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Anatomizing BSM effects with differential Higgsstrahlung observables

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New physics beyond the Standard Model could give rise to modifications of the Higgs couplings properly described in an effective field theory approach. With respect to the SM gauge symmetry, such effects are expressed by dimension-six or higher operators after integrating out heavy particles or loop functions. The operators modifying Higgs to ZZ couplings are naturally of particular interest. This is partly because this coupling will be one of the most precisely determined quantities through a recoil-mass measurement and partly because it is one of the key couplings that could help reveal the underlying dynamics of electroweak symmetry breaking. We study the potential diagnostic power of electron-positron colliders on these operators through various differential cross sections and asymmetries. We expand the scope of the conventional precision Higgs at electron-positron colliders into interaction Lorentz structure tests. We further discuss the complementarity between electroweak precision observables and Higgs observables. Our study sharpens the BSM physics potential at electron-positron Higgs factories.

Oral or Poster Presentation

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