Search for the Higgs Boson in the WH → lνbb and WH → WWW → lνjjjj Channels

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Abstract

Throughout the summer of 2011, work continued on the analysis of the associated production of the Higgs boson. Our particular analysis was the WH → l*νbb* decay channel. This channel has the highest branching ratio of the low-mass Higgs decay channels and thus is one of the most sensitive channels to analyze, resulting in a solid framework and a good foundation. Work was also done on the WH → WWW → lνjjjj decay channel. This channel is unique within DØ because there are only a few people working on it, all whom are summer students. This paper explains ongoing efforts to process data and Monte Carlo (MC) samples, model data correctly, and utilize the output of multivariate training to effectively distinguish between signal and background events and perform a search for the Higgs Boson. It also discusses new variables that were added to the search and how they impacted the overall analysis.