

Search for low mass Higgs at the Tevatron (ZH and H to gamma gamma)

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We present a search for a low mass Standard Model Higgs boson produced in association with a Z boson decaying to charged leptons or invisibly into a pair of neutrinos at the Fermilab Tevatron collider. The final state is characterised by the presence of two b-tagged jets from the Higgs boson decay and two opposite-sign leptons (electron muon, tau) or a large imbalance in the transverse energy of the event due to the Z boson decay. This channel is in all of the decay modes very powerful. We present as well results of a search for SM Higgs bosons decaying to the di-photon final state. Both gluon fusion and associated production processes are exploited. Whilst the branching ratio to the di-photon final state is small in the Standard Model, this channel contributes appreciably to the overall Higgs sensitivity at the Tevatron.

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