

$B_J^*(5732)$
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 | $p\bar{p}$ at 1.8 TeV |
| 5695 ⁺¹⁷ ₋₁₉ | | ² BARATE | 98L ALEP | $e^+e^- \rightarrow Z$ |
| 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 | $e^+e^- \rightarrow Z$ |

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 $0.28 \pm 0.06 \pm 0.03$.

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 $B(b \rightarrow B_2^* \rightarrow B^{(*)}\pi)/B(b \rightarrow B_{u,d}) = (31 \pm 9^{+6}_{-5})\%$.

³ Using $m_{B\pi} - m_B = 424 \pm 4 \pm 10$ 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 $5670 \pm 10 \pm 13$ MeV and $5768 \pm 5 \pm 6$ with the $B(b \rightarrow B^{**}) = (32 \pm 3 \pm 6) \times 10^{-2}$. 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 (Γ_i/Γ) |
|----------------------------|--------------------------------|
| Γ_1 $B^*\pi + B\pi$ | dominant |
| Γ_2 $B^*\pi(X)$ | [a] $(85 \pm 29)\%$ |

[a] X refers to decay modes with or without additional accompanying decay particles.

$B^*_j(5732)$ BRANCHING RATIOS

X refers to decay modes with or without additional accompanying decay particles.

| $\Gamma(B^* \pi(X))/\Gamma_{\text{total}}$ | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> | Γ_2/Γ |
|--|--------------------|-------------|----------------|-------------------------|
| <u>VALUE</u> | | | | |
| $0.85^{+0.26}_{-0.27} \pm 0.12$ | ABBIENDI | 02E | OPAL | $e^+ e^- \rightarrow Z$ |

$B^*_j(5732)$ REFERENCES

| | | | | |
|----------|-----|---------------|---------------------------|------------------|
| ABBIENDI | 02E | EPJ C23 437 | G. Abbiendi <i>et al.</i> | (OPAL Collab.) |
| AFFOLDER | 01F | PR D64 072002 | T. Affolder <i>et al.</i> | (CDF Collab.) |
| ACCIARRI | 99N | PL B465 323 | M. Acciarri <i>et al.</i> | (L3 Collab.) |
| BARATE | 98L | PL B425 215 | R. Barate <i>et al.</i> | (ALEPH Collab.) |
| BUSKULIC | 96D | ZPHY C69 393 | D. Buskulic <i>et al.</i> | (ALEPH Collab.) |
| ABREU | 95B | PL B345 598 | P. Abreu <i>et al.</i> | (DELPHI Collab.) |
| AKERS | 95E | ZPHY C66 19 | R. Akers <i>et al.</i> | (OPAL Collab.) |