

**$B_J^*(5732)$**   
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
<b>5698 ± 8 OUR AVERAGE</b>	Error includes scale factor of 1.2.			
5710 ± 20		<sup>1</sup> AFFOLDER	01F CDF	$p\bar{p}$ at 1.8 TeV
5695 <sup>+17</sup> <sub>-19</sub>		<sup>2</sup> BARATE	98L ALEP	$e^+e^- \rightarrow Z$
5704 ± 4 ± 10	1944	<sup>3</sup> 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		<sup>4</sup> ACCIARRI	99N L3	$e^+e^- \rightarrow Z$
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<sup>1</sup> 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  $0.28 \pm 0.06 \pm 0.03$ .

<sup>2</sup> 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  $B(b \rightarrow B_2^* \rightarrow B^{(*)}\pi)/B(b \rightarrow B_{u,d}) = (31 \pm 9^{+6}_{-5})\%$ .

<sup>3</sup> Using  $m_{B\pi} - m_B = 424 \pm 4 \pm 10$  MeV.

<sup>4</sup> 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
<b>128 ± 18 OUR AVERAGE</b>				
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
$\Gamma_2$ $B^*\pi(X)$	[a] (85 ± 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.

$\Gamma(B^* \pi(X))/\Gamma_{\text{total}}$				$\Gamma_2/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT	
$0.85^{+0.26}_{-0.27} \pm 0.12$	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. Acciari <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.)