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SUSY parameters from measurements of light higgsinos at the International Linear Collider — •SUVI-LEENA LEHTINEN¹, HOWARD BAER², MIKAEL BERGGREN¹, KEISUKE FUJII³, JENNY LIST¹, TOMOHIKO TANABE⁴, and JACQUELINE YAN³ — ¹DESY, Hamburg, Germany — ²University of Oklahoma, Norman, USA — ³KEK, Tsukuba, Japan — ⁴ICEPP, University of Tokyo, Tokyo, Japan

Natural SUSY with light, nearly mass-degenerate higgsinos is a theoretically well motivated scenario which would in general escape LHC searches. A high-energy electron-positron collider like the International Linear Collider with a centre-of-mass energy of 500 GeV would provide a clean environment where the higgsinos would be either discovered or excluded. Higgsino pair production has been studied with a detailed simulation of the International Large Detector. It is expected that higgsino masses and polarised cross sections can be measured to the percent-level accuracy. We show that these precise measurements, together with precise measurements of the Higgs, allow determining some of the underlying SUSY parameters with Fittino. In particular the weak scale gaugino mass parameters can be determined. We quantify the possibilities for running the gaugino mass parameters to the GUT scale and for distinguishing between different supersymmetry breaking scenarios. In addition, the properties of some heavy sparticles can be predicted, giving motivation for new high-energy colliders.

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| Туре: | Vortrag;Talk |
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