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Type-III seesaw fermionic triplets at high energy e^+e^- collider DEEPANJALI GOSWAMI, POULOSE POULOSE, Indian Institute of Technology Guwahati — We investigate the signature of heavy fermionic triplets belonging to Type-III seesaw model through their direct production at the high energy e^+e^- collider. Single and pair production of the charged ($\Sigma^{\pm}$) and neutral (Σ^0) triplets through the processes, $e^+e^- \to \Sigma^+\Sigma^-, \Sigma^0\Sigma^0, \Sigma^0\nu, \Sigma^{\pm}\ell$ are considered for the study. The subsequent decay of the triplets to the detector level final states are studied with the corresponding Standard Model (SM) background processes. The decay distributions are considered in details to identify the significant channels, after devising and employing suitable methods to reduce backgrounds and enhance the signal significance. Advantage of single triplet production in association with the charged SM leptons to investigate the mixing of the triplet with the SM leptons is exploited. Preliminary results show the presence of charged fermionic triplets up to a mass of $\sim$ 950 GeV could be established through the single production at 1 TeV ILC, assuming a fermionic triplet electron mixing of 0.05 and a moderate integrated luminosity of 300 fb^{-1}. Further, constraints in the mass-mixing are obtained for different CM energies assuming different luminosities.

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