

In the present work we are studying the Higgs boson decay into two photons with an emphasis on the use of various techniques used for the Feynman diagram calculations. In the first part we thoroughly evaluate the contribution of top quark and W-boson loop in various ways. Then we consider the QCD corrections to quark masses and electromagnetic interaction. In next chapters we evaluate the QCD corrections to the top quark loop in detail - first by the expansion in a small Higgs mass and then exactly using the integration-by-parts identities and differential equations. Finally we make an overview of other results found in the literature.