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Search for Neutral Supersymmetric Higgs Bosons in $bbb(b)$ Final States in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV NICOLAS OSMAN, Imperial Collage, London, DZERO COLLABORATION — We present a search for the Higgs boson in the $hb(b) \rightarrow b\bar{b}bb$ channel at a center of mass energy of 1.96 TeV using ~ 5 fb $^{-1}$ of data collected with the D0 detector at the Tevatron. In many supersymmetric models, the coupling of the Higgs bosons to bottom quarks is enhanced in comparison to the Standard Model leading to significantly increased production rates. The $h \rightarrow b\bar{b}$ is the dominant decay process for much of the parameter space. This fully hadronic channel presents two particular challenges: modeling the multijet background requires great care, and the multi b-jet signal leads to further complications. An event-based approach has been introduced to address the latter and increase sensitivity.

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