

Distinguishing New Physics Scenarios at ILC with Polarized Beams

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Numerous non-standard dynamics are described by contact-like effective interactions that can manifest themselves only through deviations of the cross sections from the Standard Model predictions. If one such deviation were observed, it should be important to definitely identify, to a given confidence level, the actual source among the possible non-standard interactions that in principle can explain it. We here estimate the identification reach on different New Physics effective interactions obtainable from angular distributions of fermion $e^+e^- \rightarrow \bar{f}f$ at the ILC with polarized beams. The models for which we discuss the range in the relevant high mass scales where they can be identified as sources of corrections to the Standard Model predictions, are the interactions based on gravity in large and in TeV^{-1} extra dimensions and the conventional four-fermion contact interactions. We emphasize the role of beams polarization on enhancing the identification sensitivity.

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