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Measurement of Higgs couplings and self-coupling at the ILC

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We report on the recent studies of the precision measurement of the Higgs couplings at the ILC based on the full detector simulation of the ILD detector concept at various centre-of-mass energies including 250 GeV, 500 GeV, and 1 TeV. At 250 GeV, the Higgs recoil mass measurement is the key to determining the absolute e+e- -> ZH cross section and hence the absolute model-independent Higgs couplings. Around 350 GeV and above, the e+e- -> nunuH fusion channel is available to study the Higgs. The ILC can measure Higgs branching ratios (BRs) into bb, cc, gg, tautau, WW, *ZZ*, and gammagamma at all energies above 250 GeV. At 500 GeV and above, the e+e- -> ttH process can be used to measure the top Yukawa coupling. At 1 TeV, the Higgs BRs into muon pairs can be obtained due to the increased luminosity. The most precise Higgs couplings are obtained via a global fit. The synergy with the LHC measurements is also discussed.
It is a crucial and fundamental task to measure the Higgs self-coupling at the future collider. In this talk, we will also introduce the ILD-DBD benchmark study of ZHH at 500 GeV and vvHH (WW-fusion) at 1 TeV focusing on both Higgs bosons decaying as H->bb.

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