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Higgs CP measurement with EFT model in lepton collider

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In the Circular Electron Positron Collider (CEPC), a measurement of the Higgs charge and parity (CP) mixing through $e^+e^- \rightarrow ZH \rightarrow \mu^+\mu^-H(\rightarrow b\bar{b}/c\bar{c}/gg)$ process is presented, considering a scenario of analyzing $5.6\text{ ab}^{-1} e^+e^-$ collision data with the center-of-mass energy of 240 GeV.

In this work, a CP-mixing parameter p is greater (less) than 5.40×10^{-2} (-5.52×10^{-2}) excluded at the 95% confidence level.

This study demonstrates the potential of precise measurement of the hadronic final states of the Higgs boson decay at the CEPC, and will provide key information to look for the CP -odd Higgs.

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