# $B_1(5721)^+$

$I(J^P) = \frac{1}{2}(1^+)$  Status: ✶✶
$I$, $J$, $P$ need confirmation.

Quantum numbers shown are quark-model predictions.

## $B_1(5721)^+$ MASS

OUR FIT uses $m_{B^{*0}}$ and $m_{B_1^+} - m_{B^{*0}}$ to determine $m_{B_1(5721)^+}$.

| VALUE (MeV) | DOCUMENT ID |
|---|---|
| $5725.9^{+2.5}_{-2.7}$ OUR FIT | |

## $m_{B_1^+} - m_{B^{*0}}$

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|---|---|---|---|
| $401.2^{+2.4}_{-2.7}$ OUR FIT | | | | |
| $401.2^{+2.4}_{-2.7}$ OUR AVERAGE | | | | |
| $400.5 \pm 1.8 \pm 3.1$ | 8K | [1] AAIJ | 15AB LHCB | $pp$ at 7, 8 TeV |
| $402 \pm 3 \; {}^{+1}_{-3}$ | | [2] AALTONEN | 14I CDF | $p\overline{p}$ at 1.96 TeV |

[1] AAIJ 15AB reports $[m_{B_1^+} - m_{B^0}] - (m_{B^{*0}} - m_{B^0}) - m_{\pi^+} = 260.9 \pm 1.8 \pm 3.1$ MeV which we adjust by the $\pi^+$ mass and assume $(m_{B^{*0}} - m_{B^0}) = (m_{B^{*+}} - m_{B^+}) = 45.01 \pm 0.30 \pm 0.23$ MeV. The masses inside the square brackets were measured for each candidate event.

[2] AALTONEN 14I reports $m_{B_1(5721)^+} - m_{B^{*0}} - m_{\pi^+} = 262 \pm 3^{+1}_{-3}$ MeV which we adjusted by the $\pi^+$ mass.

## $B_1(5721)^+$ WIDTH

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|---|---|---|---|
| $31 \pm 6$ OUR AVERAGE | Error includes scale factor of 1.1. | | | |
| $29.1 \pm 3.6 \pm 4.3$ | 8K | AAIJ | 15AB LHCB | $pp$ at 7, 8 TeV |
| $49 \; {}^{+12}_{-10} \; {}^{+2}_{-13}$ | | AALTONEN | 14I CDF | $p\overline{p}$ at 1.96 TeV |

## $B_1(5721)^+$ DECAY MODES

| | Mode | Fraction $(\Gamma_i/\Gamma)$ |
|---|---|---|
| $\Gamma_1$ | $B^{*0}\pi^+$ | seen |

# $B_1(5721)^+$ BRANCHING RATIOS

## $\Gamma(B^{*0}\pi^+)/\Gamma_{total}$ $\qquad\qquad$ $\Gamma_1/\Gamma$

| VALUE | EVTS | DOCUMENT ID | TECN | COMMENT |
|-------|------|-------------|------|---------|
| seen | 8K | AAIJ | 15AB LHCB | $pp$ at 7, 8 TeV |
| **seen** | | AALTONEN | 14I CDF | $p\overline{p}$ at 1.96 TeV |

# $B_1(5721)^+$ REFERENCES

| | | | | |
|---|---|---|---|---|
| AAIJ | 15AB | JHEP 1504 024 | R. Aaij *et al.* | (LHCb Collab.) |
| AALTONEN | 14I | PR D90 012013 | T. Aaltonen *et al.* | (CDF Collab.) |