

$Zb\bar{b}$ dipole operators at future lepton colliders

SMEFT offers a systematic methodology within the reachable energy scale for exploring the potential manifestations of new physics beyond the SM. Electroweak dipole operators in the SMEFT are noteworthy probes for BSM effects, but usually ignored before in the cases under the top quark mass due to the suppression by particle mass over the possible large NP energy scale, such as in the $Zb\bar{b}$ coupling.

Next generation lepton colliders, including CEPC, can produce trillions of Z bosons, which will dramatically improve the precision of $Zb\bar{b}$ coupling measurement. We study the possible contribution of relevant dipole operators to $Zb\bar{b}$ coupling, and obtain the relation between EWPOs and related Wilson coefficients. Our work will predict and illustrate the ability of constraining these dipole operators at future lepton colliders.

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