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Measurement of the Higgs to $\gamma\gamma$ branching fraction at 3 TeV CLIC

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In this talk we address a full simulation of experimental measurement of the Standard Model Higgs boson decaying to two photons at 3 TeV center-of-mass energy at Compact Linear Collider (CLIC). Since photons are massless, they are not coupled to Higgs boson at the tree level, but rather are created in a loop exchange of heavy particles either from the Standard Model or beyond. Any deviation of the Higgs to $\gamma\gamma$ branching fraction and consequently of the Higgs to photon coupling may indicate a New Physics. It is shown that the product of the Higgs production cross section in $W+W^-$ fusion and BR ($H \rightarrow \gamma\gamma$) as the observable for determination of the Higgs to photon coupling, can be measured with a relative statistical precision of 5.5%, assuming the integrated luminosity of 5 ab^{-1} and unpolarized beams.

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