the Top Quark Mass in Dilepton Final States using Neutrino Weighting in Run II at DØ HUANZHAO LIU, ROBERT KEHOE, AMITABHA DAS, YURIY ILCHENKO, Southern Methodist University, DZERO COLLABORATION — A measurement is presented of the mass of the top quark (m_t) in inclusive dilepton final states of ttbar events. The expected neutrino rapidity distribution is used to solve an otherwise underconstrained kinematic fit to the ttbar hypothesis. Solutions are given weights according to the degree of agreement between their calculated imbalance in transverse momentum (missing E_T) and the events observed values of missing E_T. The first two moments of the distribution of weights as a function of m_t are used to extract a measurement of m_t. Ensemble tests of pseudo-experiments are performed to calibrate and correct the extracted m_t, and to estimate its statistical uncertainty. Events corresponding to an integrated luminosity of 9.7 fb^{-1} of DØ Run II data collected in the eμ, ee and $\mu\mu$ channels are used for this analysis. The calibration is performed using a ttbar cross section expected for mt = 172.5 GeV. A number of optimizations are developed and we expect the improvement to the statistical uncertainty of m_t to be 20%.

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