# INTRODUCTION

## Squark searches

$\tilde{t}_1 \rightarrow \mathbf{c}\tilde{\chi}_1^0$ **-** $\tilde{b}_1 \rightarrow \mathbf{b}\tilde{\chi}_1^0$

- **DATA Monte-Carlo Comparison at 192, 196, 200, 202 GeV**
- **Neural Network Results for** $\Delta M > 10$
- **Results combining the 2 squark analysis**

# Analysis

## DST analysis

- **SKELANA 2.0**
- **no REMCLU information**

## Preselection

- **at least 1 particle with** $P_t > 1.5$
- $E_t \geq 4$
- **at least 6 charged particles**

## Analysis

- **Neural networks to perform the final selection**
- **1st mass window :** $\Delta M \geq 30.$
- **2nd mass window :** $10. \leq \Delta M \leq 30.$

# DATA-MC Comparison

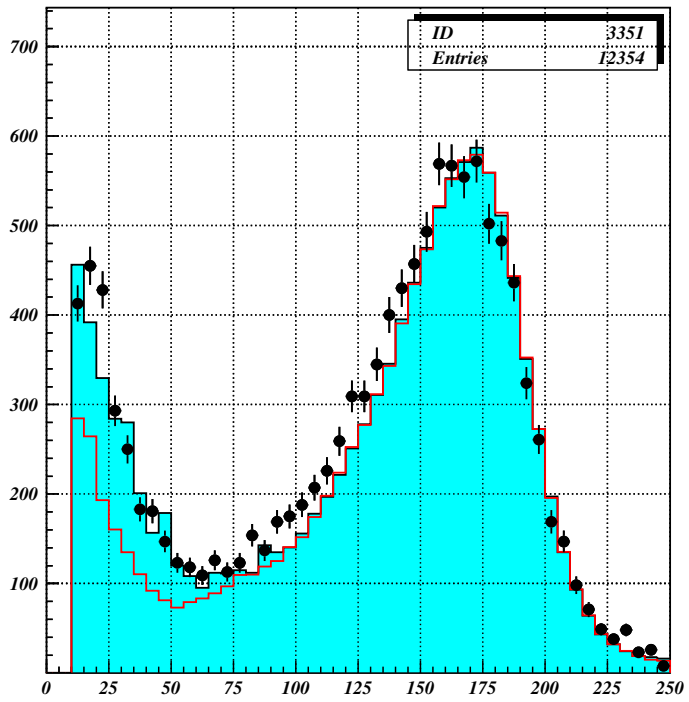
| | 192 GeV | | |
|---|---|---|---|
| | Ndata | Nmc(unbiased) | Nmc(biased) |
| Preselection | 10604 | 12312.±52. | 8207.±11. |
| $E_{vis} \geq 10$ | 9976 | 11792.±51. | 7766.±11. |
| $cos(\theta_{miss}) < 0.9$ | 2561 | 2703.±21. | 2107.± 7. |
| $Pt_{mis} \geq 4$ | 1395 | 1435.±10. | 1311.± 5. |

| | 196 GeV | | |
|---|---|---|---|
| | Ndata | Nmc(unbiased) | Nmc(biased) |
| Preselection | 31887 | 36381.±157. | 23495.±33. |
| $E_{vis} \geq 10$ | 30053 | 34825.±153. | 22216.±32. |
| $cos(\theta_{miss}) < 0.9$ | 7711 | 7762.± 63. | 5887.±17. |
| $Pt_{mis} \geq 4$ | 4307 | 3997.± 29. | 3610.±12. |

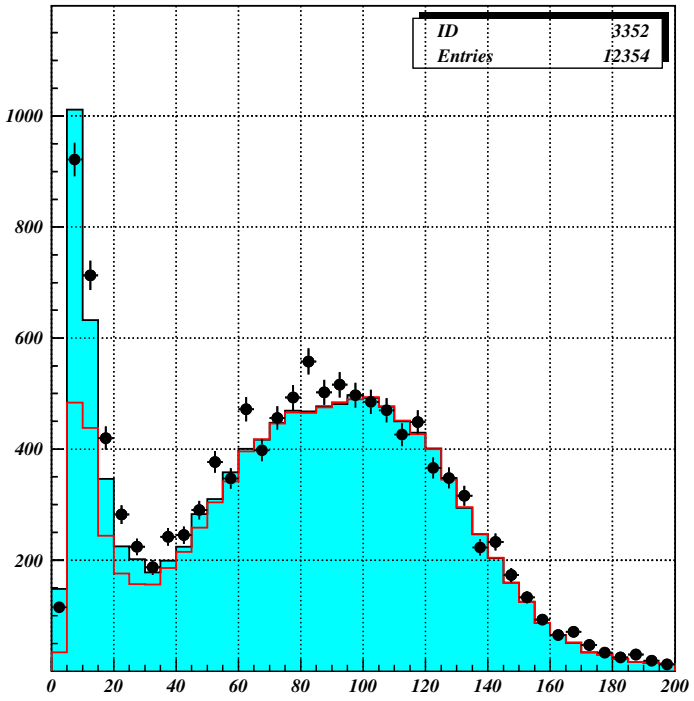
| | 200 GeV | | |
|---|---|---|---|
| | Ndata | Nmc(unbiased) | Nmc(biased) |
| Preselection | 34219 | 39819.±172. | 25746.±36. |
| $E_{vis} \geq 10$ | 32138 | 38099.±168. | 24307.±35. |
| $cos(\theta_{miss}) < 0.9$ | 8141 | 8431.± 69. | 6383.±17. |
| $Pt_{mis} \geq 4$ | 4481 | 4291.± 31. | 3868.±10. |

| | 202 GeV | | |
|---|---|---|---|
| | Ndata | Nmc(unbiased) | Nmc(biased) |
| Preselection | 16646 | 19313.± 84. | 12462.±17. |
| $E_{vis} \geq 10$ | 15643 | 18473.± 82. | 11759.±17. |
| $cos(\theta_{miss}) < 0.9$ | 4008 | 4071.± 33. | 3072.± 8. |
| $Pt_{mis} \geq 4$ | 2171 | 2054.± 15. | 1848.± 5. |

# DATA-MC Comparison

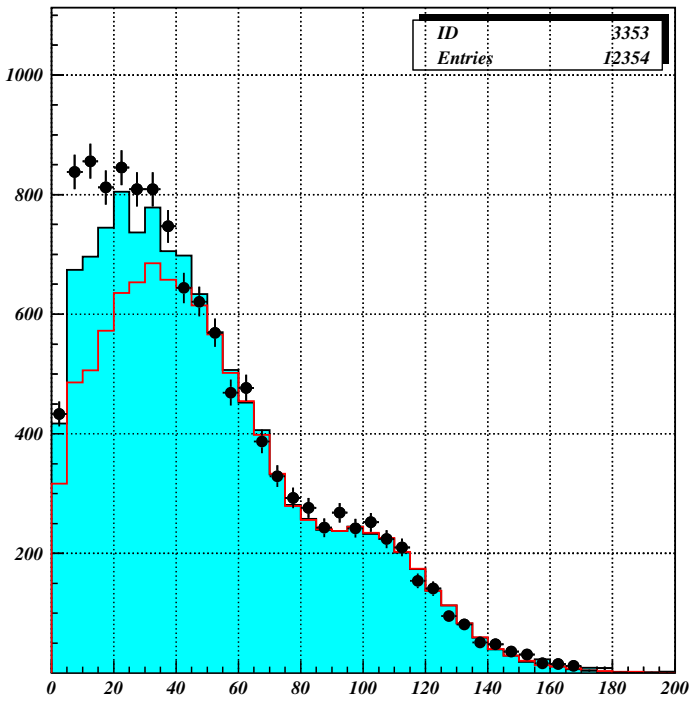



*Visible Energy*

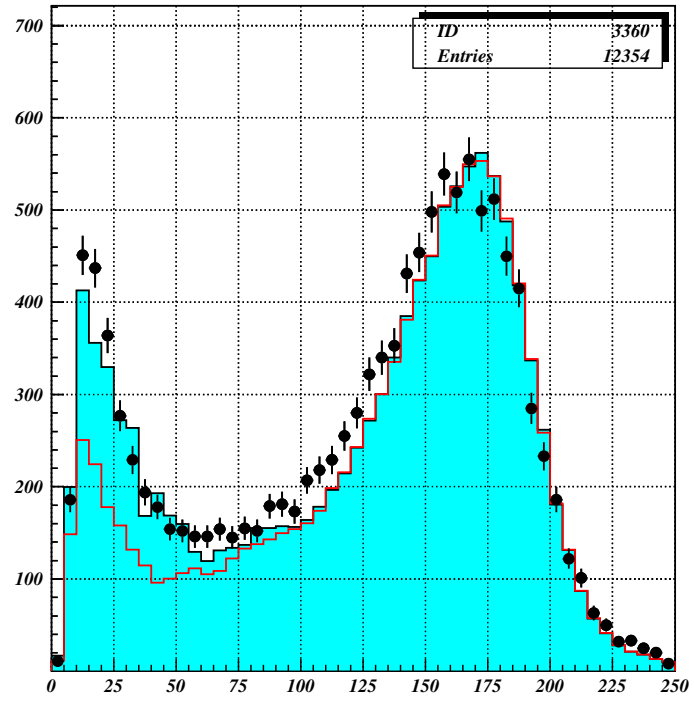



*Charged Energy*

# DATA-MC Comparison

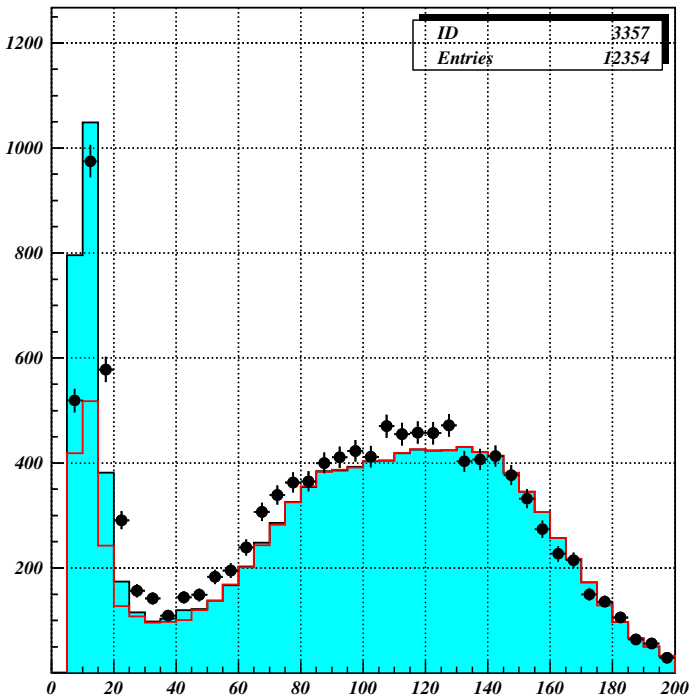


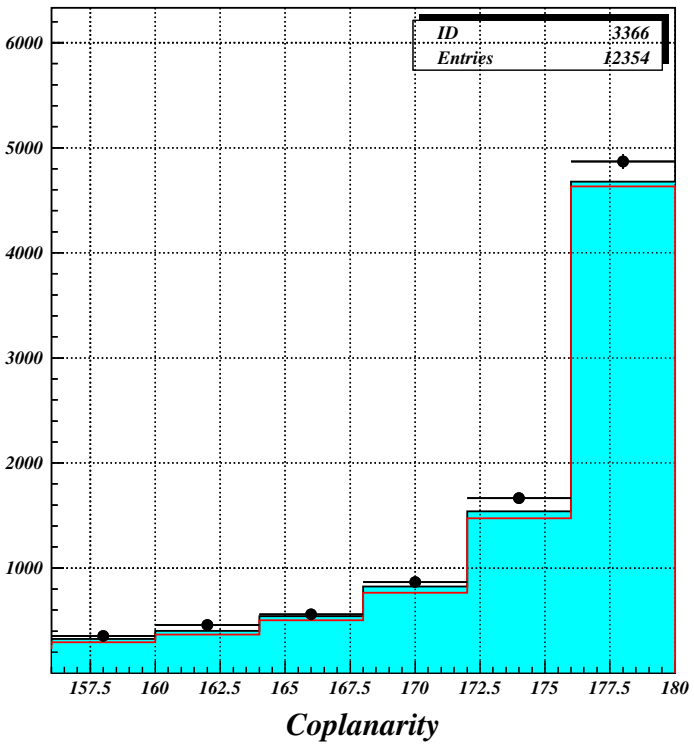

**Neutral Energy**



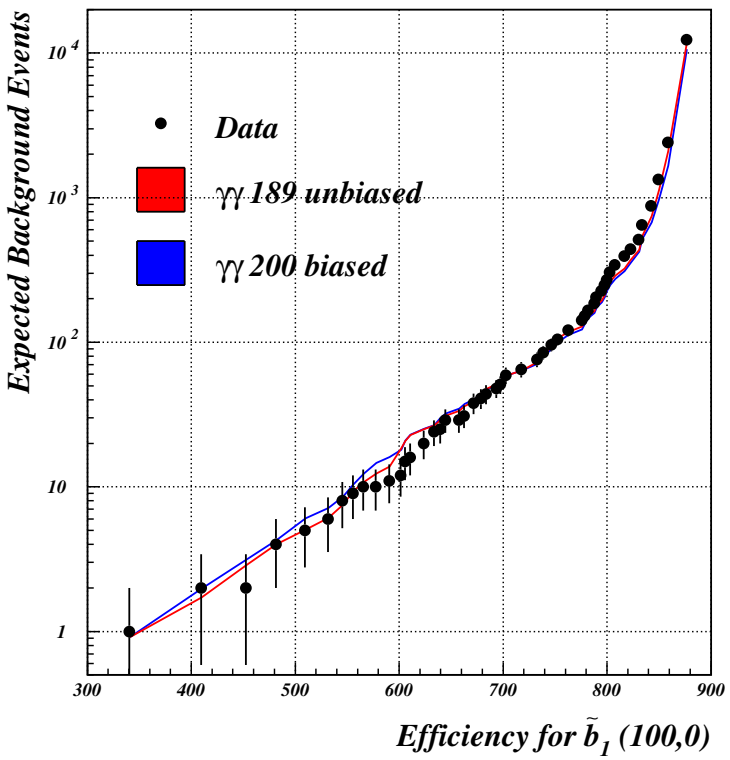

**Mvis**

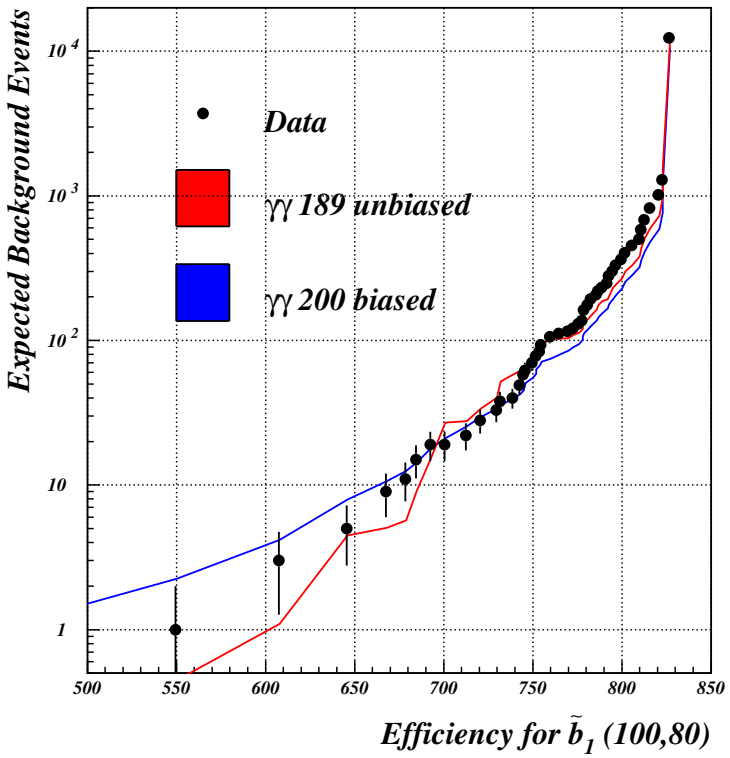
# DATA-MC Comparison



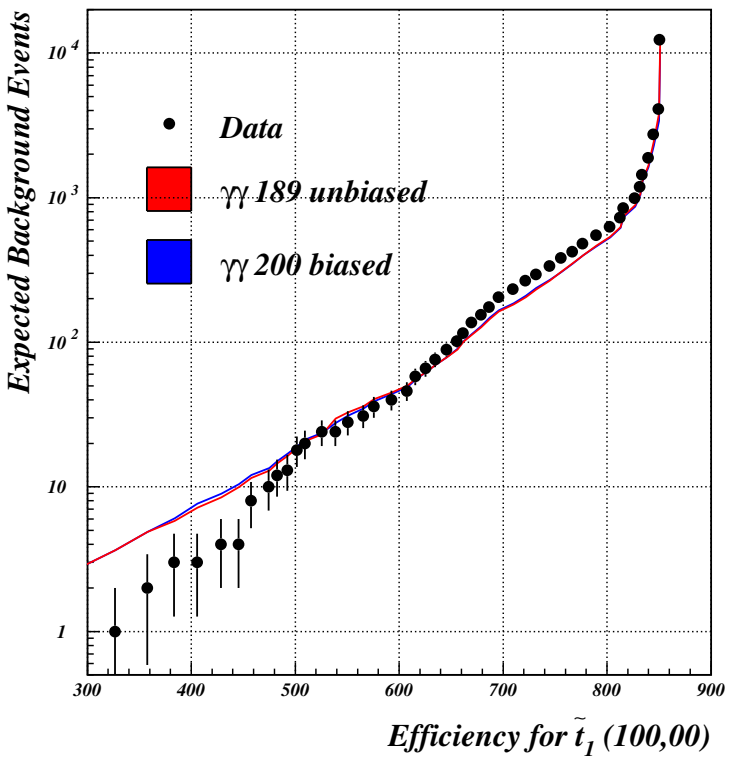



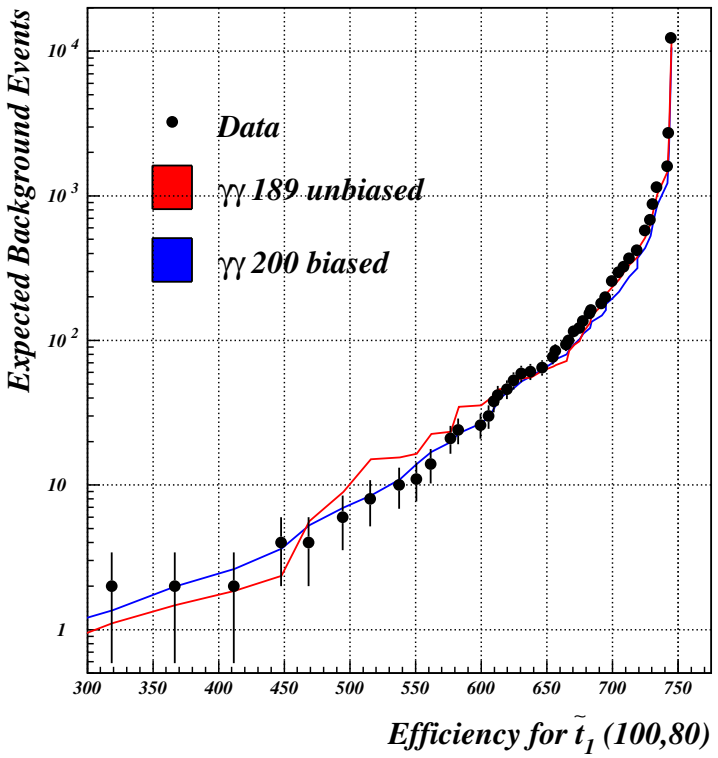
# Sbottom analysis



# Stop analysis



# Results

| | 192 GeV | | |
|---|---|---|---|
| | Ndata | Nmc(unbiased) | Nmc(biased) |
| Sbottom | 4 | .90± .18 | 1.16± .20 |
| Stop | 1 | 1.11± .14 | 1.23± .15 |

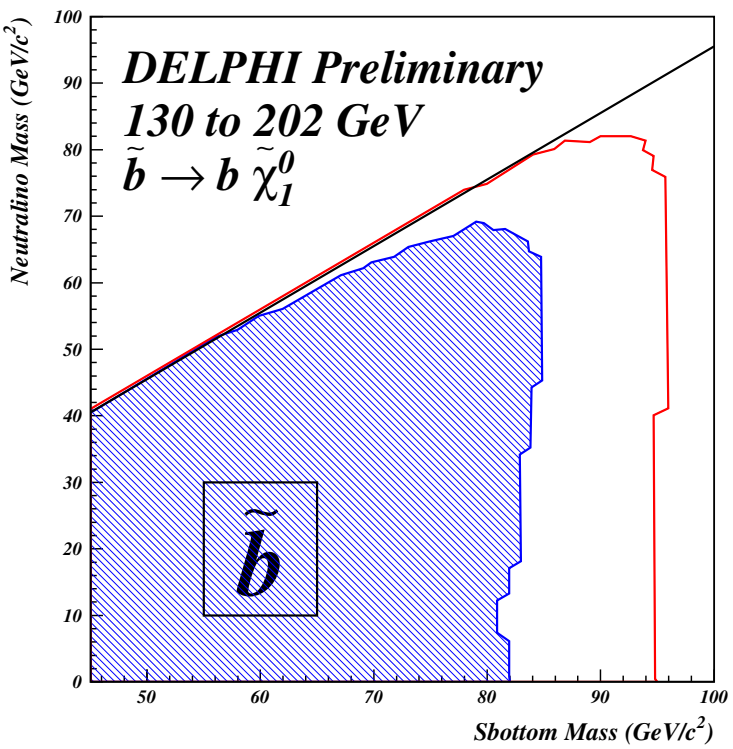
| | 196 GeV | | |
|---|---|---|---|
| | Ndata | Nmc(unbiased) | Nmc(biased) |
| Sbottom | 0 | 1.56± .25 | 2.33± .36 |
| Stop | 2 | 3.11± .28 | 3.45± .32 |

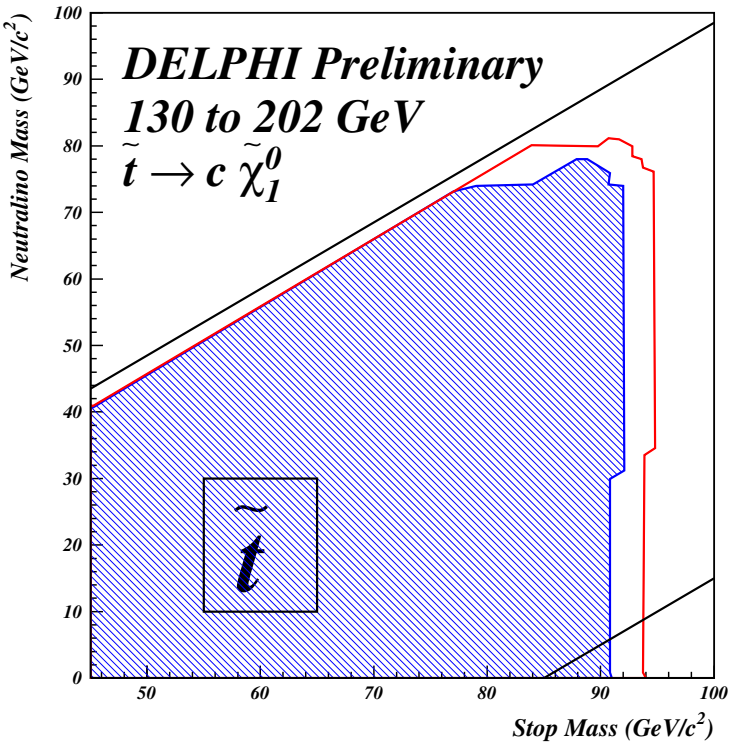
| | 196 GeV | | |
|---|---|---|---|
| | Ndata | Nmc(unbiased) | Nmc(biased) |
| Sbottom | 2 | 2.04± .23 | 2.90± .37 |
| Stop | 1 | 3.16± .22 | 3.54± .29 |

| | 196 GeV | | |
|---|---|---|---|
| | Ndata | Nmc(unbiased) | Nmc(biased) |
| Sbottom | 0 | .94± .12 | 1.36± .18 |
| Stop | 2 | 1.56± .15 | 1.75± .17 |

| Combining everything | |
|---|---|
| Squarks | 11 - 15.96 ± 0.74 |

# Results


DELPHI Preliminary
130 to 202 GeV
$\tilde{b} \rightarrow b\ \tilde{\chi}_1^0$
$\tilde{b}$
Neutralino Mass (GeV/c$^2$)
Sbottom Mass (GeV/c$^2$)
0
10
20
30
40
50
60
70
80
90
100
50
60
70
80
90
100


DELPHI Preliminary
130 to 202 GeV
$\tilde{t} \rightarrow c\ \tilde{\chi}_1^0$
$\tilde{t}$
Neutralino Mass (GeV/c$^2$)
Stop Mass (GeV/c$^2$)
0
10
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100
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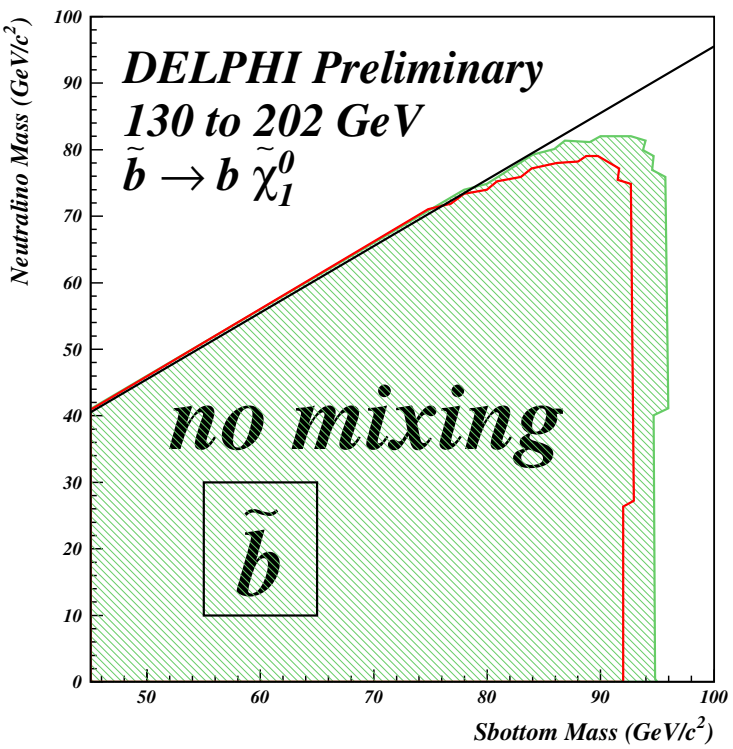
90
100

# Results


DELPHI Preliminary
130 to 202 GeV
$\tilde{b} \rightarrow b\,\tilde{\chi}_1^0$
no mixing
$\tilde{b}$
Neutralino Mass (GeV/c$^2$)
Sbottom Mass (GeV/c$^2$)
0
10
20
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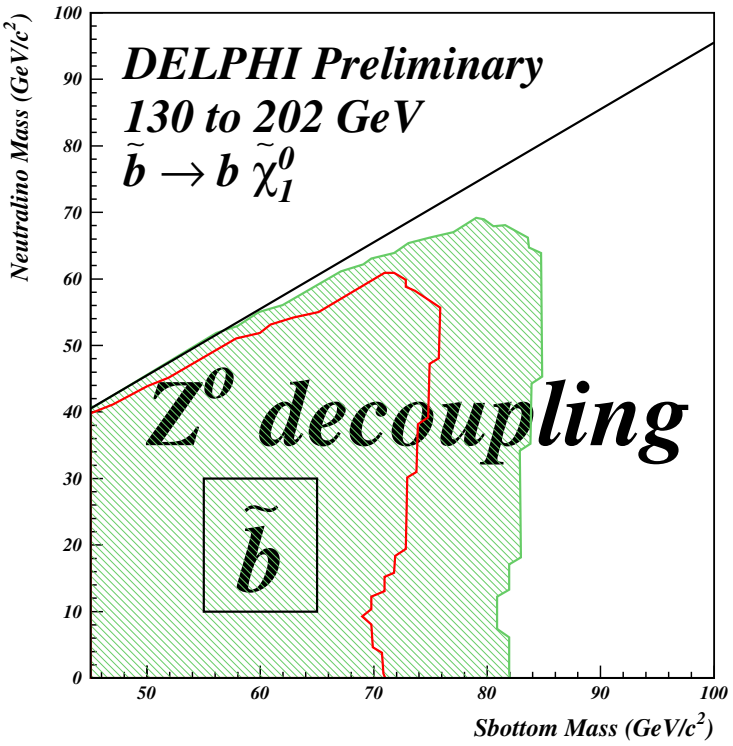
DELPHI Preliminary
130 to 202 GeV
$\tilde{b} \rightarrow b\,\tilde{\chi}_1^0$
$Z^o$ decoupling
$\tilde{b}$
Neutralino Mass (GeV/c$^2$)
Sbottom Mass (GeV/c$^2$)
0
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100
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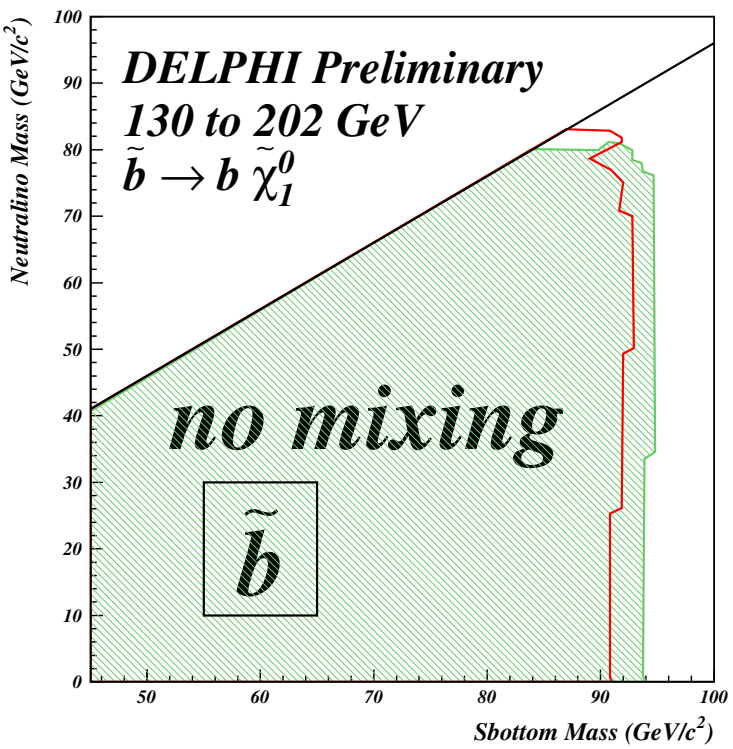
80
90
100

# Results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130 to 202 GeV
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no mixing
$\tilde{b}$
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Sbottom Mass (GeV/c$^2$)
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10
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30
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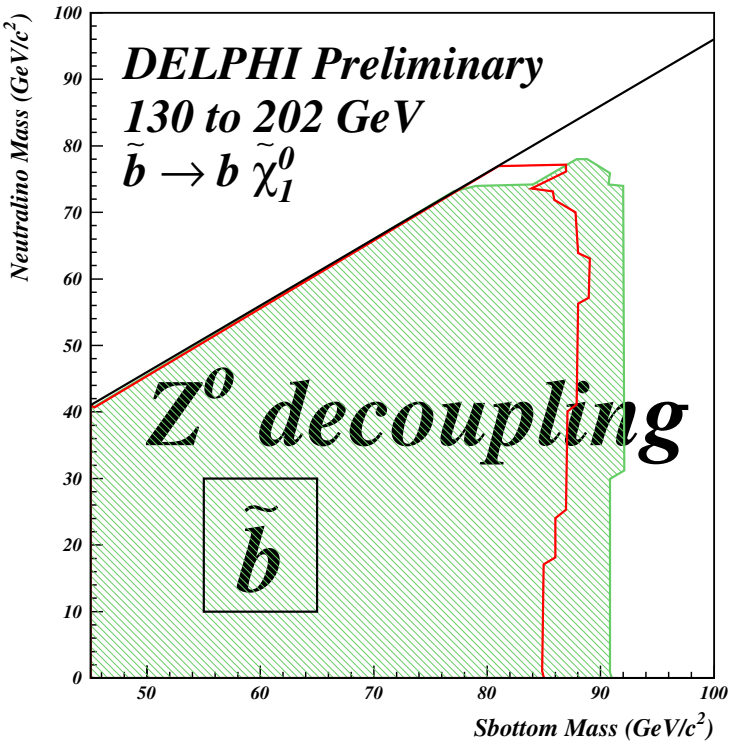
DELPHI Preliminary
130 to 202 GeV
$\tilde{b} \rightarrow b\,\tilde{\chi}_1^0$
$Z^o$ decoupling
$\tilde{b}$
Neutralino Mass (GeV/c$^2$)
Sbottom Mass (GeV/c$^2$)
0
10
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100
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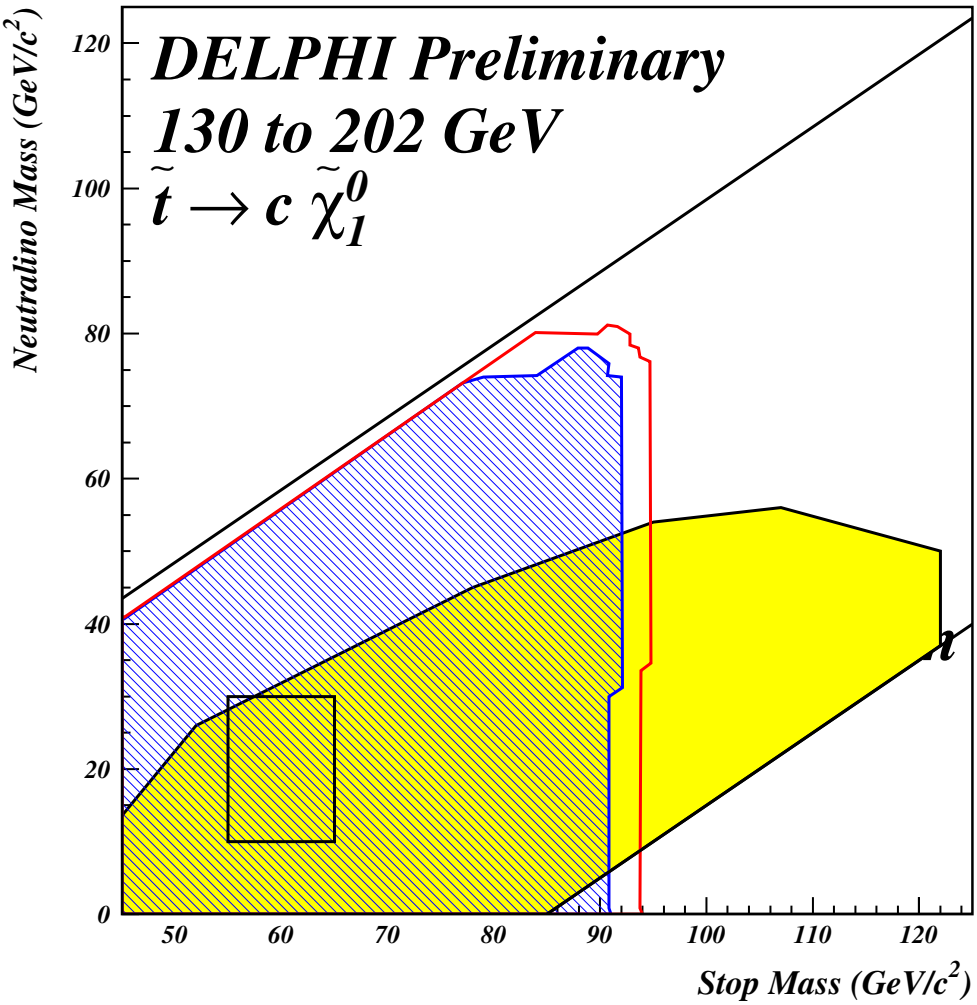
90
100

# Results


DELPHI Preliminary
130 to 202 GeV
$\tilde{t} \rightarrow c\,\tilde{\chi}_1^0$
Neutralino Mass (GeV/c$^2$)
Stop Mass (GeV/c$^2$)
0
20
40
60
80
100
120
50
60
70
80
90
100
110
120