Abstract Submitted
for the SES13 Meeting of
The American Physical Society

A Search for the Standard Model Higgs in $t\bar{t}$H, H$\rightarrow b\bar{b}$ decay channel at $\sqrt{s}$ = 8 TeV JOHN WOOD, University of Virginia, CMS COLLABORATION — The most important goal of the Large Hadron Collider (LHC) is to elucidate the mechanism of electroweak symmetry breaking. The Standard Model(SM) Higgs Boson is thought to be a prime candidate for this. The newly discovered boson announced on July 4th, 2012, with a mass of 125GeV, has so far been shown to be consistent with a SM Higgs. However, the final confirmation of this new particle as the SM Higgs depends on subsequent measurements of its properties. The observation of this new particle in association with top-quark pairs would allow the couplings of this particle to top and bottom quarks to be directly measured. $t\bar{t}$Higgs, Higgs to $b\bar{b}$ is an excellent channel to explore due to the dominant branching ratio of Higgs to $b\bar{b}$ and the kinematic handle the $t\bar{t}$ offers on the event. However, it presents a plethora of difficult challenges due to a low signal to background ratio and uncertainties on kinematically similar SM backgrounds. This talk describes a search for the SM Higgs boson in association with top quarks. Data to Monte Carlo comparisons are made with with the full 19.4 fb^{-1} 2012 dataset of pp collisions collected by the CMS detector.

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Date submitted: 18 Sep 2013 Electronic form version 1.4