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Expected Measurements of the Higgs boson mass and ZH production cross sections at $\sqrt{s}=240$ and 365 GeV, at the Future e⁺e⁻ Circular Collider (FCC-ee)

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At the Future e⁺e⁻ Circular Collider a long data taking period is also foreseen at the $t\bar{t}$ production threshold and slightly above, up to $\sqrt{s}=365$ GeV, with more than 300 000 ZH events expected at these energies. We study the precision which can be reached with this dataset on the Higgs mass, and combine it with the measurement obtained with the same recoil mass technique in the e⁺e⁻ and $\mu^+\mu^-$ final state, at $\sqrt{s}=240$ GeV, which are also presented in detail. We present also the precision which can be obtained on the total ZH cross section measurement at $\sqrt{s}=240$ and 365 GeV.

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