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Exploration of Physics Beyond the Standard Model at the International Linear Collider

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Although the LHC experiments have put strong limits on coloured supersymmetric states, it is still possible that electroweakly interacting supersymmetric particles have masses in the range 100-200 GeV. Even outside of supersymmetry, candidates for the particle of dark matter may have masses in this range unconstrained by LHC data. In $e+e-$ annihilation, the low backgrounds, precise knowledge of the initial-state beams, and sensitivity to small energy depositions provides discovery potential complementary to the LHC, for instance in cases with small mass differences. These conditions are also ideal for the precise measurements of new particle states required to elucidate the structure of the underlying model in scenarios where colored sparticles are discovered during the 14 TeV run of the LHC, which could hint to the existence of lower-mass electroweak states. This contribution will report the current status of studies for the prospects of measurements of WIMPs, Higgsinos and other light electroweak states at the International Linear Collider, with results based on simulation of the detectors proposed for the ILC. It also discusses how the combined observations from LHC and ILC can be used to determine MSSM parameters in models with large numbers of free parameters.

Oral or Poster Presentation

Oral

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