Search for $WZ/ZZ$ diboson production in the jets plus missing transverse energy final state at CDF

SID NARAYANAN, University of Chicago, CDF COLLABORATION — We perform a search for $WZ/ZZ \rightarrow$ missing $E_T +$ jets in 8.9 fb$^{-1}$ of data from CDF, using Tevatron 1.96 TeV $p\bar{p}$ collisions. Specifically, we look for events where a $W$ or $Z$ boson decays into two quarks and the other decays into two neutrinos ($Z$) or a lepton and neutrino ($W$). We select events with large missing transverse energy and at least two quark jets. We limit the number of reconstructed leptons to mitigate top quark backgrounds. We can not completely reduce $W/Z +$ jets and QCD multi-jet backgrounds, so we use data-driven models to estimate their contribution to the event sample along with the associated systematic uncertainties. Finally, to limit the $WW$ contribution, we split the analysis into two channels. We consider all events with two bottom-quark tagged jets (2-tag channel) and all other events (no-tag channel). We perform a simultaneous fit in both channels and set an upper limit on $WW/WZ$ production of 1.6 times the standard model expectation at the 95% confidence level.

Eric James
Fermi National Accelerator Laboratory

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