NODE=M184

# $B_2^*(5747)^0$

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

Quantum numbers shown are quark-model predictions.

NODE=M184

## $B_2^*(5747)^0$ MASS

NODE=M184M

OUR FIT uses $m_{B^+}$, $m_{B_1^0} - m_{B^+}$, and $m_{B_2^{*0}} - m_{B_1^0}$ to determine $m_{B_2^*(5747)^0}$. The $-0.659$ correlation between statistical uncertainties of $m_{B_1^0} - m_{B^+}$ and $m_{B_2^{*0}} - m_{B_1^0}$ measurements reported by ABAZOV 07T is taken into account.

NODE=M184M

| *VALUE* (MeV) | *DOCUMENT ID* |
|---|---|
| **5739.5±0.7 OUR FIT** Error includes scale factor of 1.4. | |

NODE=M184M

### $m_{B_2^{*0}} - m_{B_1^0}$

NODE=M184DM

| *VALUE* (MeV) | *DOCUMENT ID* | *TECN* | *COMMENT* |
|---|---|---|---|
| **13.4±1.4 OUR FIT** Error includes scale factor of 1.3. | | | |
| **26.2±3.1±0.9** | [1] ABAZOV 07T | D0 | $p\overline{p}$ at 1.96 TeV |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | |
| $14.9^{+2.2}_{-2.5}{}^{+1.2}_{-1.4}$ | [1] AALTONEN 09D | CDF | Repl. by AALTONEN 14I |

[1] Observed in $B_2^{*0} \to B^{*+}\pi^-$ and $B_2^{*0} \to B^+\pi^-$.

NODE=M184DM

NODE=M184DM;LINKAGE=AB

### $m_{B_2^{*0}} - m_{B^+}$

NODE=M184DM2

| *VALUE* (MeV) | *EVTS* | *DOCUMENT ID* | *TECN* | *COMMENT* |
|---|---|---|---|---|
| **460.2 ±0.6 OUR FIT** Error includes scale factor of 1.4. | | | | |
| **459.9 ±0.8 OUR AVERAGE** Error includes scale factor of 1.8. | | | | |
| 460.18±0.37±0.33 | 17K | [1] AAIJ 15AB | LHCB | $pp$ at 7, 8 TeV |
| 457.5 ±1.2 $^{+0.8}_{-0.9}$ | | [2] AALTONEN 14I | CDF | $p\overline{p}$ at 1.96 TeV |

NODE=M184DM2

[1] AAIJ 15AB reports $[m_{B_2^{*0}} - m_{B^+}] - m_{\pi^-} = 320.6 \pm 0.4 \pm 0.3$ MeV which we adjust by the $\pi^-$ mass. The masses inside the square brackets were measured for each candidate event.

NODE=M184DM2;LINKAGE=A

[2] AALTONEN 14I reports $m_{B_2^*(5747)^0} - m_{B^+} - m_{\pi^-} = 317.9 \pm 1.2^{+0.8}_{-0.9}$ MeV which we adjusted by the $\pi^-$ mass.

NODE=M184DM2;LINKAGE=AA

## $B_2^*(5747)^0$ WIDTH

NODE=M184W

| *VALUE* (MeV) | *EVTS* | *DOCUMENT ID* | *TECN* | *COMMENT* |
|---|---|---|---|---|
| **24.2±1.7 OUR AVERAGE** | | | | |
| 24.5±1.0± 1.5 | 17K | AAIJ 15AB | LHCB | $pp$ at 7, 8 TeV |
| 22 $^{+3}_{-2}$ $^{+4}_{-5}$ | | AALTONEN 14I | CDF | $p\overline{p}$ at 1.96 TeV |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| $22.7^{+3.8}_{-3.2}{}^{+3.2}_{-10.2}$ | | AALTONEN 09D | CDF | Repl. by AALTONEN 14I |

NODE=M184W

## $B_2^*(5747)^0$ DECAY MODES

NODE=M184215;NODE=M184

| | Mode | Fraction ($\Gamma_i/\Gamma$) | |
|---|---|---|---|
| $\Gamma_1$ | $B^+\pi^-$ | seen | DESIG=1 |
| $\Gamma_2$ | $B^{*+}\pi^-$ | seen | DESIG=2 |

## $B_2^*(5747)^0$ BRANCHING RATIOS

NODE=M184220

### $\Gamma(B^+\pi^-)/\Gamma_{\text{total}}$ $\Gamma_1/\Gamma$

NODE=M184R01

| *VALUE* | *EVTS* | *DOCUMENT ID* | *TECN* | *COMMENT* |
|---|---|---|---|---|
| seen | 17K | AAIJ 15AB | LHCB | $pp$ at 7, 8 TeV |
| seen | | AALTONEN 09D | CDF | $p\overline{p}$ at 1.96 TeV |
| **seen** | | ABAZOV 07T | D0 | $p\overline{p}$ at 1.96 TeV |

NODE=M184R01

### $\Gamma(B^{*+}\pi^-)/\Gamma_{total}$ $\Gamma_2/\Gamma$

NODE=M184R02
NODE=M184R02

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| seen | 17K | AAIJ | 15AB | LHCB | $pp$ at 7, 8 TeV |
| seen | | AALTONEN | 09D | CDF | $p\overline{p}$ at 1.96 TeV |
| **seen** | | ABAZOV | 07T | D0 | $p\overline{p}$ at 1.96 TeV |

### $\Gamma(B^{*+}\pi^-)/\Gamma(B^+\pi^-)$ $\Gamma_2/\Gamma_1$

NODE=M184R03
NODE=M184R03

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **0.82±0.28 OUR AVERAGE** | | | | | |
| 0.71±0.14±0.30 | 17K | AAIJ | 15AB | LHCB | $pp$ at 7, 8 TeV |
| 1.10±0.42±0.31 | | [1] ABAZOV | 07T | D0 | $p\overline{p}$ at 1.96 TeV |

[1] Converted from measured ratio of R = $B(B_2^{*0} \to B^{*+}\pi^-)$ / $B(B_2^{*0} \to B^{(*)+}\pi^-)$ = 0.475 ± 0.095 ± 0.069.

NODE=M184R03;LINKAGE=AB

## $B_2^*(5747)^0$ REFERENCES

NODE=M184


| | | | | |
|---|---|---|---|---|
| AAIJ | 15AB | JHEP 1504 024 | R. Aaij *et al.* | (LHCb Collab.) |
| AALTONEN | 14I | PR D90 012013 | T. Aaltonen *et al.* | (CDF Collab.) |
| AALTONEN | 09D | PRL 102 102003 | T. Aaltonen *et al.* | (CDF Collab.) |
| ABAZOV | 07T | PRL 99 172001 | V.M. Abazov *et al.* | (D0 Collab.) |


REFID=56628
REFID=56029
REFID=52700
REFID=52014