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## Leptophilic Dark Matter at International Linear Collider

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Next energy frontier accelerators like ILC or CLIC are with immense possibilities to improve our understanding with nature's fundamental building block and to discover new particles e.g. WIMP dark matters along with other physics phenomena. In scenarios where dark matter does not or feebly couple with quarks, we can consider the dominant coupling of dark matter with charged leptons. We consider the pair production of fermion dark matter at 1TeV ILC using a class of Lorentz-invariant higher-dimensional leptophilic operators. Depending upon the visible particles to identify the events, we probe mono-photon and mono-Z (with Z decays leptonically and hadronically) channels. We also employ the beam polarisation scheme of ILC and present the  $3\sigma$  sensitivity at  $1000\text{fb}^{-1}$  in terms of the new physics (NP) scale  $\Lambda$ , for the three channels. I will discuss here how these operators perform in the quest of dark matter signature and how constrained the parameter space stand considering different experimental bounds.

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