Contribution submission to the conference Bonn 2020

Electroweak precision fits at future electron positron colliders — •Jakob Beyer[1,2] and Jenny List[1] — [1]DESY Hamburg — [2]Universität Hamburg

A precise determination of electroweak parameters is an essential part of future high-$\sqrt{s}$ e^+e^- collider programs. The collider parameters most relevant for the physics case of such a machine are its energy, luminosity and the availability of beam polarisation. All three can be used to maximize the expected signal of interest. In addition, beam polarisation is expected to disentangle systematic uncertainties from fundamental physics. How the extraction of electroweak parameters is affected by the collider parameters must be well understood. This can be investigated through a realistic analysis of electroweak processes at such a collider setup. In this study, charged triple gauge couplings and chiral cross sections are extracted from differential distribution of two- and four-fermion final states. A χ^2-fit to toy measurements is performed for varying initial collision conditions. Selection efficiencies and purities are adapted from full detector simulation analyses. Systematic uncertainties are parameterised and included in the fit. Sensitivities to each fit parameter are extracted from this fit. The importance of the collider parameters for this analysis is seen from their influence on the uncertainties. In particular, the effectiveness of beam polarisation as a tool to suppress systematic uncertainties is assessed. Other analyses at e^+e^- colliders may experience qualitatively similar behaviour of systematic uncertainties. Future collider efforts can use this knowledge in their design studies to maximize their physics potential.

Part: T
Type: Vortrag;Talk
Topic: 2.04 Elektroschwache Wechselwirkung (Exp.)
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