$t^{\pm}$

\[
\Delta m_q = +23 \text{ GeV}
\]

\[
\sigma(q\bar{q}) \text{ [ pb]}
\]

$\Delta m_q = +21 \text{ GeV}$

$m_q = 200 \text{ GeV}$

\[
\Delta m_g = +18 \text{ GeV}
\]

\[
\sigma(\bar{q}q) \text{ [ pb]}
\]

$m_g = 200 \text{ GeV}$

\[
\Delta m_g = +27 \text{ GeV}
\]

\[
\sigma(q\bar{g}) \text{ [ pb]}
\]

$m_g = 200 \text{ GeV}$

\[
\Delta m_q = +39 \text{ GeV}
\]

Bei hakker, Hopker, Spira, Zerwas, hep-ph/9610490
NLO
LO
\Delta m_q = +28 \text{ GeV}
\text{pp} \rightarrow \tilde{q}\tilde{q}
\sigma[\text{pb}]
m_q/m_{\tilde{g}} = 1.2

LHC

LO
NLO
\Delta m_q = +14 \text{ GeV}
\text{pp} \rightarrow q\bar{q}
\sigma[\text{pb}]
m_q/m_{\tilde{g}} = 1.2

LO
NLO
\Delta m_q = +52 \text{ GeV}
\text{pp} \rightarrow \tilde{g}\tilde{g}
\sigma[\text{pb}]
m_q/m_{\tilde{g}} = 1.2

LO
\Delta m_q = +36 \text{ GeV}
\text{pp} \rightarrow \tilde{g}\tilde{q}
\sigma[\text{pb}]
m_q/m_{\tilde{g}} = \{2.0, 1.2\}

Beenakker, Hopker, Spira, Zerwas, hep-ph/9610490
Inclusive SUSY prod. x-section at the LHC
Berger, Klasen, Tait, hep-ph/9902350
LEP-2 Combined Bounds on Selectron and Sbottom
\[ \tan \beta = 2 \quad \mu = -200 \text{ GeV} \]

ADLO \[ \sqrt{s} > 206.5 \text{ GeV} \]

Excluded at 95\% C.L.

**LEP-2 Combined Bound on Chargino**
Squark + Gluino prod. x-section at the Tevatron
CDF Run II Preliminary

\[ N_{\text{jet}} \geq 2 \quad \text{MET}>180 \quad \text{HT}>330 \]

- Data (L = 2.0 fb\(^{-1}\))
- QCD + non QCD Bkg.
- non QCD Bkg.
- Total Syst. Uncertainty
- Bkg.+Sig. \( M_g = 349 \text{ GeV/}c^2 \)
- \( M_s = 385 \text{ GeV/}c^2 \)

CDF, PRL 102, 121801 (2009)
CDF, PRL 102, 121801 (2009)
mSUGRA assumed!

Alwall et. al., 0803.0019: no mSUGRA assumption
and $\tilde{\chi}_0^2$, two-body decays into sneutrinos open up, leading to a smaller branching fraction into three charged leptons.

FIG. 7: Upper limit at the 95% C.L. on $\sigma \times \text{BR}(3\ell)$ as a function of $\tilde{\chi}_1^\pm$ mass, in comparison with the expectation for two SUSY scenarios (see text). PDF and renormalization/factorization scale uncertainties on the predicted cross section are shown as shaded bands.

FIG. 8: Region in the $m_0$--$m_{1/2}$ plane excluded by the combination of the D0 analyses (green), by LEP searches for charginos (light grey) and sleptons (dark grey) [2] and CDF (black line) [4]. The assumed mSUGRA parameters are $\tan \beta = 3$, $A_0 = 0$ and $\mu > 0$.

Trileptons: D0, 0901.0646 [hep-ex]