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## Studies of the Higgs boson properties at D0

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We present the combination of searches for the Standard Model Higgs boson at a center-of-mass energy of  $\sqrt{s}=1.96$  TeV, using the full Run 2 dataset collected with the D0 detector at the Fermilab Tevatron collider. The major contributing processes include associated production ( $WH\rightarrow lvbb$ ,  $ZH\rightarrow vvbb$ ,  $ZH\rightarrow llbb$ , and  $WH\rightarrow WWW()$ ) and *gluon fusion* ( $gg\rightarrow H\rightarrow WW()$ ). We also present tests of different spin and parity hypotheses for a particle H of mass 125 GeV produced in association with a vector boson and decaying into a pair of b quarks.

### Summary

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**Session Classification** : BEH Physics

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