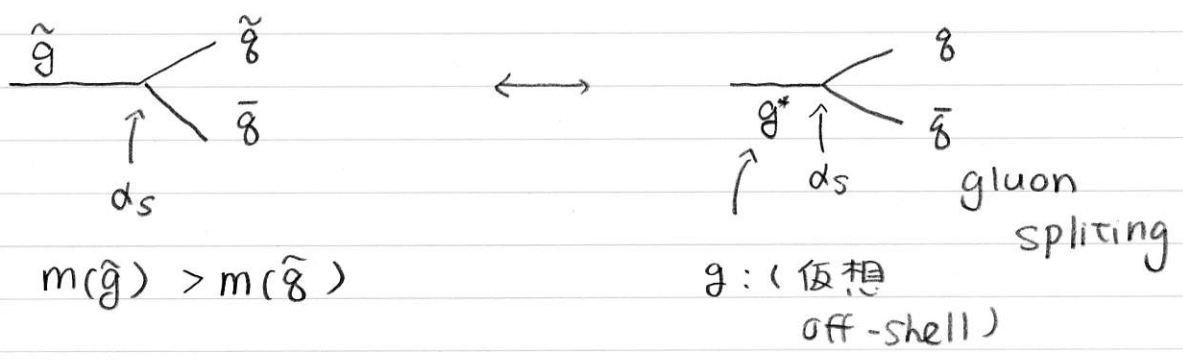


SUSY 粒子の decay

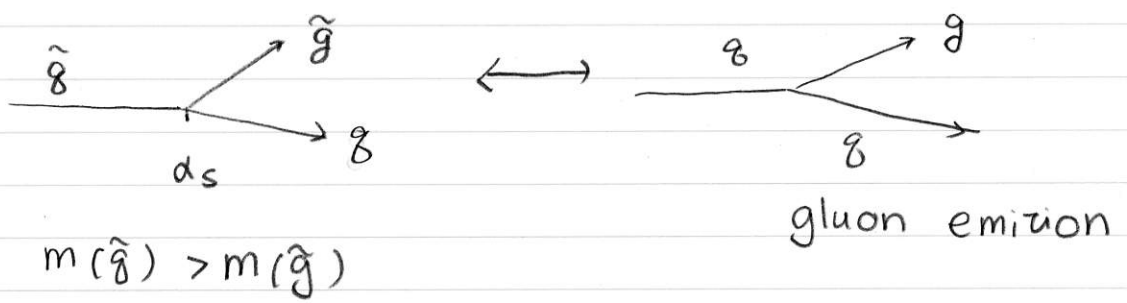
• coloured particle の decay

[1] 運動学的に可能な d_s : 2体崩壊 (2体 > 3体)

(1) $\tilde{g} \rightarrow g \tilde{q}$

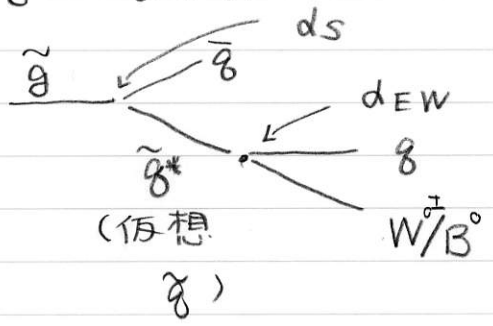


(2) $\tilde{q} \rightarrow \tilde{g} q$



[2] 運動学的に不可能な

(2-1) $\tilde{g} \rightarrow g \tilde{q} W$



$$d_s d_{EW} \frac{1}{(m_{\tilde{q}})^4}$$

\therefore suppress Γ

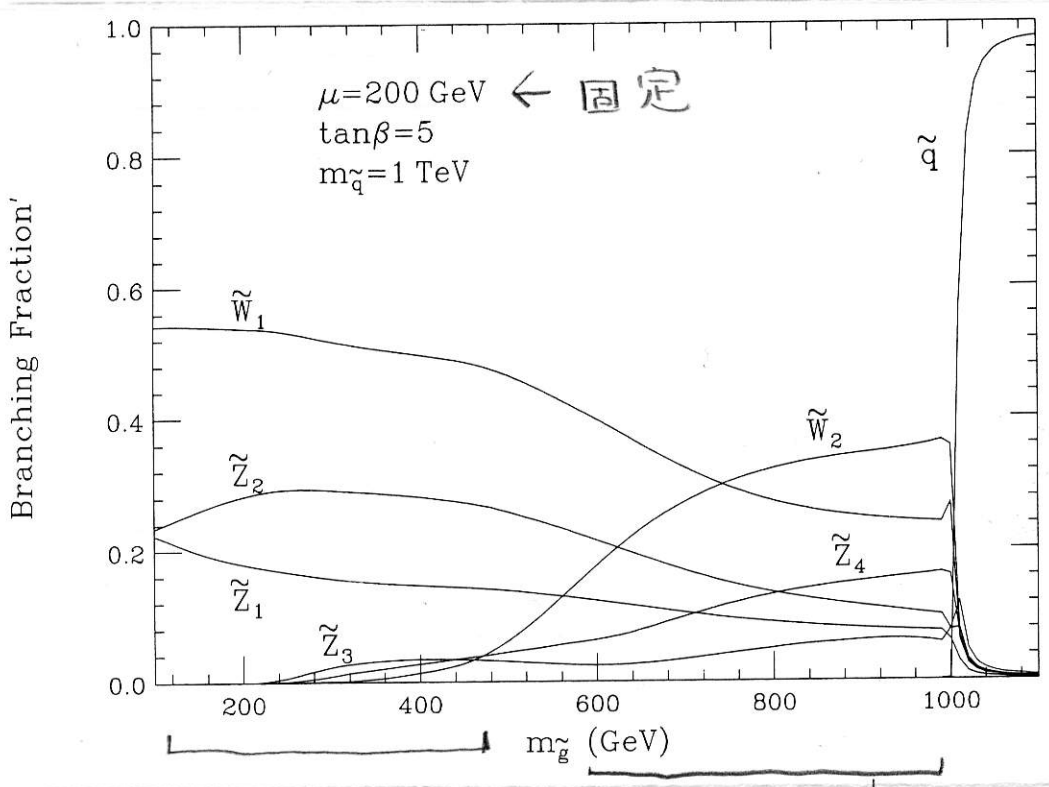
$m(\tilde{g}) < m(\tilde{q})$

\tilde{g}, \tilde{q} decay table

	$m(\tilde{g}) < m(\tilde{q})$	$m(\tilde{g}) \approx m(\tilde{q})$	$m(\tilde{g}) > m(\tilde{q})$
\tilde{g}	$q\bar{q}\tilde{B}^0$ $\tilde{g} \rightarrow q\bar{q}\tilde{W}^0$ $q\bar{q}\tilde{W}^\pm$	$t\bar{t}_1$ $\tilde{g} \rightarrow b\bar{b}_1$	$\tilde{g} \rightarrow q\bar{q}$
\tilde{q}_L	$\tilde{q}_L \rightarrow q\bar{g}$	$\tilde{q}_L \rightarrow q\tilde{W}^0 (\approx 1)$ $q\tilde{W}^\pm (\approx 2)$	
\tilde{q}_R	$\tilde{q}_R \rightarrow q\bar{g}$		$\tilde{q}_R \rightarrow q\tilde{B}^0$

Strong interaction

EW interaction



μ fix して
 の m_g
 範囲
 Higgsino-Gaugino
 mixing

$$\left. \begin{array}{l} \tilde{W}_1^\pm, \tilde{Z}_2 \sim \tilde{W}^0 \quad 2:1 \\ \tilde{Z}_1 \sim \tilde{B}^0 \quad 1:1 \end{array} \right\}$$

0.8x
 μ > m_{1/2} かつ < m_g

↓
 この範囲が 1 TeV まで

$\tilde{g} \rightarrow \tilde{g} \gamma$ は 2 body-decay $\tilde{g} \rightarrow \tilde{g} \tilde{g}$

今 μ = 200 GeV fix

m_g = 600 - 1000 GeV

↓
 $0.8 m_{1/2} = 200 - 300 \text{ GeV} > \mu$

$$\left. \begin{array}{l} \tilde{W}_2^\pm \sim \tilde{W}^\pm \text{ Gaugino} \\ \tilde{Z}_4 \sim \tilde{W}^0 \end{array} \right\} 2:1$$

$\tilde{Z}_1^0 \rightarrow \tilde{B}$ の割合 $0.4 m_{1/2} < 150 \text{ GeV} < \mu$

\tilde{Z}_2^0 は Higgsino と \tilde{W} の割合

→ Higgsino は つかえる

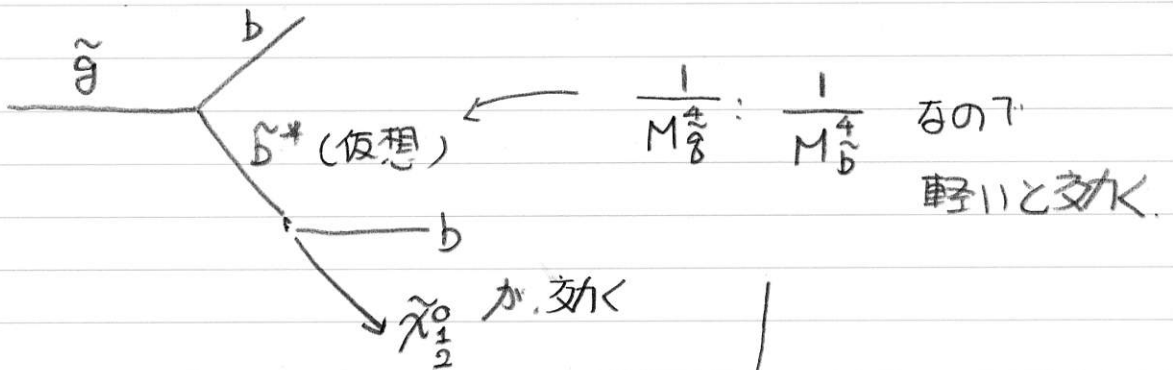
(2-1-a) $\tilde{g} \rightarrow q\tilde{q}$ が mass 下 禁止されていても

$m(\tilde{q}) > m(\tilde{g})$ でも

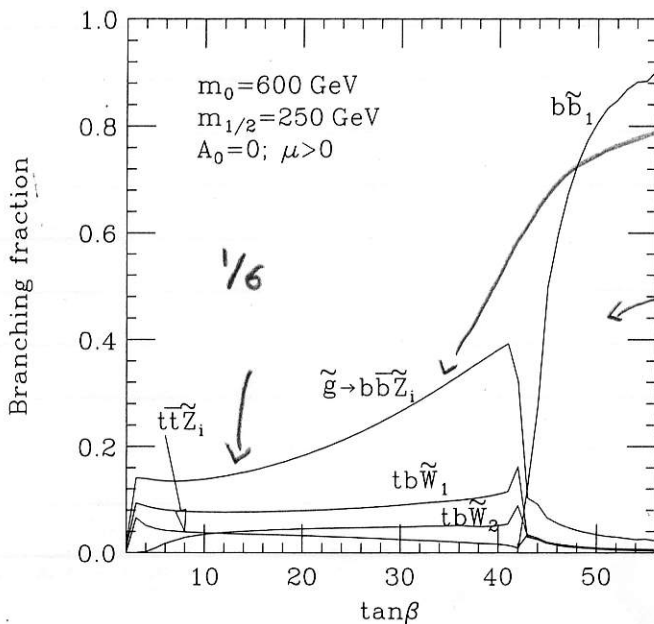
\tilde{t} や \tilde{b} が \tilde{g} より軽い場合があるので この時は

$\tilde{g} \rightarrow t\tilde{t}$
 $\tilde{g} \rightarrow b\tilde{b}$ が主に存在. Kinematical 上で可能な
 主

(2-1-b) たとえ $\tilde{g} \rightarrow b\tilde{b}$ がダメでも \tilde{b} が \tilde{q} より軽い時は



13.1 Decay of the gluino



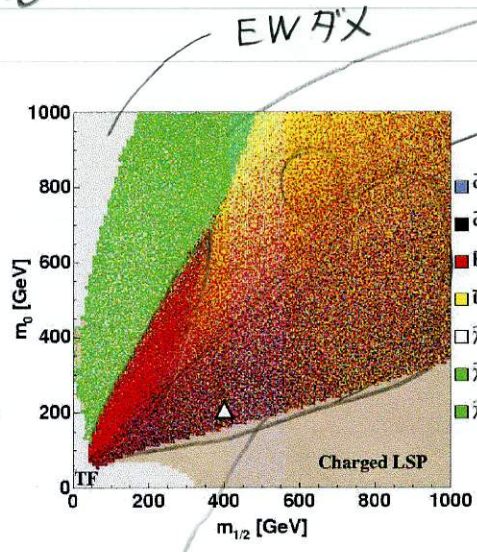
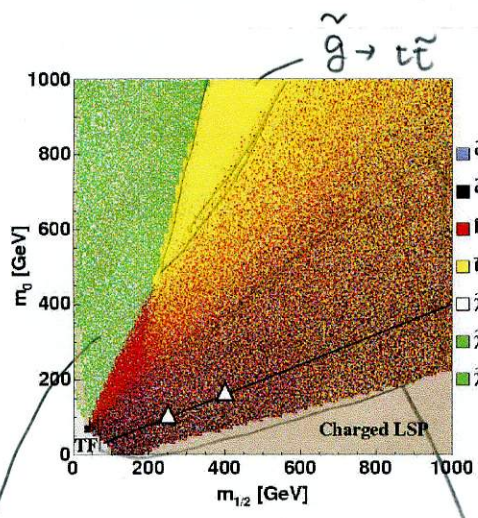
可能になると、100%
 ボタンと2体

117E12

① $m_0 - m_{1/2}$ 方向に与える

$m_0 - m_{1/2}$ 平面で考える

3body $\tilde{g} \rightarrow \tilde{g}\tilde{g}$



($\tan\beta = 10$ $A_0 = -m_0$)

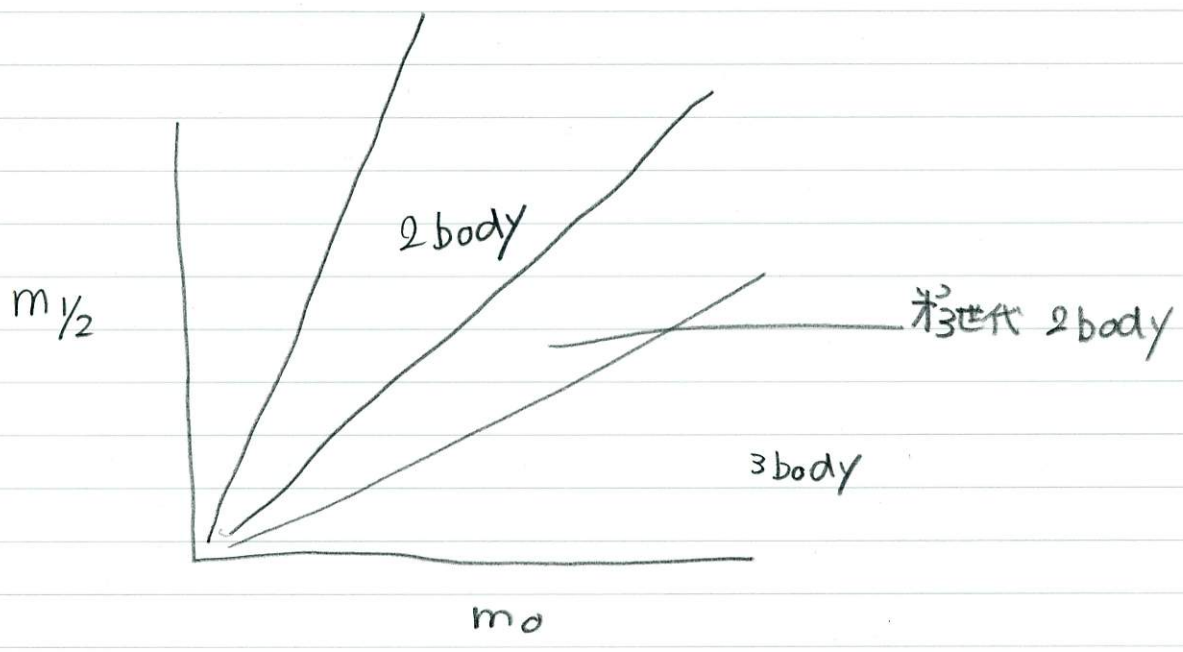
($\tan\beta = 30$ $A_0 = 0$)

↑
t が軽い

↑
b が軽い

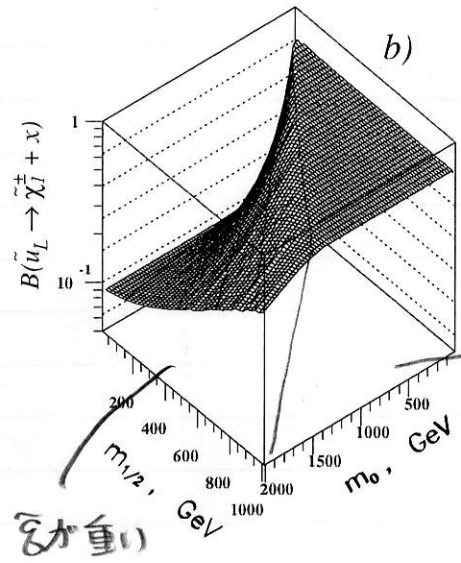
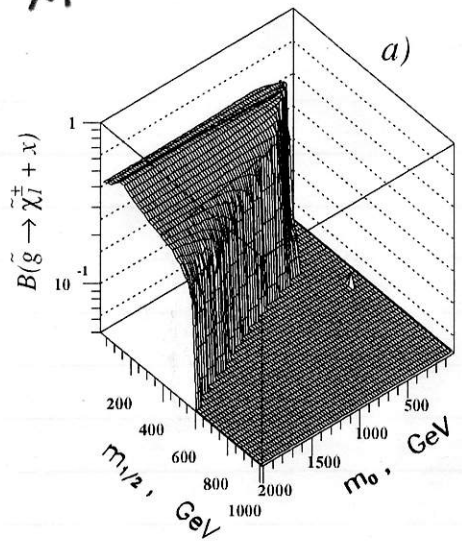
3body $\tilde{g} \rightarrow \tilde{g}\tilde{g}\tilde{\chi}^\pm$

2body $\tilde{g} \rightarrow \tilde{g}\tilde{g}$



mSUGRA parameters: $\tan\beta = 2, A_0 = 0, \mu < 0$

$\tilde{\chi}_1^\pm$

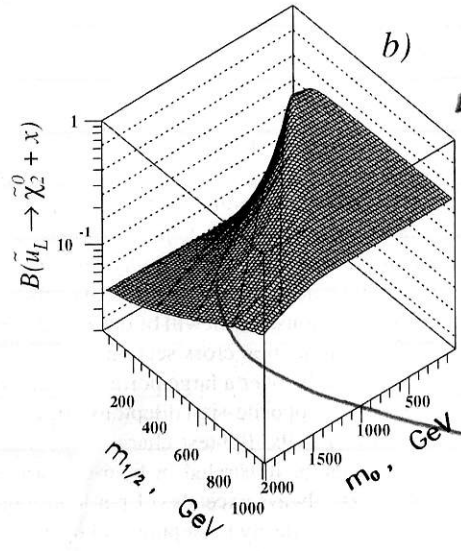
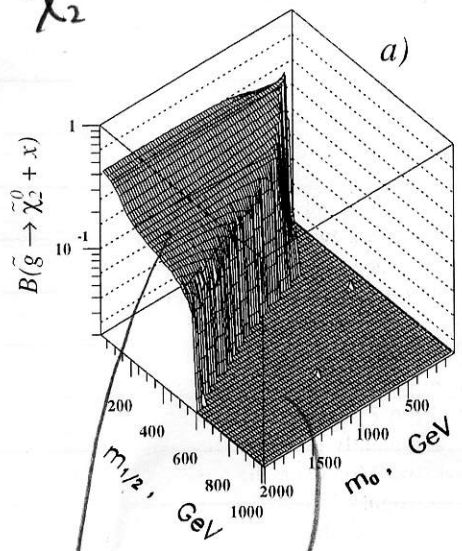


↓ Aが小さく
tanβが小さいと
た3世代の
特別扱い
なし

2:1
gが重!!
(g̃ → g̃ g̃)
(g̃ → g̃ χ̃)

mSUGRA parameters: $\tan\beta = 2, A_0 = 0, \mu < 0$

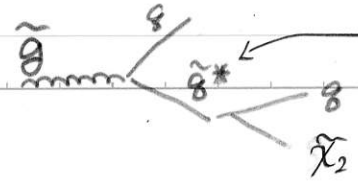
$\tilde{\chi}_2^0$



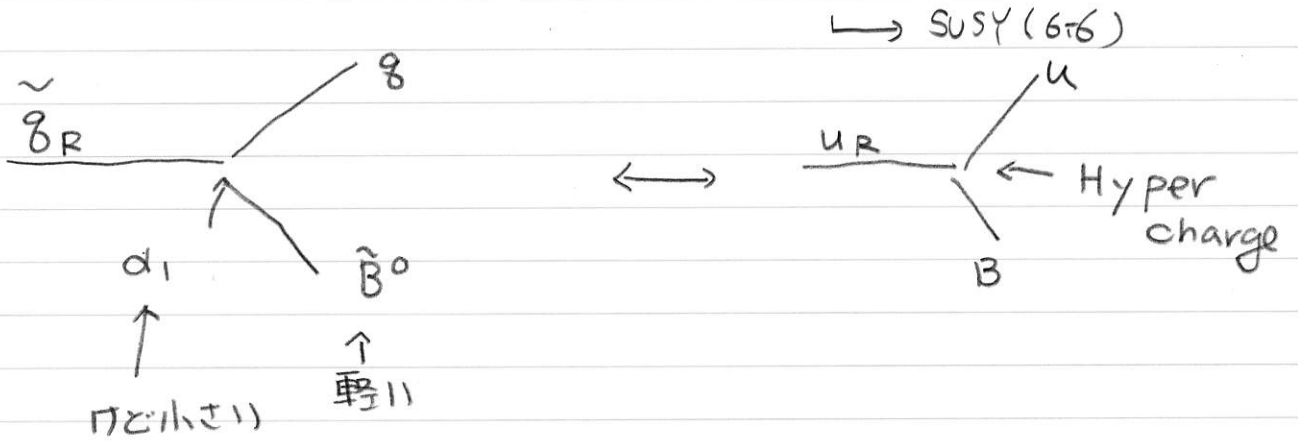
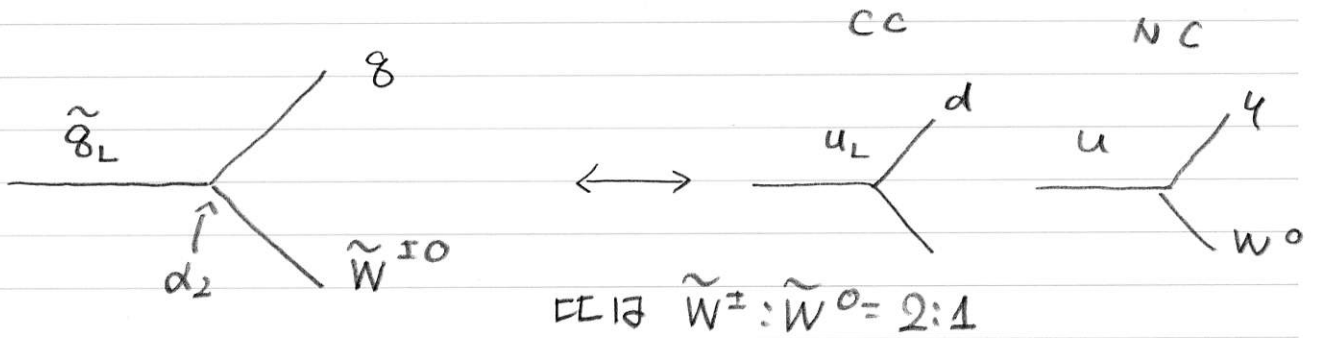
3 body decayは $\alpha^2 \frac{1}{g^4}$ で suppress される

同程度 $\tilde{\chi}_1^\pm, \tilde{\chi}_2^0$
の寄与

ニャーアなるため
↓
2体か3体は2体



(2-2) $\hat{g} \rightarrow g$ $\begin{pmatrix} \tilde{w} \\ \hat{B} \end{pmatrix}$ ($\hat{g} \wedge$ 行ける!!) ($\hat{g} > \hat{g}$ の時)

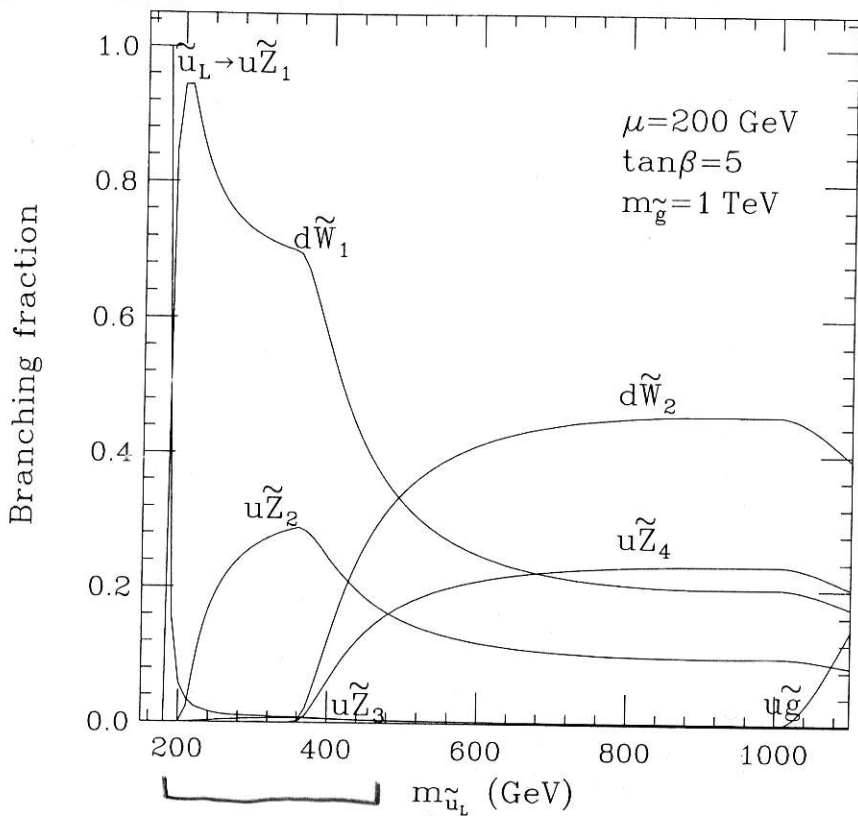


ホ1, ホ2 世代は Yukawa 結合 ~ 0

\Downarrow
Higgsino \wedge 結合出来る!!

m_{Sugra}
 $M_A < 0$ のパラメータ $|M| > 0.8 m_{1/2}$

$\tilde{Z} 1, 2$ \tilde{W}_i^\pm が Gaugino (Higgsino は decouple する)

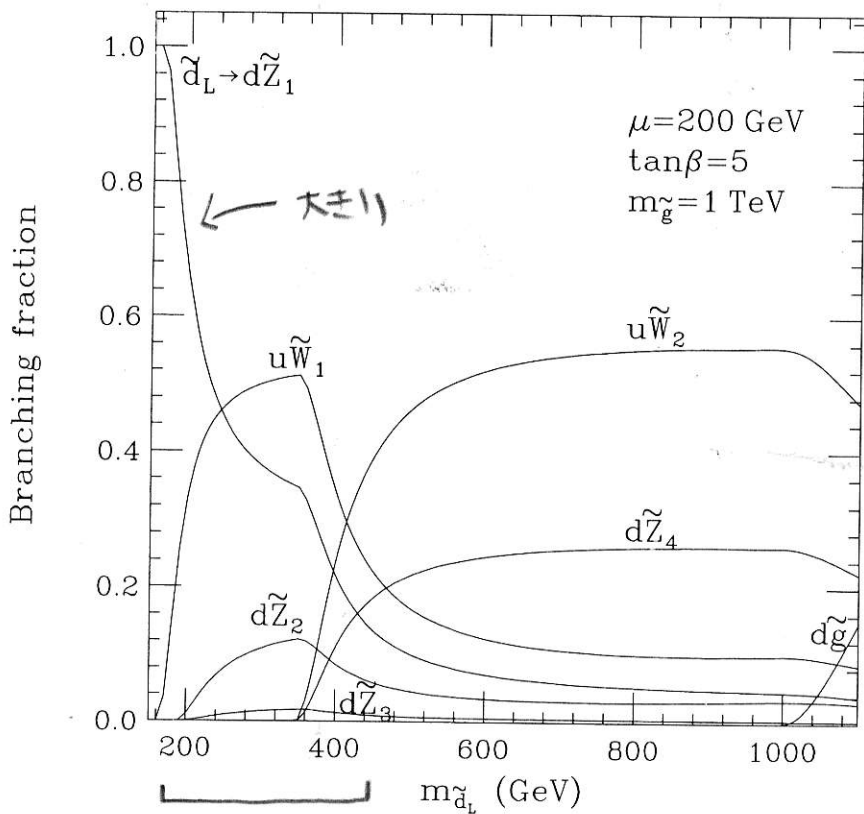


1, 2 Gaugino

$\mu = 200 \text{ GeV}$ fix

1, 2 が Gaugino の時

- ① 4:2 の比で
- ② $\tilde{u}_L \rightarrow u \tilde{B}$ は小さい
- ③ $\tilde{d}_L \rightarrow d \tilde{B}$ は $g = 2$ 倍 (4倍) の大きさの結合 Hyper charge \rightarrow mass 効果



← 大きい

$\mu = 200 \text{ GeV}$ fix
1, 2 の時

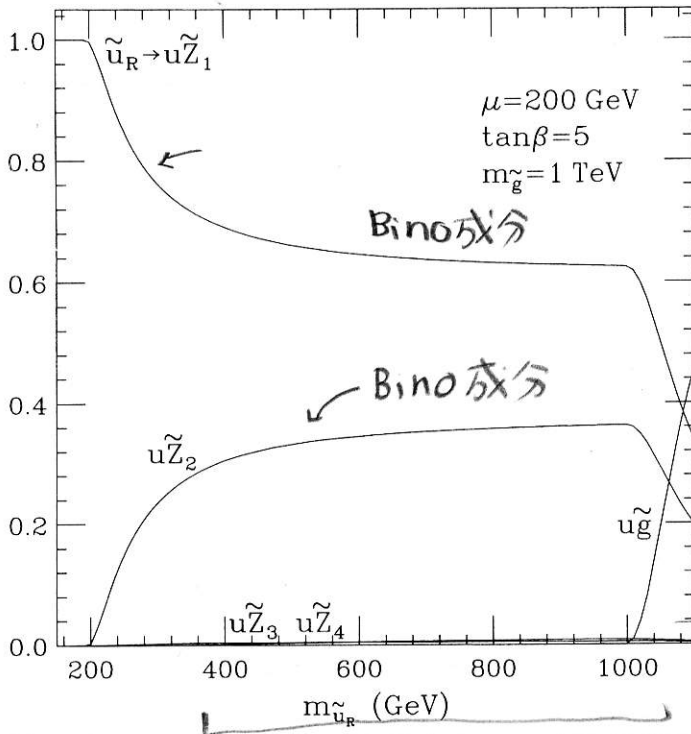
$m_g > 500 \text{ GeV}$

70

$0.8 m_{1/2} > \mu$

$\tilde{W}_2^\pm \sim \tilde{w}^\pm$ char wino
 $Z_4 \sim \text{wino}$

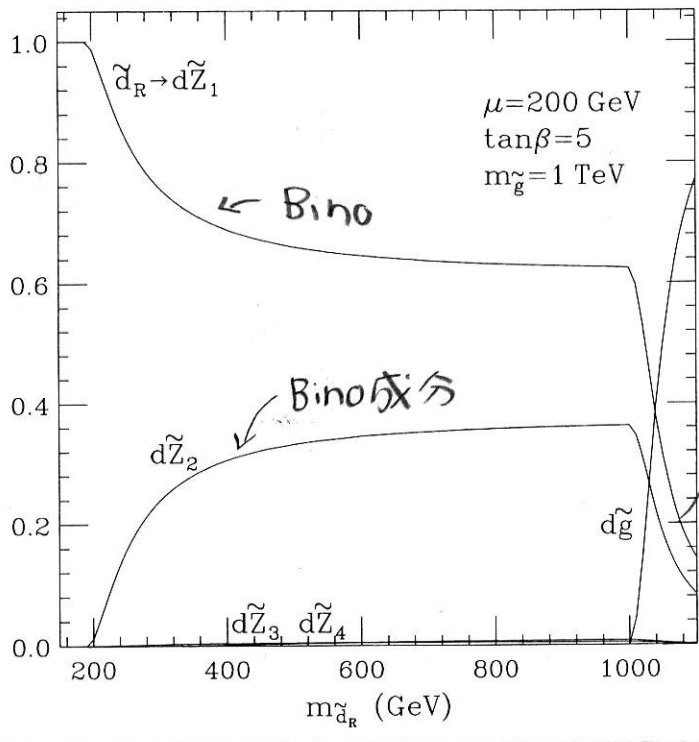
1:2 の大きさで decay する



Rはカクヒ

1) $\tilde{u}_R \rightarrow \tilde{B}u$
 $\tilde{d}_R \rightarrow \tilde{B}d$

\tilde{g} が重い $\tilde{u} \rightarrow u\tilde{g}$
 $\tilde{d} \rightarrow d\tilde{g}$



$\mu=200 \text{ GeV}$ fix
 $m_{\tilde{u}} > 400 \text{ GeV}$

mixingが大きい

\tilde{Z}_2 にもB成分が
 入っている

↓

Bが出てくる。

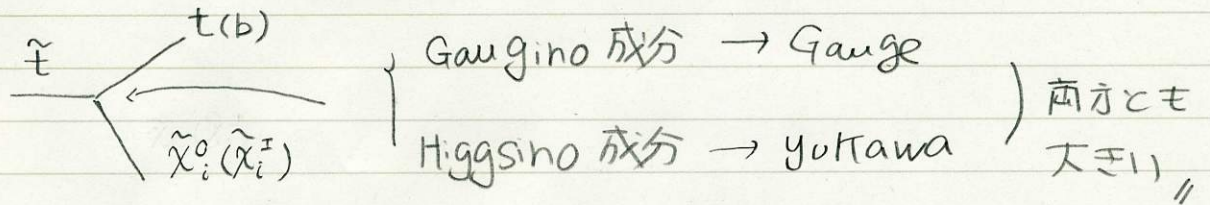
① 100%

100%

\tilde{t}, \tilde{b} の decay

- ① \tilde{t}_1 $\left\{ \begin{array}{l} \rightarrow \left\{ \begin{array}{l} b \tilde{\chi}_1^+ \\ b \tilde{\chi}_2^+ \end{array} \right\} \text{ CC } \text{ Br} \sim 60\% \\ \rightarrow \left\{ \begin{array}{l} t \tilde{\chi}_{1,2,3,4}^0 \\ \hookrightarrow bW \end{array} \right\} \text{ NC } \text{ Br} \sim 40\% \end{array} \right.$ top Yukawa 大きい ので Kinematics で 可能な \rightarrow Higgsino の decay branch も大きい。

\tilde{t} が 登場 すると Yukawa · Higgsino が 関係 してくる。

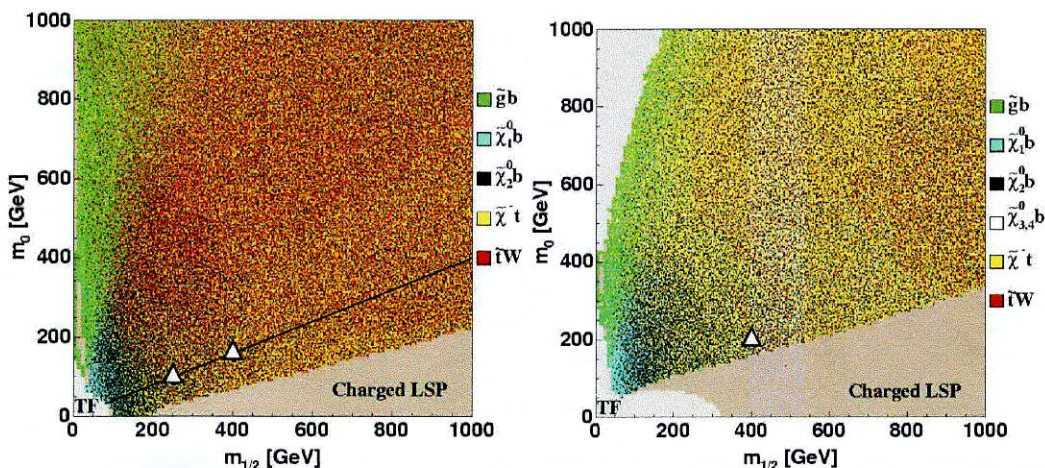


$m(\tilde{t}) > \mu \rightarrow$ Higgsino decay chain に 登場 する。

- ② \tilde{b}_1 $\left\{ \begin{array}{l} \text{CC} \rightarrow t \tilde{\chi}_{1,2}^+ \text{ Br} \sim 40 - 60\% \\ \text{NC} \rightarrow b \tilde{\chi}_{1,2,3,4}^0 \text{ Br} \sim 40 - 60\% \end{array} \right.$

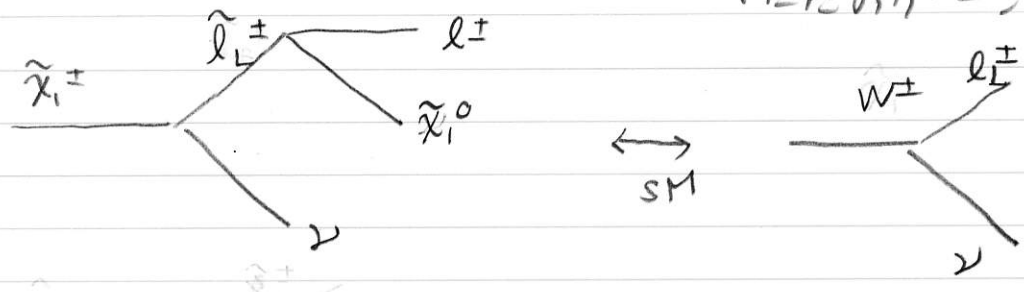
large $\tan \beta$ の時は Higgsino も 有効な Br がある。

それ以外は $\tan \beta = 10$ Gaugino が出る。 ($\tan \beta = 30$ Kinematics で 決まる)

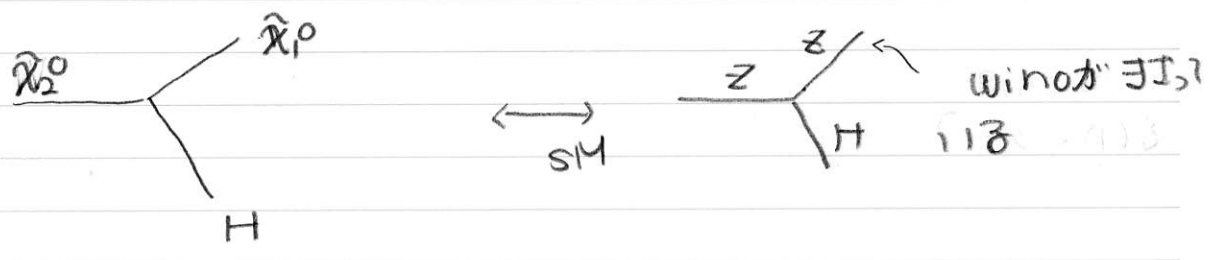


Gaugino decay

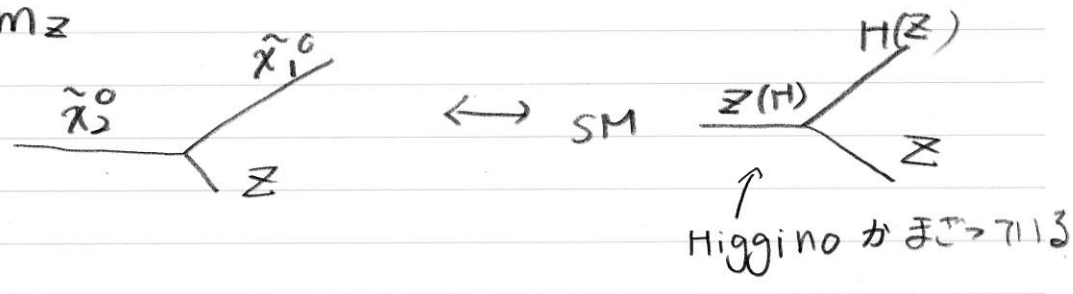
(1) \tilde{l} が $\tilde{\chi}_1^\pm$ $\tilde{\chi}_2^0$ より軽い時 \rightarrow これが 主要モードになる
(たまたのゲージ結合で下
ミイ)



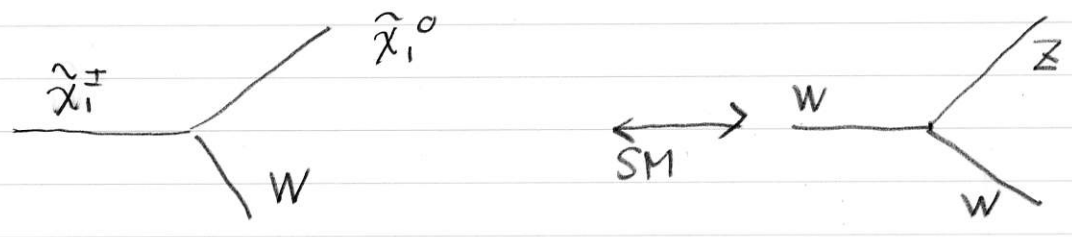
(2) $\Delta m = m(\tilde{\chi}_2^0) - m(\tilde{\chi}_1^0) \sim 0.4 m_{1/2} > m_R$



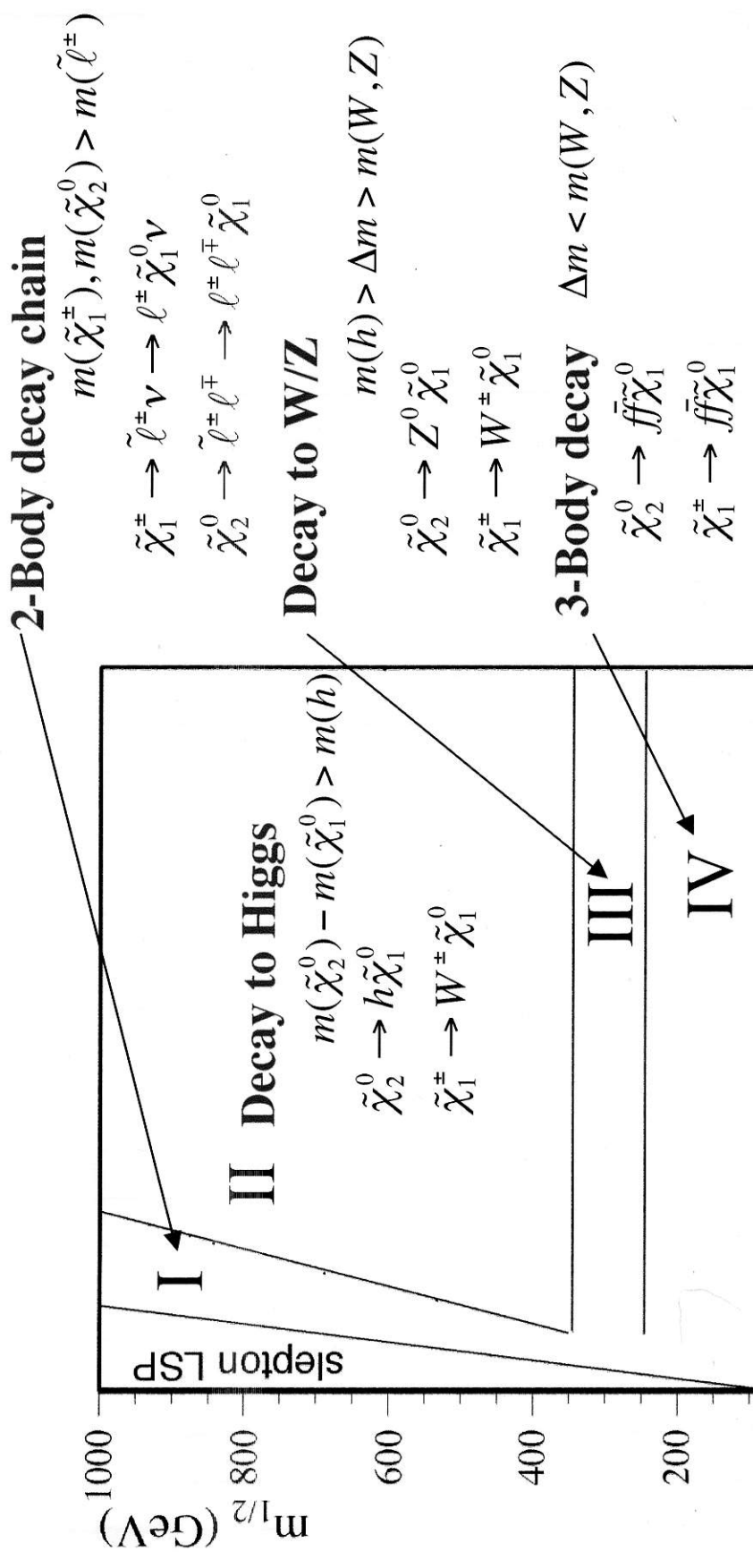
$m_R > \Delta m > m_Z$



$\Delta m = m(\tilde{\chi}_1^\pm) - m(\tilde{\chi}_1^0) \sim 0.4 m_{1/2} > m_W$



$\tilde{\chi}_1^\pm, \tilde{\chi}_2^0$ の崩壊モードについて



これらは基本的にkinematics
 Higgsino成分？
 Sfermion propagatorで3body

LEPで見えていた所は、IVの下の方のあたり。

mSUGRA parameters: $\tan\beta = 2$, $A_0 = 0$, $\mu < 0$

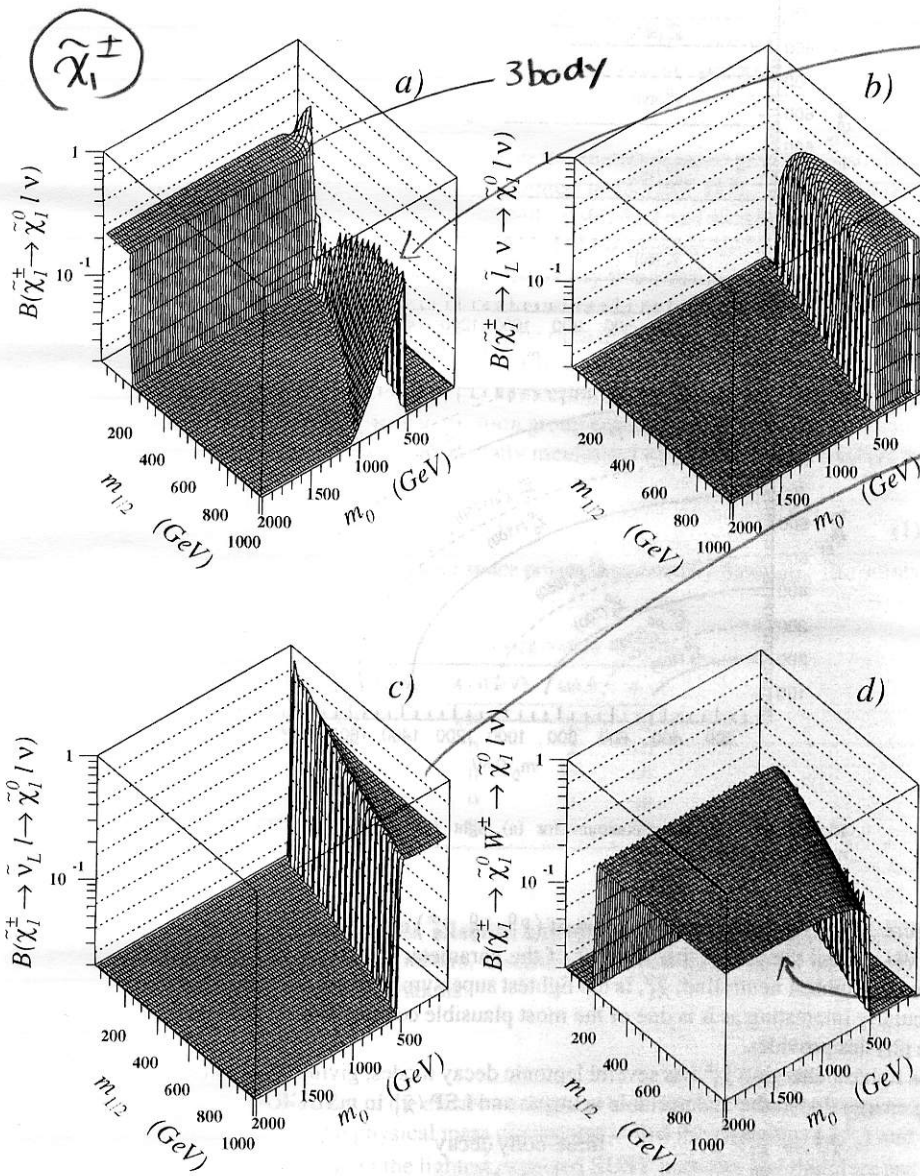


Figure 2.2. Chargino decay branching ratio versus $(m_0, m_{1/2})$: (a) $\tilde{\chi}_1^\pm \rightarrow \tilde{\chi}_1^0 l^\pm \nu$, (b) $\tilde{\chi}_1^\pm \rightarrow \tilde{l}_L^\pm \nu$, (c) $\tilde{\chi}_1^\pm \rightarrow \tilde{l}_R^\pm \nu \rightarrow \tilde{\chi}_1^0 l^\pm \nu$ and (d) $\tilde{\chi}_1^\pm \rightarrow \tilde{\chi}_1^0 W^\pm \rightarrow \tilde{\chi}_1^0 l^\pm \nu$.

$\tilde{\chi}_1^\pm \rightarrow \tilde{l}_L \nu$ が最大に
 なるため $\tilde{\chi}$ が軽いの
 $\tilde{\chi}_1^\pm \rightarrow \tilde{l}_L \nu$

$\tilde{\chi}_1^\pm \rightarrow \tilde{l}_L \nu$

$m(\tilde{\nu})$
 $\ll \wedge$
 $m(\tilde{l}_L)$

↓
 キリギリの所
 (境界)

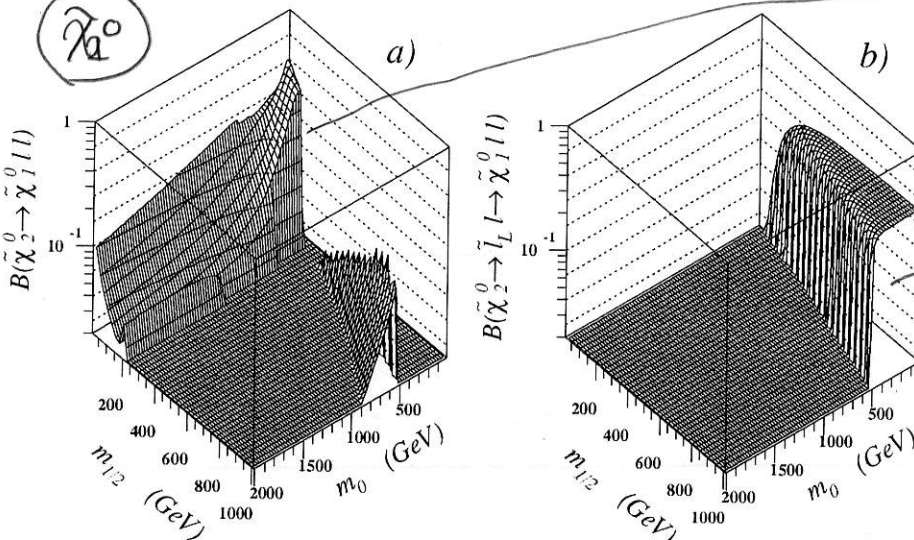
$m(\tilde{\nu}) < m(\tilde{l}_L^\pm)$
 ↓ $\tilde{\nu}$ が効く

この時

$\tilde{\chi}_1^\pm \rightarrow W \tilde{\chi}_1^0$

↓
 10% e,
 10% μ

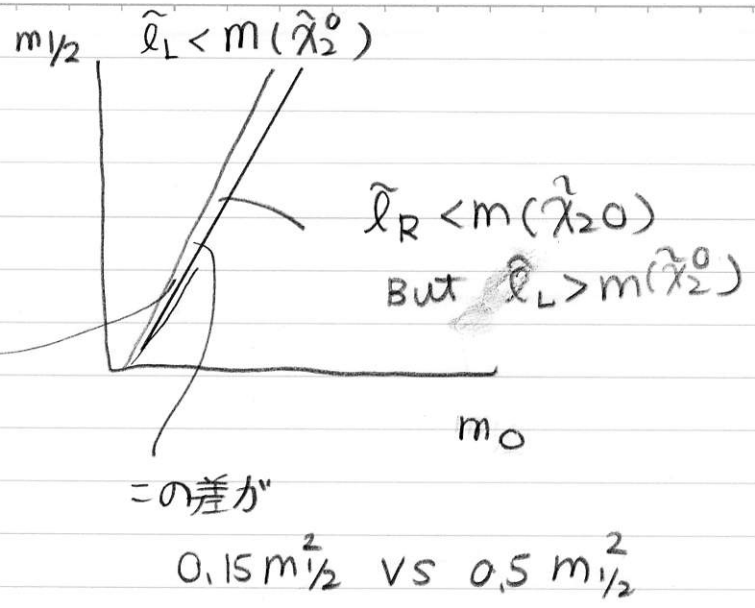
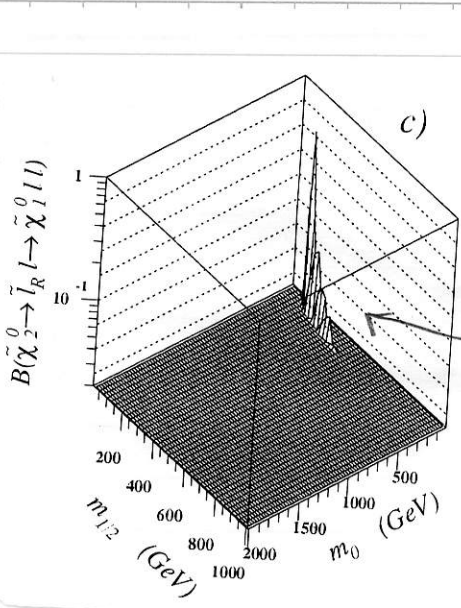
$\tilde{\chi}_2^0$



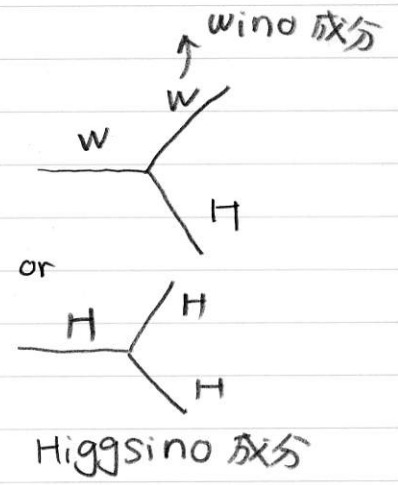
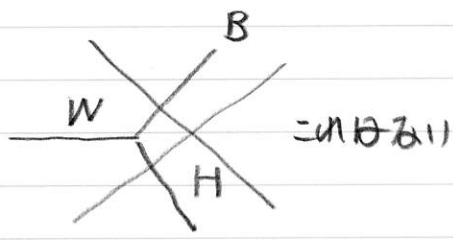
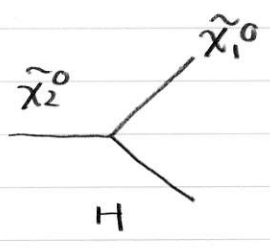
3 body

2 body decay

$W^0 \rightarrow \tilde{l}_L l_L$



Higgs Λ decay



$\tilde{\chi}_2^0 \rightarrow R \tilde{\chi}_1^0$ は lepton 2 body より小さく $\Delta m = 0.4 m_{1/2} > m_R$

↓
の領域で $Br \sim 60-90\%$ ($WW \rightarrow W$)

6x Br も十分大きい → 8章で

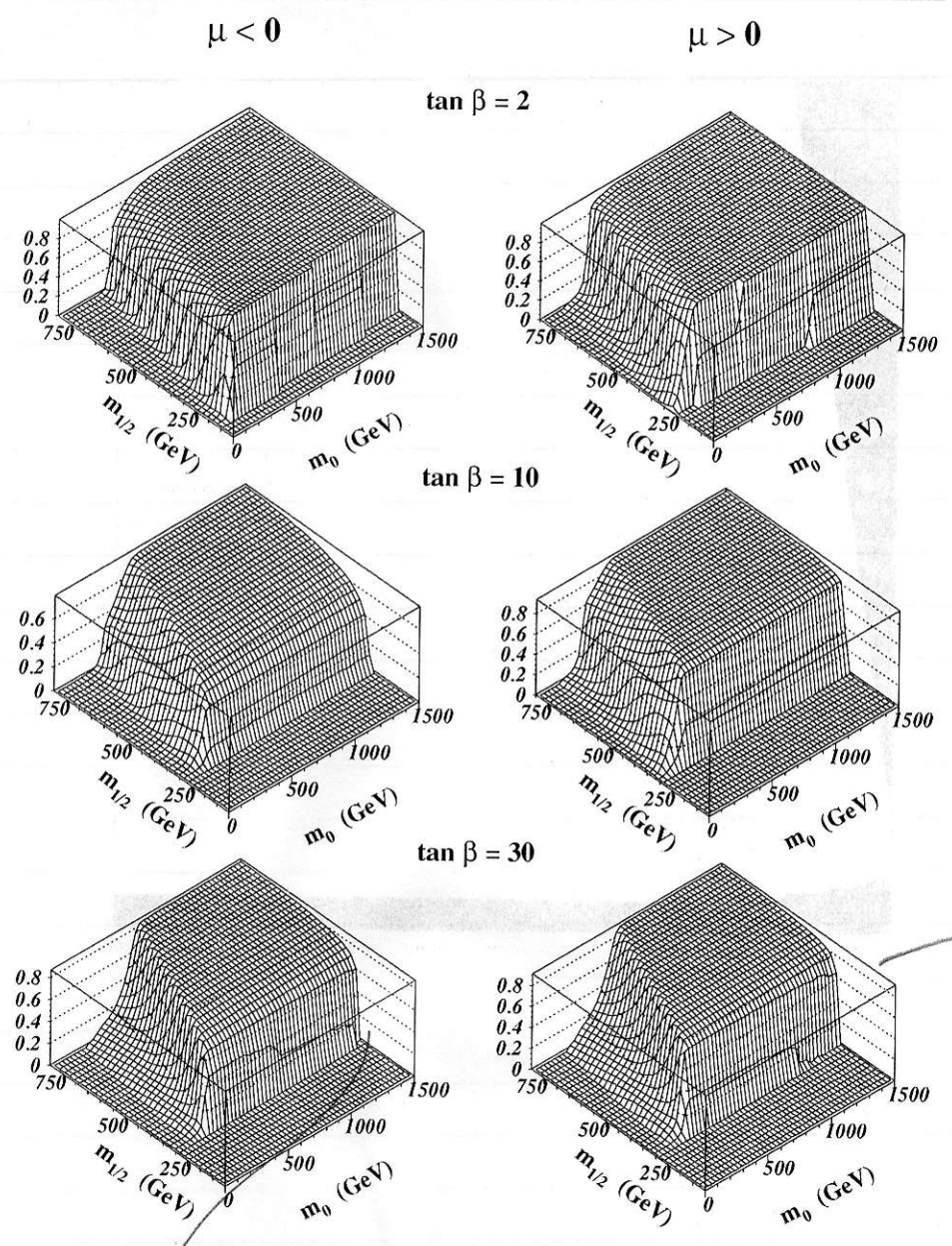


Figure 2.17. $\tilde{\chi}_2^0 \rightarrow \tilde{\chi}_1^0 h$ branching ratio versus $(m_0, m_{1/2})$ for fixed $A_0 = 0$ and different values of $\tan \beta$ and μ .

$\mu > 0$ だと
 $\tilde{\chi}_1^0 h$ = kinematic
 limit まで

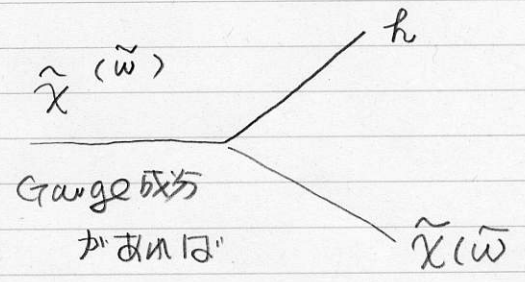
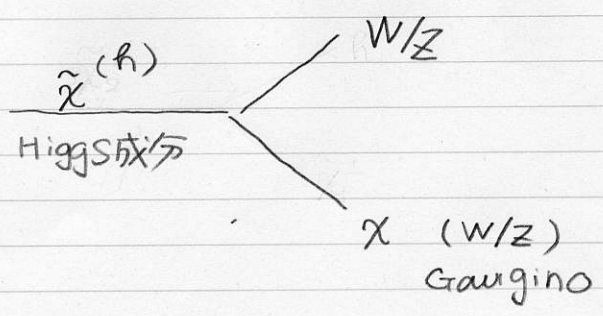
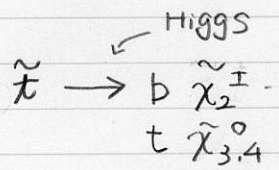
$\mu < 0$ 下は、おかげで変化あり

⇒ m_0 に関して、この領域で

$\tilde{\chi}_2^0 \rightarrow h \tilde{\chi}_1^0$ が main decay

↳ bb.

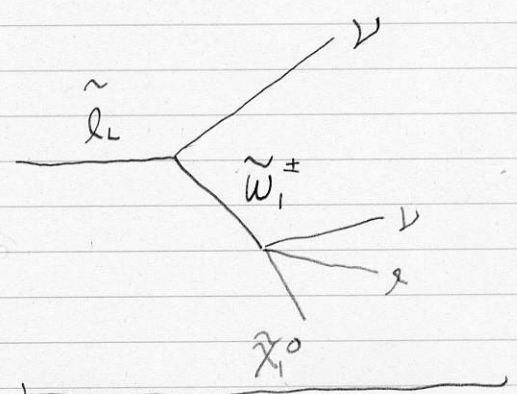
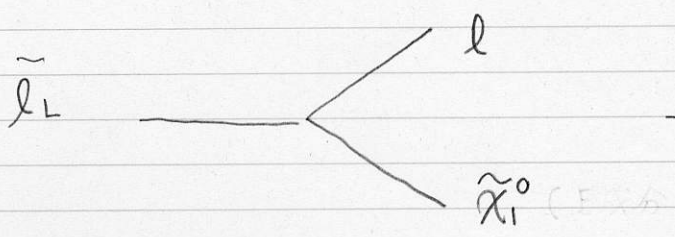
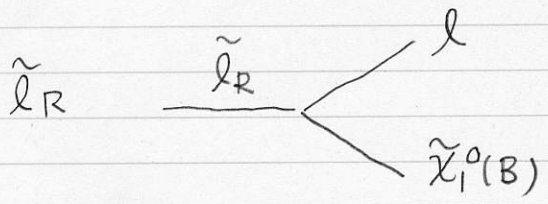
• 重いゲージの decay



重い状態は W/Z や R を出して 軽い状態の $\tilde{\chi}$ にある。

[Higgs成分で $\tilde{\chi} \rightarrow \tilde{t}$ も可能であるが $\theta_t \sim \frac{1}{100}$ と小さい]

• \tilde{l}_R, \tilde{l}_L の decay



m_0 が大きくて $\tilde{\chi}_1^{\pm}$ の方が軽い時

SU 3

$\tilde{g} = 722$

$\tilde{g}_L = 660$

$\tilde{g}_R = 630$

$\tilde{g} = 450$

$\tilde{g} \rightarrow 88$

450

同C

$\tilde{g}_R \rightarrow 88$

6-A

ISASUSY decay modes: Parent --> daughters	Width	Branching ratio
TP --> UP DB BT	0.40521E+00	0.33333E+00
TP --> CH SB BT	0.40521E+00	0.33333E+00
TP --> E+ NU E BT	0.13507E+00	0.11111E+00
TP --> MU+ NUM BT	0.13507E+00	0.11111E+00
TP --> TAU+ NUT BT	0.13507E+00	0.11111E+00
GLSS --> W1SS+ BT TB	0.19779E-02	0.20558E-03
GLSS --> W1SS- TP BB	0.19779E-02	0.20558E-03
GLSS --> W2SS+ BT TB	0.45997E-04	0.47809E-05
GLSS --> W2SS- TP BB	0.45997E-04	0.47809E-05
GLSS --> Z1SS GL	0.39779E-05	0.41345E-06
GLSS --> Z1SS TP TB	0.31793E-03	0.33045E-04
GLSS --> Z2SS GL	0.10519E-04	0.10934E-05
GLSS --> Z2SS TP TB	0.79338E-03	0.82463E-04
GLSS --> Z3SS GL	0.16092E-03	0.16726E-04
GLSS --> Z3SS TP TB	0.95627E-04	0.99393E-05
GLSS --> UBL UP	0.24782E+00	0.25757E-01
GLSS --> UPL UP	0.24782E+00	0.25757E-01
GLSS --> DEL DN	0.21441E+00	0.22285E-01
GLSS --> DNL DB	0.21441E+00	0.22285E-01
GLSS --> UBR UP	0.41079E+00	0.42697E-01
GLSS --> UPR UP	0.41079E+00	0.42697E-01
GLSS --> DBR DN	0.42100E+00	0.43758E-01
GLSS --> DPR DN	0.42100E+00	0.43758E-01
GLSS --> SBL ST	0.21440E+00	0.22285E-01
GLSS --> STL SB	0.21440E+00	0.22285E-01
GLSS --> SBR ST	0.42100E+00	0.43758E-01
GLSS --> SBR ST	0.42100E+00	0.43758E-01
GLSS --> CBL CH	0.24775E+00	0.25751E-01
GLSS --> CBL CH	0.24775E+00	0.25751E-01
GLSS --> CLR CH	0.41073E+00	0.42690E-01
GLSS --> CLR CH	0.41073E+00	0.42690E-01
GLSS --> CHR CB	0.41073E+00	0.42690E-01
GLSS --> CHR CB	0.41073E+00	0.42690E-01
GLSS --> BR1 BT	0.14466E+00	0.23586E-01
GLSS --> BR1 BT	0.16405E+01	0.26747E+00
GLSS --> BR1 BT	0.69507E-02	0.11333E-02
GLSS --> BR1 BT	0.24517E-01	0.39973E-02
GLSS --> BR1 TP	0.23310E+01	0.38332E+00
GLSS --> BR1 TP	0.19657E+01	0.32050E+00
GLSS --> Z1SS TP	0.49311E+00	0.25919E+00
GLSS --> Z2SS TP	0.23945E+00	0.12585E+00
GLSS --> Z1SS+ BT	0.11700E+01	0.61496E+00
GLSS --> Z1SS TP	0.13264E+01	0.99286E+00
GLSS --> Z2SS TP	0.62933E-02	0.47107E-02
GLSS --> Z3SS+ BT	0.63502E-03	0.47533E-03
GLSS --> Z3SS TP	0.63502E-03	0.47533E-03
GLSS --> W1SS+ BT	0.47906E-01	0.75170E-02
GLSS --> Z1SS UP	0.77796E+00	0.80860E-01
GLSS --> Z2SS UP	0.77796E+00	0.80860E-01
GLSS --> Z3SS UP	0.48867E+00	0.50792E-01
GLSS --> Z4SS UP	0.48867E+00	0.50792E-01
GLSS --> W1SS+ DN	0.95333E+00	0.99086E-01
GLSS --> W2SS+ DN	0.95333E+00	0.99086E-01
UPL --> Z1SS UP	0.48527E-01	0.76145E-02
UPL --> Z2SS UP	0.20688E+01	0.32462E+00
UPL --> Z3SS UP	0.24863E-02	0.39013E-03
UPL --> Z4SS UP	0.35222E-01	0.55277E-02
UPL --> W1SS+ DN	0.41701E+01	0.65433E+00
UPL --> W2SS+ DN	0.47906E-01	0.75170E-02
DNL --> Z1SS DN	0.13468E+00	0.21658E-01
DNL --> Z2SS DN	0.19748E+01	0.31755E+00
DNL --> Z3SS DN	0.41664E-02	0.66998E-03
DNL --> Z4SS DN	0.48303E-01	0.77674E-02
DNL --> W1SS- UP	0.39186E+01	0.63013E+00
DNL --> W2SS- UP	0.13817E+00	0.22218E-01
STL --> Z1SS ST	0.13468E+00	0.21658E-01
STL --> Z2SS ST	0.19748E+01	0.31755E+00
STL --> Z3SS ST	0.41664E-02	0.66998E-03
STL --> Z4SS ST	0.48303E-01	0.77674E-02
STL --> W1SS- CH	0.39186E+01	0.63013E+00
STL --> W2SS- CH	0.13816E+00	0.22218E-01
CHL --> Z1SS CH	0.48526E-01	0.76144E-02
CHL --> Z2SS CH	0.20688E+01	0.32461E+00
CHL --> Z3SS CH	0.24862E-02	0.39012E-03
CHL --> Z4SS CH	0.35222E-01	0.55276E-02
CHL --> W1SS+ ST	0.41701E+01	0.65434E+00
CHL --> W2SS+ ST	0.47906E-01	0.75171E-02

$\frac{1}{84} \frac{1}{b^4}$

$\tilde{g}_L \rightarrow 88$
 $\tilde{g}_R \rightarrow 88$
 $SU2$

2つ一般の
SU5の対称性

$\tilde{g} \rightarrow \tilde{g}_L \tilde{g}_R$
 $\tilde{g} \rightarrow \tilde{g}_L \tilde{g}_R$
 $\tilde{g} \rightarrow \tilde{g}_L \tilde{g}_R$

$\tilde{g}_R \rightarrow 88$

UFR	-->	Z4SS	UP	0.26148E-02	0.19572E-02	NUEL	-->	TAU1+	NUE	TAU-	0.81197E-06
DNR	-->	Z1SS	DN	0.33095E+00	0.99288E+00	NUEL	-->	TAU1+	E-	NUT	0.17833E-04
DNR	-->	Z2SS	DN	0.15691E-02	0.47074E-02	NUML	-->	Z1SS	NUM	TAU+	0.16513E+00
DNR	-->	Z3SS	DN	0.15730E-03	0.47191E-03	NUML	-->	TAU1-	NUM	TAU+	0.64858E-06
DNR	-->	Z4SS	DN	0.64679E-03	0.19404E-02	NUML	-->	TAU1+	NUM	TAU-	0.81197E-06
STR	-->	Z1SS	ST	0.33095E+00	0.99288E+00	NUML	-->	TAU1+	MU-	NUT	0.17833E-04
STR	-->	Z2SS	ST	0.15691E-02	0.47074E-02	NUTL	-->	Z1SS	NUT	TAU-	0.16384E+00
STR	-->	Z3SS	ST	0.15730E-03	0.47191E-03	NUTL	-->	TAU1+	NUT	TAU-	0.59502E-05
STR	-->	Z4SS	ST	0.64679E-03	0.19404E-02	NUTL	-->	TAU1-	NUT	TAU+	0.12933E-04
CHR	-->	Z1SS	CH	0.13264E+01	0.99286E+00	NUTL	-->	TAU1-	NUE	E+	0.12186E-04
CHR	-->	Z2SS	CH	0.62933E-02	0.47107E-02	NUTL	-->	TAU1-	NUM	MU+	0.12186E-04
CHR	-->	Z3SS	CH	0.63501E-03	0.47532E-03	NUTL	-->	TAU1-	UP	DB	0.36558E-04
CHR	-->	Z4SS	CH	0.26147E-02	0.19572E-02	NUTL	-->	TAU1-	CH	SB	0.22298E-03
BT2	-->	Z1SS	BT	0.30414E+00	0.42306E+00	ER-	-->	Z1SS	E-	TAU+	0.15997E+00
BT2	-->	Z2SS	BT	0.70663E-01	0.98293E-01	ER-	-->	TAU1-	E-	TAU+	0.45801E-14
BT2	-->	Z3SS	BT	0.12564E-01	0.17476E-01	ER-	-->	TAU1+	E-	TAU-	0.21727E-14
BT2	-->	Z4SS	BT	0.18160E-01	0.25261E-01	ER-	-->	TAU1-	NUE	ANUT	0.85208E-20
BT2	-->	WISS	TP	0.10169E+00	0.14146E+00	MUR-	-->	Z1SS	MU-	TAU-	0.15997E+00
BT2	-->	W-	TP1	0.21168E+00	0.29445E+00	MUR-	-->	TAU1-	MU-	TAU+	0.45803E-14
TP2	-->	WISS+	BT	0.21586E+01	0.25245E+00	MUR-	-->	TAU1+	MU-	TAU-	0.21727E-14
TP2	-->	W2SS+	BT	0.10313E+01	0.12061E+00	MUR-	-->	TAU1-	MU-	ANUT	0.36298E-15
TP2	-->	Z0	TP1	0.23916E+01	0.27970E+00	TAU2-	-->	Z1SS	TAU-	TAU+	0.15283E+00
TP2	-->	HL0	TP1	0.75866E+00	0.88727E-01	TAU2-	-->	Z2SS	TAU-	TAU-	0.65689E-02
TP2	-->	Z1SS	TP	0.24914E+00	0.29138E-01	TAU2-	-->	W1SS-	NUT	TAU+	0.11863E-01
TP2	-->	Z2SS	TP	0.87653E+00	0.10251E+00	Z2SS	-->	Z1SS	GM	TAU-	0.56166E-07
TP2	-->	Z3SS	TP	0.19889E+00	0.23256E-01	Z2SS	-->	Z1SS	Z0	TAU-	0.27076E-01
TP2	-->	Z4SS	TP	0.88590E+00	0.10361E+00	Z2SS	-->	Z1SS	UP	UB	0.87475E-06
EL-	-->	Z1SS	E-	0.13732E+00	0.90320E+00	Z2SS	-->	Z1SS	DN	DB	0.20058E-05
EL-	-->	Z2SS	E-	0.53481E-02	0.35177E-01	Z2SS	-->	Z1SS	ST	SB	0.43584E-07
EL-	-->	WISS	NUE	0.93685E-02	0.61620E-01	Z2SS	-->	Z1SS	CH	CB	0.43584E-07
EL-	-->	TAU1-	E-	0.29232E-09	0.19227E-08	Z2SS	-->	Z1SS	CH	CB	0.19007E-07
EL-	-->	TAU1+	E-	0.97180E-10	0.63919E-09	Z2SS	-->	Z1SS	BT	BB	0.87474E-06
MUL-	-->	Z1SS	MU-	0.13732E+00	0.90321E+00	Z2SS	-->	Z1SS	E-	E+	0.22309E-06
MUL-	-->	Z2SS	MU-	0.53478E-02	0.35174E-01	Z2SS	-->	Z1SS	MU-	MU+	0.30328E-04
MUL-	-->	WISS	NUM	0.93686E-02	0.61621E-01	Z2SS	-->	ER-	E+	MU+	0.30328E-04
MUL-	-->	TAU1-	MU-	0.29232E-09	0.19227E-08	Z2SS	-->	ER+	E-	TAU+	0.28429E-04
MUL-	-->	TAU1+	MU-	0.97180E-10	0.63919E-09	Z2SS	-->	MUR-	MU+	TAU+	0.82873E-03
TAU1-	-->	Z1SS	TAU-	0.12695E+00	0.10000E+01	Z2SS	-->	MUR+	MU-	TAU+	0.82873E-03
NUEL	-->	Z1SS	NUE	0.16513E+00	0.99997E+00	Z2SS	-->	TAU1-	TAU+	TAU-	0.64910E-02
NUEL	-->	TAU1-	NUE	0.64858E-06	0.39276E-05	Z2SS	-->	NOEL	ANUE	TAU-	0.29873E+00
						Z2SS	-->	ANUEL	NUE	TAU+	0.64910E-02
						Z2SS	-->	NUML	ANUM	TAU+	0.72242E-03
						Z2SS	-->			TAU+	0.33247E-01
						Z2SS	-->			TAU+	0.72242E-03

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M



HWW

$X_3 \rightarrow \sum W_i X_i$

Z4SS	-->	W2SS-	NUE	E+	0.85060E-11	0.23572E-11
Z4SS	-->	W2SS-	NUM	MU+	0.85060E-11	0.23572E-11
Z4SS	-->	W2SS+	DN	UB	0.25518E-10	0.70716E-11
Z4SS	-->	W2SS+	E-	ANUE	0.85060E-11	0.23572E-11
Z4SS	-->	W2SS+	MU-	ANUM	0.85060E-11	0.23572E-11
Z4SS	-->	Z1SS	Z0		0.60087E-01	0.16651E-01
Z4SS	-->	Z1SS	Z0		0.62673E-01	0.17368E-01
Z4SS	-->	Z1SS	UP	UB	0.12096E-05	0.33520E-06
Z4SS	-->	Z1SS	DN	DB	0.11251E-05	0.31178E-06
Z4SS	-->	Z1SS	ST	SB	0.11251E-05	0.31178E-06
Z4SS	-->	Z1SS	CH	CB	0.12095E-05	0.33519E-06
Z4SS	-->	Z1SS	BT	BB	0.53389E-05	0.14795E-05
Z4SS	-->	Z1SS	TAU-	TAU+	0.34408E-06	0.95353E-07
Z4SS	-->	Z2SS	UP	UB	0.63029E-05	0.17467E-05
Z4SS	-->	Z2SS	DN	DB	0.75325E-05	0.20874E-05
Z4SS	-->	Z2SS	ST	SB	0.75325E-05	0.20874E-05
Z4SS	-->	Z2SS	CH	CB	0.63028E-05	0.17467E-05
Z4SS	-->	Z2SS	BT	BB	0.16504E-04	0.45735E-05
Z4SS	-->	Z2SS	TAU-	TAU+	0.15839E-06	0.43894E-07
Z4SS	-->	Z3SS	UP	UB	0.23722E-06	0.65740E-07
Z4SS	-->	Z3SS	DN	DB	0.30668E-06	0.84988E-07
Z4SS	-->	Z3SS	ST	SB	0.30668E-06	0.84988E-07
Z4SS	-->	Z3SS	CH	CB	0.23722E-06	0.65740E-07
Z4SS	-->	Z3SS	BT	BB	0.13181E-06	0.36526E-07
Z4SS	-->	Z3SS	E-	E+	0.69472E-07	0.19252E-07
Z4SS	-->	Z3SS	MU-	MU+	0.61276E-07	0.19252E-07
Z4SS	-->	Z3SS	TAU-	TAU+	0.13823E-06	0.38306E-07
Z4SS	-->	Z3SS	NUM	ANUM	0.13823E-06	0.38306E-07
Z4SS	-->	Z3SS	NUT	ANUT	0.13823E-06	0.38306E-07
Z4SS	-->	Z1SS	HLO		0.26559E+00	0.73602E-01
Z4SS	-->	Z2SS	HLO		0.67597E+00	0.18732E+00
Z4SS	-->	EL-	E+		0.24366E-01	0.67524E-02
Z4SS	-->	EL+	E-		0.24366E-01	0.67524E-02
Z4SS	-->	MUL-	MU+		0.24366E-01	0.67524E-02
Z4SS	-->	MUL+	MU-		0.24366E-01	0.67524E-02
Z4SS	-->	ER-	E+		0.91235E-02	0.25283E-02
Z4SS	-->	ER+	E-		0.91235E-02	0.25283E-02
Z4SS	-->	MUR-	MU+		0.91235E-02	0.25283E-02
Z4SS	-->	MUR+	MU-		0.91235E-02	0.25283E-02
Z4SS	-->	TAU1-	TAU+		0.86065E-02	0.23851E-02
Z4SS	-->	TAU1+	TAU-		0.86065E-02	0.23851E-02
Z4SS	-->	TAU2-	TAU+		0.33581E-01	0.93061E-02
Z4SS	-->	TAU2+	TAU-		0.33581E-01	0.93061E-02
Z4SS	-->	NUEL	ANUE		0.60610E-01	0.16796E-01
Z4SS	-->	ANUEL	NUE		0.60610E-01	0.16796E-01
Z4SS	-->	NUML	ANUM		0.60610E-01	0.16796E-01
Z4SS	-->	ANUML	ANUM		0.60610E-01	0.16796E-01
Z4SS	-->	NUTL	ANUT		0.60804E-01	0.16850E-01
Z4SS	-->	Z1SS	GM		0.39189E-06	0.33247E-01
Z4SS	-->	Z2SS	GM		0.12004E-06	0.42903E-01
Z4SS	-->	W1SS+	W-		0.30001E+00	0.42903E-01
Z4SS	-->	W1SS-	W+		0.30001E+00	0.42903E-01
Z4SS	-->	Z1SS	Z0		0.10442E+00	0.42903E-01
Z4SS	-->	Z1SS	Z0		0.24333E+00	0.42903E-01
Z4SS	-->	Z1SS	UP	UB	0.28260E-07	0.39189E-06
Z4SS	-->	Z1SS	DN	DB	0.12649E-07	0.12649E-06
Z4SS	-->	Z1SS	ST	SB	0.12649E-07	0.12649E-06
Z4SS	-->	Z1SS	CH	CB	0.28260E-07	0.39189E-06
Z4SS	-->	Z1SS	BT	BB	0.11249E-05	0.11249E-06
Z4SS	-->	Z1SS	TAU-	TAU+	0.11335E-06	0.11335E-06
Z4SS	-->	Z2SS	UP	UB	0.36130E-07	0.36130E-07
Z4SS	-->	Z2SS	DN	DB	0.52941E-07	0.52941E-07
Z4SS	-->	Z2SS	ST	SB	0.52941E-07	0.52941E-07
Z4SS	-->	Z2SS	CH	CB	0.10656E-06	0.10656E-06
Z4SS	-->	Z2SS	BT	BB	0.15615E-06	0.15615E-06
Z4SS	-->	Z2SS	TAU-	TAU+	0.15615E-06	0.15615E-06
Z4SS	-->	Z2SS	UP	UB	0.10656E-06	0.10656E-06
Z4SS	-->	Z2SS	DN	DB	0.34346E-05	0.34346E-05
Z4SS	-->	Z2SS	ST	SB	0.34346E-05	0.34346E-05
Z4SS	-->	Z2SS	CH	CB	0.15137E-06	0.15137E-06
Z4SS	-->	Z1SS	HLO		0.49538E-01	0.49538E-01
Z4SS	-->	Z2SS	HLO		0.38278E-01	0.38278E-01
Z4SS	-->	EL-	E+		0.97476E-03	0.97476E-03
Z4SS	-->	EL+	E-		0.97476E-03	0.97476E-03
Z4SS	-->	MUL-	MU+		0.97476E-03	0.97476E-03
Z4SS	-->	MUL+	MU-		0.97476E-03	0.97476E-03
Z4SS	-->	ER-	E+		0.17370E-02	0.17370E-02
Z4SS	-->	ER+	E-		0.17370E-02	0.17370E-02
Z4SS	-->	MUR-	MU+		0.17370E-02	0.17370E-02
Z4SS	-->	MUR+	MU-		0.17370E-02	0.17370E-02
Z4SS	-->	TAU1-	TAU+		0.61971E-02	0.61971E-02
Z4SS	-->	TAU1+	TAU-		0.61971E-02	0.61971E-02
Z4SS	-->	TAU2-	TAU+		0.72101E-02	0.72101E-02
Z4SS	-->	TAU2+	TAU-		0.72101E-02	0.72101E-02
Z4SS	-->	NUEL	ANUE		0.47510E-02	0.47510E-02
Z4SS	-->	ANUEL	NUE		0.47510E-02	0.47510E-02
Z4SS	-->	NUML	ANUM		0.47510E-02	0.47510E-02
Z4SS	-->	ANUML	ANUM		0.47510E-02	0.47510E-02
Z4SS	-->	NUTL	ANUT		0.47678E-02	0.47678E-02
Z4SS	-->	ANUTL	NUT		0.47678E-02	0.47678E-02
Z4SS	-->	Z1SS	GM		0.31381E-05	0.86965E-06
Z4SS	-->	Z2SS	GM		0.57618E-06	0.15967E-06
Z4SS	-->	Z3SS	GM		0.32899E-08	0.91171E-09
Z4SS	-->	W1SS+	W-		0.98088E+00	0.27182E+00
Z4SS	-->	W1SS-	W+		0.98088E+00	0.27182E+00
Z4SS	-->	Z1SS	UP	DB	0.25518E-10	0.70716E-11

24SS	-->	ANUTL	NUT	0.16850E-01	0.60604E-01	0.16850E-01	HLO	-->	CH	CB	0.19618E-03
WISS+	-->	Z1SS	UP	0.25551E-05	0.58847E-07	0.25551E-05	HLO	-->	GM	GM	0.72904E-05
WISS+	-->	Z1SS	CH	0.25551E-05	0.58847E-07	0.25551E-05	HLO	-->	GL	GL	0.15941E-03
WISS+	-->	Z1SS	E+	0.89728E-03	0.20665E-04	0.89728E-03	HLO	-->	W+	E-	0.22430E-02
WISS+	-->	Z1SS	MU+	0.89727E-03	0.20665E-04	0.89727E-03	HLO	-->	W+	MU-	0.22430E-02
WISS+	-->	Z1SS	TAU+	0.87531E-03	0.20160E-04	0.87531E-03	HLO	-->	W+	TAU-	0.22430E-02
WISS+	-->	Z1SS	W+	0.30024E+00	0.69150E-02	0.30024E+00	HLO	-->	W+	UB	0.67291E-02
WISS+	-->	Z2SS	E+	0.13412E-16	0.30889E-18	0.13412E-16	HLO	-->	W-	CB	0.67291E-02
WISS+	-->	NUEL	E+	0.72555E-01	0.16710E-02	0.72555E-01	HLO	-->	W-	E+	0.22430E-02
WISS+	-->	NUML	MU+	0.72539E-01	0.16707E-02	0.72539E-01	HLO	-->	W-	TAU+	0.22430E-02
WISS+	-->	NUYL	TAU+	0.90403E-01	0.20821E-02	0.90403E-01	HLO	-->	W-	UP	0.67291E-02
WISS+	-->	TAU1+	NUT	0.46158E+00	0.10631E-01	0.46158E+00	HLO	-->	W-	CH	0.67291E-02
W2SS+	-->	Z1SS	UP	0.41853E-06	0.15182E-05	0.41853E-06	HLO	-->	Z0	NUE	0.20317E-03
W2SS+	-->	Z1SS	CH	0.41853E-06	0.15182E-05	0.41853E-06	HLO	-->	Z0	NUM	0.20317E-03
W2SS+	-->	Z1SS	TAU+	0.59420E-07	0.21554E-06	0.59420E-07	HLO	-->	Z0	NUT	0.10862E-05
W2SS+	-->	Z1SS	W+	0.66475E-01	0.24114E+00	0.66475E-01	HLO	-->	Z0	E+	0.10225E-03
W2SS+	-->	Z2SS	UP	0.63530E-05	0.63530E-05	0.63530E-05	HLO	-->	Z0	MU-	0.10225E-03
W2SS+	-->	Z2SS	CH	0.63529E-05	0.63529E-05	0.63529E-05	HLO	-->	Z0	MU+	0.10225E-03
W2SS+	-->	Z2SS	TAU+	0.28521E-06	0.28521E-06	0.28521E-06	HLO	-->	Z0	TAU-	0.10225E-03
W2SS+	-->	Z3SS	W+	0.10728E+01	0.10728E+01	0.10728E+01	HLO	-->	Z0	UB	0.18728E-05
W2SS+	-->	Z3SS	UP	0.43938E-06	0.43938E-06	0.43938E-06	HLO	-->	Z0	CH	0.35032E-03
W2SS+	-->	Z3SS	CH	0.43938E-06	0.43938E-06	0.43938E-06	HLO	-->	Z0	CB	0.35032E-03
W2SS+	-->	Z3SS	E+	0.14640E-06	0.14640E-06	0.14640E-06	HLO	-->	Z0	DN	0.45129E-03
W2SS+	-->	Z3SS	MU+	0.14640E-06	0.14640E-06	0.14640E-06	HLO	-->	Z0	ST	0.45129E-03
W2SS+	-->	Z3SS	TAU+	0.72079E-01	0.72079E-01	0.72079E-01	HLO	-->	Z0	SB	0.45129E-03
W2SS+	-->	TF1	BB	0.47515E-01	0.47515E-01	0.47515E-01	HHO	-->	E-	E+	0.35511E-08
W2SS+	-->	NUEL	E+	0.47515E-01	0.47515E-01	0.47515E-01	HHO	-->	MU-	MU+	0.14993E-03
W2SS+	-->	NUML	MU+	0.47515E-01	0.47515E-01	0.47515E-01	HHO	-->	MU-	MU+	0.14993E-03
W2SS+	-->	NUYL	TAU+	0.57132E-01	0.57132E-01	0.57132E-01	HHO	-->	TAU-	TAU+	0.42940E-01
W2SS+	-->	EL+	NUE	0.12312E+00	0.12312E+00	0.12312E+00	HHO	-->	DN	DB	0.38771E-05
W2SS+	-->	MUL+	NUM	0.14647E-02	0.14647E-02	0.14647E-02	HHO	-->	TAU-	TAU+	0.38771E-05
W2SS+	-->	TAU1+	NUT	0.13029E+00	0.13029E+00	0.13029E+00	HHO	-->	ST	SB	0.15665E-02
W2SS+	-->	TAU2+	NUT	0.93762E+00	0.93762E+00	0.93762E+00	HHO	-->	BT	BB	0.22402E+00
W2SS+	-->	WISS+	Z0	0.57509E-05	0.57509E-05	0.57509E-05	HHO	-->	UP	UB	0.10970E-08
W2SS+	-->	WISS+	DN	0.15854E-05	0.15854E-05	0.15854E-05	HHO	-->	CH	CB	0.22393E-04
W2SS+	-->	WISS+	ST	0.15854E-05	0.15854E-05	0.15854E-05	HHO	-->	GM	GM	0.52590E+00
W2SS+	-->	WISS+	UP	0.14238E-04	0.14238E-04	0.14238E-04	HHO	-->	TP	TB	0.63415E-05
W2SS+	-->	WISS+	CH	0.14238E-04	0.14238E-04	0.14238E-04	HHO	-->	GM	GM	0.63415E-05
W2SS+	-->	WISS+	HLO	0.77363E+00	0.77363E+00	0.77363E+00	HHO	-->	GL	GL	0.83132E-03
HLO	-->	E-	E+	0.22288E-10	0.41691E-08	0.22288E-10	HHO	-->	W+	W-	0.50470E-02
HLO	-->	MU-	MU+	0.94105E-06	0.17603E-03	0.94105E-06	HHO	-->	Z0	Z0	0.24859E-02
HLO	-->	TAU-	TAU+	0.26914E-03	0.50345E-01	0.26914E-03	HHO	-->	Z1SS	Z1SS	0.11467E-01
HLO	-->	DN	DB	0.27975E-07	0.52328E-05	0.27975E-07	HHO	-->	Z1SS	Z1SS	0.40017E-01
HLO	-->	ST	SB	0.11303E-04	0.21143E-02	0.11303E-04	HHO	-->	Z2SS	Z2SS	0.17508E-01
HLO	-->	BT	BB	0.44700E-02	0.83613E+00	0.44700E-02	HHO	-->	Z2SS	Z2SS	0.19760E-01
HLO	-->	UP	UB	0.78103E-08	0.14610E-05	0.78103E-08	HHO	-->	WISS+	WISS-	0.42987E-01

$\tilde{L} > \tilde{W}$

$\tilde{W} \rightarrow \tilde{XOW}$

$\tilde{W} \rightarrow \tilde{XOY}$

$\tilde{L} \rightarrow \tilde{L} \rightarrow \tilde{L}$

$\tilde{W} \rightarrow \tilde{L}$

SU2

ISASUSY decay modes:

Parent --> daughters	Width	Branching ratio
TP --> UP DB BT	0.40521E+00	0.33333E+00
TP --> CH SB BT	0.40521E+00	0.33333E+00
TP --> E+ NUE BT	0.13507E+00	0.11111E+00
TP --> MU+ NUM BT	0.13507E+00	0.11111E+00
TP --> TAU+ NUT BT	0.13507E+00	0.11111E+00
GLSS --> W1SS+ DN UB	0.40674E-05	0.92657E-02
GLSS --> W1SS- UP DB	0.40674E-05	0.92657E-02
GLSS --> W1SS+ ST CB	0.40674E-05	0.92657E-02
GLSS --> W1SS- CH SB	0.40674E-05	0.92657E-02
GLSS --> W1SS+ BT TB	0.53100E-04	0.12096E+00
GLSS --> W1SS- TP BB	0.53100E-04	0.12096E+00
GLSS --> W2SS+ DN UB	0.71710E-05	0.16336E-01
GLSS --> W2SS- UP DB	0.71710E-05	0.16336E-01
GLSS --> W2SS+ ST CB	0.71710E-05	0.16336E-01
GLSS --> W2SS- CH SB	0.71710E-05	0.16336E-01
GLSS --> W2SS+ BT TB	0.43590E-04	0.99299E-01
GLSS --> W2SS- TP BB	0.43590E-04	0.99299E-01
GLSS --> Z1SS GL	0.30012E-05	0.68367E-02
GLSS --> Z1SS UP UB	0.26796E-05	0.61042E-02
GLSS --> Z1SS DN DB	0.17586E-05	0.40061E-02
GLSS --> Z1SS ST SB	0.17586E-05	0.40061E-02
GLSS --> Z1SS CH CB	0.26796E-05	0.61042E-02
GLSS --> Z1SS BT BB	0.37763E-05	0.86025E-02
GLSS --> Z1SS TP TB	0.13136E-04	0.29925E-01
GLSS --> Z2SS GL	0.61379E-05	0.13982E-01
GLSS --> Z2SS UP UB	0.41510E-05	0.94560E-02
GLSS --> Z2SS DN DB	0.13270E-05	0.30228E-02

Handwritten notes on the right side of the table:

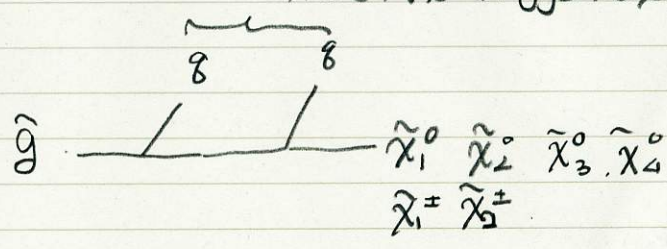
- For the first group of W1SS decays: } *3カAAH
- For the second group of W2SS decays: } Heavier state & contribute

URL: <http://www.usatlas.bnl.gov/twiki/bin/view/Projects/AtlasSusyPoints>

Page: ページ 12/50

お3世代カ Higgsino分Eは 9A11

$\tilde{g} \rightarrow 856 \text{ GeV}$



yutawa
の辺り

GLSS	-->	Z2SS	ST	SB	0.13270E-05	0.30228E-02	CHL	-->	W2SS+	ST	0.18707E+02	0.86257E-01
GLSS	-->	Z2SS	CH	CB	0.41510E-05	0.94560E-02	BT1	-->	Z1SS	BT	0.18523E+01	0.87111E-02
GLSS	-->	Z2SS	BT	BB	0.29806E-05	0.67898E-02	BT1	-->	Z2SS	BT	0.16707E+01	0.78569E-02
GLSS	-->	Z2SS	TP	TB	0.39286E-04	0.89494E-01	BT1	-->	Z3SS	BT	0.65797E+00	0.30943E-02
GLSS	-->	Z3SS	GL	UB	0.14748E-04	0.33597E-01	BT1	-->	Z4SS	BT	0.92638E+01	0.43567E-01
GLSS	-->	Z3SS	UP	DB	0.62656E-07	0.14273E-03	BT1	-->	GLSS	BT	0.13520E+03	0.63583E+00
GLSS	-->	Z3SS	DN	SB	0.82144E-07	0.18712E-03	BT1	-->	W1SS-	TP	0.28601E+02	0.13451E+00
GLSS	-->	Z3SS	ST	CB	0.82144E-07	0.18712E-03	BT1	-->	W2SS-	TP	0.34947E+02	0.16435E+00
GLSS	-->	Z3SS	CH	BB	0.62656E-07	0.14273E-03	BT1	-->	W-	TP1	0.44219E+00	0.20795E-02
GLSS	-->	Z3SS	BT	TB	0.11555E-05	0.26323E-02	TP1	-->	GLSS	TP	0.83939E+02	0.57693E+00
GLSS	-->	Z4SS	TP	UB	0.47175E-04	0.11074E+00	TP1	-->	Z1SS	TP	0.60375E+01	0.41496E-01
GLSS	-->	Z4SS	GL	DB	0.41346E-05	0.94187E-02	TP1	-->	Z2SS	TP	0.72596E+01	0.49896E-01
GLSS	-->	Z4SS	UP	SB	0.32406E-05	0.73822E-02	TP1	-->	Z3SS	TP	0.14806E+02	0.10177E+00
GLSS	-->	Z4SS	DN	CB	0.35721E-05	0.81373E-02	TP1	-->	Z4SS	TP	0.49131E+01	0.33769E-01
GLSS	-->	Z4SS	ST	BB	0.35721E-05	0.81373E-02	TP1	-->	W1SS+	BT	0.18556E+02	0.12754E+00
GLSS	-->	Z4SS	CH	TB	0.32406E-05	0.73822E-02	TP1	-->	W2SS+	BT	0.99826E+01	0.68612E-01
GLSS	-->	Z4SS	BT	UB	0.82382E-05	0.18767E-01	UPR	-->	Z1SS	UP	0.47354E+01	0.26237E-01
GLSS	-->	Z4SS	TP	DB	0.23126E-04	0.52681E-01	UPR	-->	Z2SS	UP	0.31274E+01	0.17328E-01
UPL	-->	Z1SS	UP	SB	0.99206E-01	0.45744E-03	UPR	-->	Z3SS	UP	0.69724E-01	0.38632E-03
UPL	-->	Z2SS	UP	CB	0.49482E+01	0.22816E-01	UPR	-->	Z4SS	UP	0.12449E+00	0.68975E-03
UPL	-->	Z3SS	UP	BB	0.16588E+00	0.76486E-03	UPR	-->	GLSS	UP	0.17243E+03	0.95536E+00
UPL	-->	Z4SS	UP	TB	0.10128E+02	0.46699E-01	UPR	-->	Z1SS	DN	0.11845E+01	0.67860E-02
UPL	-->	W1SS+	UP	UB	0.17182E+03	0.79225E+00	UPR	-->	Z2SS	DN	0.78229E+00	0.44818E-02
UPL	-->	W2SS+	UP	DB	0.11007E+02	0.50755E-01	UPR	-->	Z3SS	DN	0.17440E-01	0.99917E-04
DNL	-->	Z1SS	DN	CB	0.19643E+01	0.90575E-02	UPR	-->	Z4SS	DN	0.31140E-01	0.17840E-03
DNL	-->	Z2SS	DN	BB	0.18003E+01	0.83017E-02	UPR	-->	GLSS	DN	0.17253E+03	0.96845E+00
DNL	-->	Z3SS	DN	TB	0.29070E+00	0.13405E-02	STR	-->	Z1SS	ST	0.11845E+01	0.67860E-02
DNL	-->	Z4SS	DN	UB	0.11283E+02	0.52026E-01	STR	-->	Z2SS	ST	0.78229E+00	0.44818E-02
DNL	-->	GLSS	DN	DB	0.17187E+03	0.79250E+00	STR	-->	Z3SS	ST	0.17440E-01	0.99917E-04
DNL	-->	W1SS-	UP	BB	0.46623E+01	0.21498E-01	STR	-->	Z4SS	ST	0.31140E-01	0.17840E-03
DNL	-->	W2SS-	UP	TB	0.25000E+02	0.11528E+00	STR	-->	GLSS	ST	0.17253E+03	0.96845E+00
STL	-->	Z1SS	ST	UB	0.19643E+01	0.90575E-02	CHR	-->	Z1SS	CH	0.47354E+01	0.26237E-01
STL	-->	Z2SS	ST	DB	0.18003E+01	0.83017E-02	CHR	-->	Z2SS	CH	0.31274E+01	0.17328E-01
STL	-->	Z3SS	ST	BB	0.29070E+00	0.13405E-02	CHR	-->	Z3SS	CH	0.69724E-01	0.38632E-03
STL	-->	Z4SS	ST	TB	0.11283E+02	0.52026E-01	CHR	-->	Z4SS	CH	0.12449E+00	0.68975E-03
STL	-->	GLSS	ST	UB	0.17187E+03	0.79250E+00	CHR	-->	GLSS	CH	0.17243E+03	0.95536E+00
STL	-->	W1SS-	CH	DB	0.46623E+01	0.21498E-01	BT2	-->	Z1SS	BT	0.14299E+01	0.82881E-02
STL	-->	W2SS-	CH	BB	0.25000E+02	0.11528E+00	BT2	-->	Z2SS	BT	0.99799E+00	0.57847E-02
CHL	-->	Z1SS	CH	TB	0.99206E-01	0.45744E-03	BT2	-->	Z3SS	BT	0.52798E+00	0.30604E-02
CHL	-->	Z2SS	CH	UB	0.49482E+01	0.22816E-01	BT2	-->	Z4SS	BT	0.12590E+00	0.72975E-03
CHL	-->	Z3SS	CH	DB	0.16588E+00	0.76486E-03	BT2	-->	GLSS	BT	0.16832E+03	0.97563E+00
CHL	-->	Z4SS	CH	BB	0.10128E+02	0.46699E-01	BT2	-->	W1SS-	TP	0.91816E+00	0.53220E-02
CHL	-->	GLSS	CH	TB	0.17182E+03	0.79225E+00						
CHL	-->	W1SS+	ST	UB	0.11007E+02	0.50756E-01						

TR

ds > dB

ds > dw

重

Gargano
Higgsino 成分

113

ω = ω₀ = 1/2

6-G

88X

BT2	-->	WZSS-	TP	0.18621E+00	0.10794E-02	NUML	-->	WZSS+	MU-	0.18615E+02	0.38131E+00
BT2	-->	W-	TP1	0.24813E-04	0.14382E-06						
BT2	-->	W-	TP2	0.94930E-02	0.55025E-04	NUTL	-->	Z1SS	NUT	0.61348E+01	0.12441E+00
BT2	-->	Z0	BT1	0.50224E-02	0.29112E-04	NUTL	-->	Z2SS	NUT	0.20860E+00	0.42301E-02
BT2	-->	HL0	BT1	0.41414E-02	0.24005E-04	NUTL	-->	Z3SS	NUT	0.44619E+00	0.90481E-02
TP2	-->	GLSS	TP	0.11345E+03	0.63282E+00	NUTL	-->	Z4SS	NUT	0.12382E+02	0.25110E+00
TP2	-->	WISS+	BT	0.93469E+01	0.43975E-01	NUTL	-->	WISS+	TAU-	0.11494E+02	0.23309E+00
TP2	-->	WZSS+	BT	0.15946E+02	0.75020E-01	NUTL	-->	WZSS+	TAU-	0.18647E+02	0.37813E+00
TP2	-->	Z0	TP1	0.23102E+00	0.10869E-02	NUTL	-->	TAU1-	NUT	0.85769E-09	0.17393E-10
TP2	-->	HL0	TP1	0.47422E+00	0.22311E-02	NUTL	-->	TAU1-	NUE	0.83772E-09	0.16988E-10
TP2	-->	Z1SS	TP	0.43658E+01	0.20545E-01	NUTL	-->	TAU1-	NUM	0.63772E-09	0.16988E-10
TP2	-->	Z2SS	TP	0.11361E+02	0.53449E-01	NUTL	-->	TAU1-	UP	0.25132E-08	0.50964E-10
TP2	-->	Z3SS	TP	0.20546E+02	0.96665E-01	NUTL	-->	TAU1-	CH	0.25132E-08	0.50964E-10
TP2	-->	Z4SS	TP	0.15773E+02	0.74206E-01	NUTL	-->	TAU1-	SB	0.25132E-08	0.50964E-10
EL-	-->	Z1SS	E-	0.59243E+00	0.12141E-01	ER-	-->	Z1SS	E-	0.10575E+02	0.58774E+00
EL-	-->	Z2SS	E-	0.96125E+01	0.19699E+00	ER-	-->	Z2SS	E-	0.69837E+01	0.38816E+00
EL-	-->	Z3SS	E-	0.75538E-01	0.15480E-02	ER-	-->	Z3SS	E-	0.15569E+00	0.86535E-02
EL-	-->	Z4SS	E-	0.89966E+01	0.18437E+00	ER-	-->	Z4SS	E-	0.27795E+00	0.15448E-01
EL-	-->	WISS-	NUE	0.46404E+01	0.95095E-01	MUR-	-->	Z1SS	MU-	0.10575E+02	0.58774E+00
EL-	-->	WZSS-	NUE	0.24880E+02	0.50986E+00	MUR-	-->	Z2SS	MU-	0.69837E+01	0.38816E+00
MUL-	-->	Z1SS	MU-	0.59243E+00	0.12141E-01	MUR-	-->	Z3SS	MU-	0.15569E+00	0.86535E-02
MUL-	-->	Z2SS	MU-	0.96125E+01	0.19699E+00	MUR-	-->	Z4SS	MU-	0.27795E+00	0.15448E-01
MUL-	-->	Z3SS	MU-	0.75538E-01	0.15480E-02	TAU2-	-->	Z1SS	TAU-	0.65855E+00	0.13435E-01
MUL-	-->	Z4SS	MU-	0.89966E+01	0.18437E+00	TAU2-	-->	Z2SS	TAU-	0.96633E+01	0.19714E+00
MUL-	-->	WISS-	NUM	0.46404E+01	0.95095E-01	TAU2-	-->	Z3SS	TAU-	0.46315E+00	0.94489E-02
MUL-	-->	WZSS-	NUM	0.24880E+02	0.50986E+00	TAU2-	-->	Z4SS	TAU-	0.90924E+01	0.18550E+00
TAU1-	-->	Z1SS	TAU-	0.10771E+02	0.55229E+00	TAU2-	-->	WISS-	NUT	0.42740E+01	0.87196E-01
TAU1-	-->	Z2SS	TAU-	0.71303E+01	0.36562E+00	TAU2-	-->	WZSS-	NUT	0.24865E+02	0.50728E+00
TAU1-	-->	Z3SS	TAU-	0.39750E+00	0.20383E-01	Z2SS	-->	Z1SS	GM	0.86445E-07	0.69882E-02
TAU1-	-->	Z4SS	TAU-	0.25322E+00	0.12985E-01	Z2SS	-->	WISS-	UP	0.62819E-07	0.50782E-02
TAU1-	-->	WISS-	NUT	0.92803E+00	0.47587E-01	Z2SS	-->	WISS-	NUE	0.20940E-07	0.16927E-02
TAU1-	-->	WZSS-	NUT	0.22072E-01	0.11318E-02	Z2SS	-->	WISS-	NUM	0.20940E-07	0.16927E-02
NUEL	-->	Z1SS	NUE	0.61593E+01	0.12616E+00	Z2SS	-->	WISS+	DN	0.62819E-07	0.50782E-02
NUEL	-->	Z2SS	NUE	0.20943E+00	0.42899E-02	Z2SS	-->	WISS+	E-	0.20940E-07	0.16927E-02
NUEL	-->	Z3SS	NUE	0.44798E+00	0.91762E-02	Z2SS	-->	WISS+	MU-	0.20940E-07	0.16927E-02
NUEL	-->	Z4SS	NUE	0.12433E+02	0.25467E+00	Z2SS	-->	WISS+	CH	0.62819E-07	0.50782E-02
NUEL	-->	WISS+	E-	0.10955E+02	0.22439E+00	Z2SS	-->	WISS+	ST	0.20940E-07	0.16927E-02
NUEL	-->	WZSS+	E-	0.18615E+02	0.38131E+00	Z2SS	-->	WISS+	TAU-	0.20940E-07	0.16927E-02
NUML	-->	Z1SS	NUM	0.61593E+01	0.12616E+00	Z2SS	-->	Z1SS	UP	0.14175E-05	0.11459E+00
NUML	-->	Z2SS	NUM	0.20943E+00	0.42899E-02	Z2SS	-->	Z1SS	DN	0.18288E-05	0.14784E+00
NUML	-->	Z3SS	NUM	0.44798E+00	0.91762E-02	Z2SS	-->	Z1SS	ST	0.18288E-05	0.14784E+00
NUML	-->	Z4SS	NUM	0.12433E+02	0.25467E+00	Z2SS	-->	Z1SS	CH	0.14175E-05	0.11459E+00
NUML	-->	WISS+	NUM	0.10955E+02	0.22439E+00	Z2SS	-->	Z1SS	BT	0.17110E-05	0.13832E+00
NUML	-->	WZSS+	NUM	0.18615E+02	0.38131E+00	Z2SS	-->	Z1SS	E-	0.41161E-06	0.33275E-01
						Z2SS	-->	Z1SS	MU-	0.41161E-06	0.33275E-01

$\left. \begin{matrix} \leftarrow \\ \leftarrow \end{matrix} \right\} \begin{matrix} \text{无} \rightarrow b \times^2 \\ \text{天} \rightarrow \text{天} \times 0 \\ \text{L} \rightarrow \text{L} \times 2 \end{matrix}$

Z2SS	-->	Z1SS	TAU-	TAU+	0.40844E-06	0.33018E-01	Z2SS	-->	W2SS+	E-	AMUE	0.14260E-07	0.12928E-07
Z2SS	-->	Z1SS	NUE	ANUE	0.82384E-06	0.66599E-01	Z4SS	-->	W2SS+	MU-	ANUM	0.14260E-07	0.12928E-07
Z2SS	-->	Z1SS	NUM	ANUM	0.82384E-06	0.66599E-01	Z4SS	-->	W2SS-	CH	SB	0.42780E-07	0.38783E-07
Z2SS	-->	Z1SS	NUT	ANUT	0.82383E-06	0.66599E-01	Z4SS	-->	W2SS+	NUT	TAU+	0.14260E-07	0.12928E-07
Z3SS	-->	Z1SS	GM		0.12588E-06	0.13844E-03	Z4SS	-->	W2SS+	ST	CB	0.42780E-07	0.38783E-07
Z3SS	-->	Z2SS	GM		0.23363E-08	0.25695E-05	Z4SS	-->	Z1SS	TAU-	ANUT	0.14260E-07	0.12928E-07
Z3SS	-->	W1SS-	UP	DB	0.72720E-05	0.79977E-02	Z4SS	-->	Z2SS	Z0		0.49622E-05	0.44986E-05
Z3SS	-->	W1SS-	NUE	E+	0.24240E-05	0.26659E-02	Z4SS	-->	Z3SS	Z0		0.11870E-01	0.10761E-01
Z3SS	-->	W1SS-	NUM	MU+	0.24240E-05	0.26659E-02	Z4SS	-->	Z1SS	UP	UB	0.12500E+00	0.11332E+00
Z3SS	-->	W1SS+	DN	UB	0.72720E-05	0.79977E-02	Z4SS	-->	Z1SS	DN	DB	0.80680E-10	0.73143E-10
Z3SS	-->	W1SS+	E-	ANUE	0.24240E-05	0.26659E-02	Z4SS	-->	Z1SS	ST	SB	0.11294E-08	0.10239E-08
Z3SS	-->	W1SS+	CH	ANUM	0.24240E-05	0.26659E-02	Z4SS	-->	Z1SS	CH	CB	0.80680E-10	0.73143E-10
Z3SS	-->	W1SS-	NUT	TAU+	0.72720E-05	0.79977E-02	Z4SS	-->	Z1SS	BT	BB	0.27365E-08	0.24809E-08
Z3SS	-->	W1SS+	ST	CB	0.24240E-05	0.26659E-02	Z4SS	-->	Z1SS	E-	E+	0.14426E-09	0.13078E-09
Z3SS	-->	W1SS+	TAU-	ANUT	0.72720E-05	0.79977E-02	Z4SS	-->	Z1SS	MU-	MU+	0.14426E-09	0.13078E-09
Z3SS	-->	Z1SS	UP	UB	0.10224E-03	0.11245E+00	Z4SS	-->	Z1SS	TAU-	TAU+	0.17198E-09	0.15591E-09
Z3SS	-->	Z1SS	DN	DB	0.13183E-03	0.14498E+00	Z4SS	-->	Z1SS	NUE	ANUE	0.13386E-08	0.12135E-08
Z3SS	-->	Z1SS	ST	SB	0.13183E-03	0.14498E+00	Z4SS	-->	Z1SS	NUM	ANUM	0.13386E-08	0.12135E-08
Z3SS	-->	Z1SS	CH	CB	0.10224E-03	0.11245E+00	Z4SS	-->	Z1SS	NUT	ANUT	0.13601E-08	0.12330E-08
Z3SS	-->	Z1SS	BT	BB	0.12833E-03	0.14114E+00	Z4SS	-->	Z2SS	UP	UB	0.73599E-09	0.66720E-09
Z3SS	-->	Z1SS	E-	E+	0.29905E-04	0.32889E-01	Z4SS	-->	Z2SS	DN	DB	0.29599E-09	0.26830E-09
Z3SS	-->	Z1SS	MU-	MU+	0.29905E-04	0.32889E-01	Z4SS	-->	Z2SS	ST	SB	0.29599E-09	0.26830E-09
Z3SS	-->	Z1SS	TAU-	TAU+	0.29764E-04	0.32735E-01	Z4SS	-->	Z2SS	CH	CB	0.73599E-09	0.66720E-09
Z3SS	-->	Z1SS	NUE	ANUE	0.59514E-04	0.65454E-01	Z4SS	-->	Z2SS	BT	BB	0.75967E-09	0.68870E-09
Z3SS	-->	Z1SS	NUM	ANUM	0.59514E-04	0.65454E-01	Z4SS	-->	Z2SS	E-	E+	0.44123E-09	0.40001E-09
Z3SS	-->	Z1SS	NUT	ANUT	0.59514E-04	0.65454E-01	Z4SS	-->	Z2SS	MU-	MU+	0.44123E-09	0.40001E-09
Z3SS	-->	Z2SS	UP	UB	0.11701E-06	0.12869E-03	Z4SS	-->	Z2SS	TAU-	TAU+	0.46466E-09	0.42125E-09
Z3SS	-->	Z2SS	DN	DB	0.15086E-06	0.16592E-03	Z4SS	-->	Z2SS	NUE	ANUE	0.13020E-10	0.11803E-10
Z3SS	-->	Z2SS	ST	SB	0.15086E-06	0.16592E-03	Z4SS	-->	Z2SS	NUM	ANUM	0.13020E-10	0.11803E-10
Z3SS	-->	Z2SS	CH	CB	0.11701E-06	0.12869E-03	Z4SS	-->	Z3SS	UP	UB	0.46724E-11	0.42359E-11
Z3SS	-->	Z2SS	BT	BB	0.70641E-07	0.77691E-04	Z4SS	-->	Z3SS	DN	DB	0.90641E-11	0.82173E-11
Z3SS	-->	Z2SS	E-	E+	0.34227E-07	0.37643E-04	Z4SS	-->	Z3SS	ST	SB	0.90641E-11	0.82173E-11
Z3SS	-->	Z2SS	MU-	MU+	0.34227E-07	0.37643E-04	Z4SS	-->	Z3SS	CH	CB	0.46724E-11	0.42359E-11
Z3SS	-->	Z2SS	TAU-	TAU+	0.30525E-07	0.33571E-04	Z4SS	-->	Z3SS	BT	BB	0.24182E-07	0.21923E-07
Z3SS	-->	Z2SS	NUE	ANUE	0.68102E-07	0.74899E-04	Z4SS	-->	Z3SS	E-	E+	0.68491E-12	0.62092E-12
Z3SS	-->	Z2SS	NUM	ANUM	0.68102E-07	0.74899E-04	Z4SS	-->	Z3SS	MU-	MU+	0.68491E-12	0.62092E-12
Z3SS	-->	Z2SS	NUT	ANUT	0.68102E-07	0.74899E-04	Z4SS	-->	Z3SS	TAU-	TAU+	0.50337E-08	0.45634E-08
Z4SS	-->	Z1SS	GM		0.25069E-06	0.23634E-06	Z4SS	-->	Z3SS	NUE	ANUE	0.52879E-11	0.47938E-11
Z4SS	-->	Z2SS	GM		0.22517E-05	0.20413E-05	Z4SS	-->	Z3SS	NUM	ANUM	0.52879E-11	0.47938E-11
Z4SS	-->	Z3SS	GM		0.37798E-05	0.34266E-05	Z4SS	-->	Z3SS	NUT	ANUT	0.53729E-11	0.48710E-11
Z4SS	-->	W1SS+	W-		0.44950E+00	0.40751E+00	Z4SS	-->	Z1SS	HL0		0.25340E-02	0.22973E-02
Z4SS	-->	W1SS-	W+		0.44950E+00	0.40751E+00	Z4SS	-->	Z2SS	HL0		0.64633E-01	0.58595E-01
Z4SS	-->	W2SS-	UP	DB	0.42780E-07	0.38783E-07	W1SS+	-->	Z1SS	UP	DB	0.38954E-04	0.33334E+00
Z4SS	-->	W2SS-	NUE	E+	0.14260E-07	0.12928E-07	W1SS+	-->	Z1SS	CH	SB	0.38954E-04	0.33334E+00
Z4SS	-->	W2SS-	NUM	MU+	0.14260E-07	0.12928E-07	W1SS+	-->	Z1SS	E+	NUE	0.12984E-04	0.11111E+00
Z4SS	-->	W2SS+	DN	UB	0.42780E-07	0.38783E-07	W1SS+	-->	Z1SS	MU+	NUM	0.12984E-04	0.11111E+00

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