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Prospects for Chargino Searches and Measurements at the ILC

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The lighter chargino is a prime candidate to be the next-to-lightest SUSY particle (the NLSP). Even if up to now data from the LHC have not shown evidence of SUSY, the complementary nature of physics with e+e- collisions still offers many interesting scenarios in which SUSY can be discovered at the ILC. In this contribution we present the capability of the ILC for excluding or, respectively, discovering SUSY in the most challenging SUSY channels, such as higgsinos and winos at low mass differences. We also include evaluations of precision of model-parameter measurements as well as the constraints that these measurements put on parts of the sparticle-spectrum beyond direct reach, and how they contribute to discriminate between different models of SUSY breaking at high scale. The impact of low Pt hadrons from gamma-gamma beam induced interactions on the analysis of low deltaM higgsino processes is also presented. For the first time it is shown that, besides the fragile signature of such processes, they can be discovered and measured at the ILC even in presence of those overlay hadrons. The studies are based on the full detector simulation of the ILD concept and realistic accelerator conditions.

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