

Abstract Submitted  
for the APR07 Meeting of  
The American Physical Society

**Measurement of Higgs Self-Coupling Constant in Standard Model**

FIRDEVVS DURU, The University of Iowa — After the discovery of Higgs Boson, its properties will gain importance. One of the most critical properties of Higgs is its self-coupling constant,  $\lambda$ , which is necessary to understand the shape of the potential. In order to calculate  $\lambda$ , the observation of Higgs pair production is necessary. In the Large Hadron Collider (LHC) experiment, there will be different ways of producing Higgs pairs, such as gluon fusion, WW or ZZ fusion, W or Z-strahlung. We use the gluon-gluon fusion Standard Model (SM) sample of  $gg \rightarrow HH \rightarrow (W^+ W^-) (W^+ W^-) \rightarrow (j j l^\pm \nu) (j j l'^\pm \nu)$ , where  $l$  and  $l'$  are any combination of electrons and muons. Also, the two background processes,  $W^\pm W^+ W^- j j$  and  $t\bar{t}W^\pm$ , which have the largest contribution are used. These signal and background events have been simulated in CMS detector. We report the details of a Higgs self-coupling constant measurement study in the CMS experiment, and compare to the earlier studies.

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Date submitted: 12 Jan 2007

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