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Search for associated production of Z and Higgs bosons in $bb + \text{neutrino}$ final states in proton-antiproton collisions at 1.96 TeV

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We present a search for a low mass Standard Model Higgs boson produced in association with a Z boson decaying invisibly into a pair of neutrinos at a center-of-mass energy of 1.96 TeV with the CDF and D0 detectors at the Fermilab Tevatron collider. The final state is characterised by the presence of two b-tagged jets from the Higgs boson decay and a large imbalance in the transverse energy of the event. This channel is very powerful because of the large signal yields, but is experimentally challenging due to the large QCD backgrounds and absence of visible leptons in the final state. Prospects for results with the full data sample and recent improvements to the sensitivity will be discussed.

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