

## SUSY with radiatively-driven naturalness at the LHC and ILC

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Electroweak naturalness requires a SUSY  $\mu$  parameter  $\sim 100$ - $200$  GeV while  $m_{H_u}^2$  is driven radiatively to small negative values.

A small  $\mu$  parameter can be easily generated from large  $m_{3/2}$  via radiative breakdown of Peccei-Quinn symmetry.

Highly mixed top squarks may exist in the few TeV range at little cost to naturalness.

Imposing naturalness in both the EW and QCD sectors leads to two dark matter particles: the axion and a higgsino-like WIMP.

LHC13 can probe roughly half the natural SUSY parameter space although a unique same-sign diboson signature is distinctive.

The required light higgsinos means that ILC can make a thorough search for SUSY naturalness and will be a higgsino factory in addition to a Higgs factory.

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