Search for heavy Higgs bosons decaying to top quark pairs using the CMS experiment

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A key ingredient in shedding light on dark matter and the validity of proposed supersymmetric theories, such as the minimal supersymmetric standard model, is the existence of additional Higgs bosons. Using data collected by CMS at the LHC at $\sqrt{s} = 13$ TeV, corresponding to a luminosity of 137 fb^{-1}, a search is performed for scalar and pseudoscalar, electrically neutral bosons decaying predominantly to top quark pairs, which are assumed to further decay dileptonically. The challenges connected to this particular search, such as interference with the standard model background and unknown quantities resulting from neutrino momenta, are tackled by a full reconstruction of the top quark system and the utilization of multi-dimensional distributions arising from mass and spin information.