Black Spots: Examples

NMSSM: Missing E^T_{miss}: Appears if
– The LSP is a light singlino $\tilde{\chi}^0_1$ with small couplings:
Nobody wants to decay into $\tilde{\chi}^0_1$ unless this is the only possible final state
$\longrightarrow$ All sparticle decays proceed via the NLSP, e.g. $\tilde{\chi}^0_2$, and subsequently

$$\tilde{\chi}^0_2 \to \tilde{\chi}^0_1 + X,\ X = Z, H_{SM}, H_{NMSSM} ...$$

If $M_{\tilde{\chi}^0_1} \ll M_X$ and $M_{\tilde{\chi}^0_2} \sim M_{\tilde{\chi}^0_1} + M_X$: All energy goes to into X, nearly none into $\tilde{\chi}^0_1$ in the form of E^T_{miss}
$\longrightarrow$ Signal regions including strong lower limits on E^T_{miss} become blind
(instead: have to look for $X = Z, H_{SM}, H_{NMSSM} ...$)

MSSM and NMSSM: Light Staus as NLSPs (see previous talk): Extend sparticle decay cascades, limits from direct searches need to be improved; impact on stop/squark/gluino decay cascades needs to be studied

NMSSM: Light NMSSM-like H_1/A_1: Tend to appear in decay cascades, transform at least part of E^T_{miss} into (possibly boosted) $b\bar{b}$ pairs