

Title: Study of the Lepton Flavor Violating Decays of the Higgs Boson at the ATLAS Experiment

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Abstract: The thesis contains an analysis of the potential lepton flavor violating Higgs boson decays performed on the data acquired by the ATLAS experiment during the Run II period of the LHC. The analysis comprised of an event selection aiming at the reduction of the backgrounds, while keeping the highest possible amount of the signal events. An estimate of the leptons misidentified by the reconstruction algorithms of the ATLAS experiment was included in the analysis. For the selected events, invariant mass was reconstructed in the collinear approximation. The distribution of the invariant mass according to the MMC was provided for reference purposes.

Keywords: Higgs boson, ATLAS, collinear approximation