

In the thesis we study the decay of B_0 meson to D_s^* and ρ mesons. The thesis explains the methods and approaches to data analysis in so-called B-factories, similar to the KEKB accelerator. The aim of this thesis is to calculate the branching fraction of this decay to further improve the previously measured branching ratio at BaBar experiment with additional data gained from an experiment with higher integrated luminosity. This thesis's prospect is not only broadening our knowledge of branching fractions of B_0 meson decays, but also it is a starting point for further analysis with the goal of broadening our knowledge of CP symmetry violation in the Standard Model by measuring angles of the Unitary Triangle.