Benchmark Mass Spectrum

\[ M(\text{gluino}) = 649.78 \text{ GeV} \]
\[ M(\text{squarkL}) = 650.52 \text{ GeV} \]
\[ M(\text{sbottom1}) = 520.46 \text{ GeV} \]
\[ M(\text{stop1}) = 338.55 \text{ GeV} \]
\[ M(\text{neutralino2}) = 338.21 \text{ GeV} \]
\[ M(\text{stau1}) = 315.08 \text{ GeV} \]
\[ M(\text{neutralino1}) = 286.21 \text{ GeV} \]

Total cross section = 24760 fb

luminosity = 400 fb\(^{-1}\)

\[ \alpha = 4.5 \]
\[ \tan \beta = 30. \]
\[ m_{3/2} = 14000. \text{ GeV} \]
\[ n_M = 0. \]
\[ n_H = 0.5 \]
NEW: 20 GeV / Bin

NEW: 40 GeV / Bin
NEW: 30 GeV / Bin
NEW: 20 GeV / Bin

NEW: 40 GeV / Bin

jW-end vs M(stop1)
jW-end vs M(neutralino1)

20 GeV / Bin

40 GeV / Bin
1 previous event

16D63: $m_{Sbottom1} = 490.58$ GeV

2 previous events

W: 1 GeV / Bin

3 previous event

4 previous events
1 previous event  

16D63: $m_{\text{Sbottom1}} = 490.58 \text{ GeV}$

2 previous events

$M_{jW, \text{same-event}}$

$M_{jW, \text{bi-event}}$

$M_{jW, \text{subtracted}}$

$\text{End} = 259 \pm 0.11 \text{ GeV}$

$M_{jW, \text{same-event}}$

$M_{jW, \text{bi-event}}$

$M_{jW, \text{subtracted}}$

$\text{End} = 271.5 \pm 0.56 \text{ GeV}$

3 previous event

$b+W$: 40 GeV / Bin

$M_{jW, \text{same-event}}$

$M_{jW, \text{bi-event}}$

$M_{jW, \text{subtracted}}$

$\text{End} = 271.7 \pm 0.56 \text{ GeV}$

4 previous events

$M_{jW, \text{same-event}}$

$M_{jW, \text{bi-event}}$

$M_{jW, \text{subtracted}}$

$\text{End} = 269.1 \pm 0.47 \text{ GeV}$
1 previous event  

16D63: $m_{\text{Sbottom1}} = 490.58$ GeV

2 previous events

3 previous event  

$b+W$: 30 GeV / Bin

4 previous events

$End = 266.6 \pm 0.52$ GeV

$End = 272.4 \pm 0.8$ GeV

$End = 272.8 \pm 0.82$ GeV

$End = 268 \pm 0.65$ GeV
1 previous event

16D63: $m_{\text{Sbottom1}} = 490.58 \text{ GeV}$

2 previous events

3 previous event

$b+W: 20 \text{ GeV / Bin}$

4 previous events

End = $269.9 \pm 0.97 \text{ GeV}$

End = $270.5 \pm 1.2 \text{ GeV}$

End = $267.2 \pm 0.99 \text{ GeV}$

End = $263.8 \pm 0.86 \text{ GeV}$
16D63: $m_{\text{Sbottom1}} = 490.58$ GeV
16D40: $m_{\text{Sbottom1}} = 504.79$ GeV

End = $265.9 \pm 0.32$ GeV

End = $261 \pm 0.35$ GeV

4 previous events

End = $256.3 \pm 0.43$ GeV
benchmark: \( m_{\text{Sbottom1}} = 520.46 \text{ GeV} \)

End = \( 271.7 \pm 0.43 \text{ GeV} \)

End = \( 269.8 \pm 0.54 \text{ GeV} \)

End = \( 275.2 \pm 0.43 \text{ GeV} \)
16A60: $m_{\text{Sbottom1}} = 530.11$ GeV

End = $267.2 \pm 0.33$ GeV

End = $260.2 \pm 0.28$ GeV

3 previous events
1 previous event

17D24: \( m_{\text{Stop1}} = 314.99 \text{ GeV} \)

2 previous events

3 previous event: \( \text{Lum}= 500 \text{ fb}^{-1} \)  \( W: 1 \text{ GeV / Bin} \)
1 previous event: $17D24: \ m_{\text{Stop}1} = 314.99 \ \text{GeV}$

2 previous events

3 previous event: $\text{Lum} = 500 \ \text{fb}^{-1}$  $b+W: 40 \ \text{GeV} / \text{Bin}$

End $= 222 \pm 0.11 \ \text{GeV}$

End $= 221.4 \pm 0.088 \ \text{GeV}$

End $= 222.7 \pm 0.11 \ \text{GeV}$
1 previous event  17D24: mStop1 = 314.99 GeV  2 previous events

3 previous event: Lum= 500 fb$^{-1}$  b+W: 30 GeV / Bin
1 previous event | 17D24: \( m_{\text{Stop1}} = 314.99 \text{ GeV} \) | 2 previous events

3 previous event: \( \text{Lum}= 500 \text{ fb}^{-1} \) | \( b+W: 20 \text{ GeV} / \text{Bin} \)

End = 211.4 ± 0.11 GeV

End = 213.5 ± 0.2 GeV

End = 229.8 ± 0.19 GeV
1 previous event  

17D24: $m_{\text{Stop1}} = 314.99$ GeV  

2 previous events

3 previous event: $\text{Lum}= 500$ fb$^{-1}$  

$b+W$: 10 GeV / Bin

**Diagram:**

- $M_{jW}$, same-event
- $M_{jW}$, bi-event
- $M_{jW}$, subtracted
1 previous event

17A26: $m_{\text{Stop}1} = 362.41$ GeV

2 previous events

3 previous event: $\text{Lum}= 500$ fb$^{-1}$  $W$: 1 GeV / Bin
1 previous event

17A26: mStop1 = 362.41 GeV

2 previous events

3 previous event: Lum= 500 fb⁻¹  b+W: 40 GeV / Bin

End = 268.6 ± 0.49 GeV

End = 301.1 ± 0.51 GeV

End = 302 ± 0.53 GeV
1 previous event 17A26: $m_{\text{Stop1}} = 362.41$ GeV 2 previous events

3 previous event: $\text{Lum} = 500 \text{ fb}^{-1}$  b+W: 30 GeV / Bin

End = 266.3 ± 0.7 GeV

End = 266.8 ± 0.82 GeV
1 previous event

17A26: $m_{\text{Stop1}} = 362.41$ GeV

2 previous events

3 previous event: Lum= 500 fb$^{-1}$  

b+W: 20 GeV / Bin
1 previous event  

17A26: $m_{\text{Stop1}} = 362.41$ GeV  

2 previous events

3 previous event: $\text{Lum}= 500$ fb$^{-1}$  

$b+W$: 10 GeV / Bin