

Combined Upper Limit on Standard Model Higgs Boson Production at D0 in ppbar Collisions at $\sqrt{s}=1.96$ TeV

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Abstract: We present the combination of the searches for the Standard Model Higgs boson at a center-of-mass energy of $\sqrt{s}=1.96$ TeV, using up to 5-fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. The major contributing processes include associated production ($WH \rightarrow l\nu bb$, $ZH \rightarrow \nu\nu bb$, $ZH \rightarrow llbb$, and $WH \rightarrow WWW^{(*)}$) and gluon fusion ($gg \rightarrow H \rightarrow WW^{(*)}$). The significant improvements across the full mass range resulting from the larger data sets, improved analyses and inclusion of additional channels are discussed; we expect sensitivity to a Higgs boson with a mass around 160 - 170 GeV with this data set.

Primary author: Dr BERNHARD, Ralf (University of Freiburg)

Presenter: Dr BERNHARD, Ralf (University of Freiburg)

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