

Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Probing spin and parity in the $WH \rightarrow \ell\nu b\bar{b}$ channel at DZero

EMILY JOHNSON, Michigan State University, D0 COLLABORATION — Standard model Higgs boson searches at the Fermilab Tevatron collider are sensitive to both the rate and kinematic characteristics of Higgs boson production. Using existing searches for Higgs bosons produced in association with vector bosons and with the Higgs boson decaying to pairs of bottom quarks (e.g., $WH \rightarrow \ell\nu b\bar{b}$), we probe the spin-parity value of the Higgs boson. By exploiting the differences in observable kinematics, we attempt to discern the difference between the SM Higgs boson ($J^P = 0^+$), a pseudo-scalar ($J^P = 0^-$) and a graviton-like signal ($J^P = 2^+$). Using up to 9.7 fb^{-1} of integrated luminosity collected by the D0 detector, we extract p-values for the relative likelihood of the $J^P = 0^-$ and 2^+ hypotheses.

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Date submitted: 10 Jan 2013

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