

Abstract Submitted
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Using tri-lepton events to improve SM Higgs search in $VH \rightarrow VWW$ decay channel at CDF JASON NETT, University of Wisconsin, CDF COLLABORATION — We present an analysis designed to improve the sensitivity of the search for a standard model (SM) Higgs boson by more fully utilizing potential decay channels originating from associated production of a Higgs and a vector boson ($V = W, Z$). Potential Higgs decays via $H \rightarrow WW$ result in final state with three heavy vector bosons whose leptonic decays can result in events containing three and even four charged leptons. In the past CDF has incorporated same-sign dilepton events, which also result from this production mode, within its SM higgs searches. By also incorporating tri-lepton events in the analysis, we can potentially improve the sensitivity of this search channel by roughly another 10%. We also explore further expanding signal acceptance in this channel by incorporating events with small opening angle as well as those containing hadronic tau decays.

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