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Higgs studies at the FCC-ee

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The study of the Higgs boson self-coupling at the e^+e^- Future Circular Collider (FCC-ee) is extremely challenging due to the small di-Higgs production cross section. This is however a crucial property, which may have far-reaching implications in our understanding of particle physics. It will be studied at the HL-LHC but with an expected sensitivity limited by the foreseen data statistics. An alternative experimental path to this search is the study of loop-induced corrections to the single-Higgs production cross section. We investigate the kinematics of $e^+e^- \rightarrow e^+e^-H$ with Higgs decaying into a b-quark pair at two centre of mass energies, of $\sqrt{s} = 240$ and 365 GeV, seeking to achieve experimental sensitivity to the Higgs boson self-coupling at the FCC-ee collider.

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