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Measurements of charge asymmetries from W boson decay in electron and muon channels and measurement of $Z/gamma^*$ $\phi*$ distribution at D0

We present the measurements of charge asymmetries from W boson
decay in both electron and muon channels and also the $Z/gamma^*$ ϕ^* distribution with RunII data from 7.3 fb^{-1} to 9.7 fb^{-1} collected by the D0 detector at the Fermilab Tevatron Collider. In the electron charge asymmetry measurement,we present the lepton asymmetry as a function of the electron transverse momentum and pseudorapidity in the interval (-3.2, 3.2); we also present results from W charge asymmetry, as a function of W boson rapidity. The asymmetries are compared with expectations from next-to-leading order calculations in perturbative quantum
chromodynamics. In the muon charge asymmetry measurements, we present the lepton asymmetry for five kinematic (p_T^{μ}, MET) bins. These charge asymmetry measurements will allow more accurate determinations of the proton parton distribution functions. We also present a measurement of the distribution of $Z/\gamma*$ variable $\phi*$, which probes the same physical effects as the $Z/\gamma*$ boson transverse momentum, but is less susceptible to the effects of
experimental resolution and efficiency. The $\phi*$ measurement includes results from the low invariant mass region (30-60 GeV), Z peak mass region (70, 110 GeV), and high mass region ($>$ 160 GeV), and is compared with higher order predictions.

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