

UNIVERSITY OF TEXAS AT DALLAS - DEPARTMENT OF PHYSICS
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Dipping into the Strange Sea of the Proton

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I will describe a measurement of the rate of $W+c$ -jet process in an inclusive W +jets production in $p\bar{p}$ collisions at the center of mass energy $\sqrt{s}=1.96$ TeV at the Fermilab Tevatron Collider. The $W+c$ -jet production cross section is directly sensitive to the s quark content inside the proton, hence a tool for dipping into the strange sea. A direct measurement of the momentum distribution of the s quark inside the proton will allow a reliable calculation of new physics signal as well as the background processes at the collider experiments at large momentum transferred scales. Events containing $W+c$ -jets are identified from the leptonic decays of the W boson and using a tagging technique for the c -jet which produces a muon via a semileptonic decay of the charm quark. The c -jet recoiling against the W boson is restricted to have a minimum transverse momentum of 20 GeV and a pseudorapidity $|\eta| < 2.5$. Measurement is performed using approximately 1 fb^{-1} of data collected by the $D\emptyset$ detector at the Fermilab Collider. More importantly, as it is a measurement of quark-gluon interaction, it provides a direct evidence that the CERN LHC collider will be successful.