

In the presented diploma thesis we study the reconstruction of the top antitop system in proton-proton collisions with central mass energy 7 TeV delivered by LHC accelerator at CERN to the ATLAS experiment. ALPGEN and MC@NLO generators are described as two main method of top antitop pairs simulations. We compare events simulated by generators to data from LHC. The background and selection criteria are summarized. Next we described various methods of the top antitop reconstruction. Finally the  $Z'$  particle was also studied.