Search for $ZH \to \ell\ell b\bar{b}$ Using The Matrix Element Technique at D0

HUONG NGUYEN, University of Virginia, D0 COLLABORATION — We search for the standard model Higgs boson produced in association with a Z boson using 4.8 fb^{-1} of Tevatron $p\bar{p}$ collisions collected using the D0 detector. We consider final states consistent with the Z boson decaying to leptons and the Higgs boson decaying to a $b\bar{b}$ quark pair. To improve the Higgs signal sensitivity we use the Matrix Element technique to calculate the probability that each event originates from a signal or background process, and include these probabilities as additional input variables to a multivariate analysis.

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