Search for a Standard Model-like Higgs boson decaying into $WW$ to $lnu \ q\bar{q}bar$ in $pp$ collisions at $\sqrt{s} = 8$ TeV

BIBHUTI PARIDA, Tata Institute of Fundamental Research, Mumbai — A search for a Standard Model-like Higgs boson decaying into the $W^+W^-$ final state is performed with an integrated luminosity of 19.3 inverse femtobarn of pp collisions data recorded with the CMS detector at $\sqrt{s} = 8$ TeV. The search is performed in the semileptonic channel in the high mass region $600 < m_H < 1000$ GeV, where the hadronically decaying $W$ boson is highly boosted and its decay products are contained in one jet. Advanced jet substructure techniques are used in identifying the hadronically decaying $W$. No evidence for an SM-like Higgs boson has been found in the investigated mass region.

Bibhuti Parida
Tata Institute of Fundamental Research, Mumbai

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