# $B_J^*(5732)$ or $B^{**}$

$I(J^P) = ?(?^?)$
$I$, $J$, $P$ need confirmation.

OMITTED FROM SUMMARY TABLE

Signal can be interpreted as stemming from several narrow and broad resonances. Needs confirmation.

## $B_J^*(5732)$ MASS

| *VALUE* (MeV) | *EVTS* | *DOCUMENT ID* | | *TECN* | *COMMENT* |
|---|---|---|---|---|---|
| **5698± 8 OUR AVERAGE** Error includes scale factor of 1.2. | | | | | |
| 5710±20 | | [1] AFFOLDER | 01F | CDF | $p\overline{p}$ at 1.8 TeV |
| $5695^{+17}_{-19}$ | | [2] BARATE | 98L | ALEP | $e^+e^- \to Z$ |
| 5704± 4±10 | 1944 | [3] BUSKULIC | 96D | ALEP | $E_{cm}^{ee}$= 88–94 GeV |
| 5732± 5±20 | 2157 | ABREU | 95B | DLPH | $E_{cm}^{ee}$= 88–94 GeV |
| 5681±11 | 1738 | AKERS | 95E | OPAL | $E_{cm}^{ee}$= 88–94 GeV |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 5713± 2 | | [4] ACCIARRI | 99N | L3 | $e^+e^- \to Z$ |

[1] AFFOLDER 01F uses the reconstructed $B$ meson through semileptonic decay channels. The fraction of light $B$ mesons that are produced at $L$=1 $B^{**}$ states is measured to be 0.28 ± 0.06 ± 0.03.

[2] BARATE 98L uses fully reconstructed $B$ mesons to search for $B^{**}$ production in the $B\pi^{\pm}$ system. In the framework of heavy quark symmetry (HQS), they also measured the mass of $B_2^*$ to be $5739^{+\ 8+6}_{-11\ -4}$ MeV/$c^2$ and the relative production rate of B($b \to B_2^* \to B^{(*)}\pi$)/B($b \to B_{u,d}$) = $(31 \pm 9^{+6}_{-5})$%.

[3] Using $m_{B\pi} - m_B$ = 424 ± 4 ± 10 MeV.

[4] ACCIARRI 99N uses inclusive reconstructed $B$ mesons to search for $B^{**}$ production in the $B^{(*)}\pi^{\pm}$ system. In the framework of HQET, they measured the mass of $B_1^*$ and $B_2^*$ to be 5670 ± 10 ± 13 MeV and 5768 ± 5 ± 6 with the B($b \to B^{**}$)= $(32 \pm 3 \pm 6) \times 10^{-2}$. They also reported the evidence for the existence of an excited $B$-meson state or mixture of states in the region 5.9–6.0 GeV.

## $B_J^*(5732)$ WIDTH

| *VALUE* (MeV) | *EVTS* | *DOCUMENT ID* | | *TECN* | *COMMENT* |
|---|---|---|---|---|---|
| **128±18 OUR AVERAGE** | | | | | |
| 145±28 | 2157 | ABREU | 95B | DLPH | $E_{cm}^{ee}$= 88–94 GeV |
| 116±24 | 1738 | AKERS | 95E | OPAL | $E_{cm}^{ee}$= 88–94 GeV |

## $B_J^*(5732)$ DECAY MODES

| | Mode | Fraction ($\Gamma_i/\Gamma$) |
|---|---|---|
| $\Gamma_1$ | $B^*\pi$ + $B\pi$ | dominant |

## $B_J^*(5732)$ REFERENCES


| | | | | |
|---|---|---|---|---|
| AFFOLDER | 01F | PR D64 072002 | T. Affolder *et al.* | (CDF Collab.) |
| ACCIARRI | 99N | PL B465 323 | M. Acciarri *et al.* | (L3 Collab.) |
| BARATE | 98L | PL B425 215 | R. Barate *et al.* | (ALEPH Collab.) |
| BUSKULIC | 96D | ZPHY C69 393 | D. Buskulic *et al.* | (ALEPH Collab.) |
| ABREU | 95B | PL B345 598 | P. Abreu *et al.* | (DELPHI Collab.) |
| AKERS | 95E | ZPHY C66 19 | R. Akers *et al.* | (OPAL Collab.) |