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Higgs self-coupling measurement at ILC500

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The Higgs sector of particle physics is still largely uncovered, where establishing the Higgs mechanism is central to advance the field. The Higgs self-coupling is the key ingredient missing and an important puzzle piece for potentially uncovering new physics beyond the standard model.

With the energy reach and precision reach of linear e^+e^- colliders, the Higgs self-coupling can be measured directly and well enough that certain BSM scenarios can be evaluated. A new analysis of the capability to measure the Higgs self-coupling at ILC500 is ongoing and have identified aspects concerning the reconstruction tools which are expected to improve precision reach and will be presented. Other aspects such as the the centre-of-mass energy and BSM effects might also influence the reachable precision and will be considered.

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