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Prospects of Higgs self-coupling measurements at the ILC using ILD detector

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Higgs self-coupling measurement provides a direct probe of the Higgs potential, which is important both for understanding of electroweak symmetry breaking and for testing of electroweak baryogenesis models. In this talk we will present studies addressing two aspects about the Higgs self-coupling measurement at the ILC at the center-of-mass energies of 500 GeV and 1 TeV. The first one is for the measurements of double Higgs production cross sections, based on the full detector simulation using the ILD and by including all SM background processes. The second one is how the prospect of Higgs self-coupling measurement would drastically change if its value is largely deviated with its SM expected as suggested by EW baryogenesis models. The talk will also point out some experimental opportunities such as how better flavor-tagging and jet-clustering algorithms would help improve Higgs self-coupling measurements.

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