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Search for Standard Model ZH->llbb at D0

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We present an improved measurement for the standard model Higgs boson production in association with a Z boson, using 9.7 fb-1 of ppbar collision data collected by the D0 detector at sqrt(S) = 1.96 TeV. Events are selected with two electrons or two muons that are consistent with the decay of a Z candidate, and at least two reconstructed jets including at least one b-tagged jet). We use improved algorithms for lepton reconstruction and use new optimization to determine the b-tagging operating points. Four dedicated random forests of decision trees (RFs) are trained in order to distinguish the signal from ttbar, Z+Heavy Flavor jets, Z+Light Flavor jets and diboson background events respectively. The final discriminant is trained separately in five regions according to the output of the RFs. We measure the ZH production cross-section times Higgs branching ratio to two b-jets with improved sensitivity.

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