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Chargino search at the ILC

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The lighter chargino (chi1) is a prime candidate to be the next-to-lightest SUSY particle (the NLSP). Several analyses have been done of chi1 pair-production at the ILC, at specific model-points, showing that detection and property-determination is possible, even for very difficult cases. However, no recent studies have evaluated the reach of the ILC to detect chi1 pair production in general. In this contribution, cross sections for chi1 production at the ILC were evaluated with a wide range of parameters. The aim of the study was to determine the conditions for the lowest cross sections and compare these worst-case values with an estimation of the cross section limit for the observation of the lightest charginos at the ILC. The estimated limits were extrapolated from the studies performed at LEP, which can also be regarded as a worst-case scenario.

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