



$$I(J^P) = \frac{1}{2}(1^-)$$

I, J, P need confirmation. Quantum numbers shown are quark-model predictions.

B^* MASS

From mass difference below and the average of our B masses $(m_{B^\pm} + m_{B^0})/2$.

VALUE (MeV)	DOCUMENT ID
5325.2 ± 0.4 OUR FIT	

$m_{B^*} - m_B$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
45.78 ± 0.35 OUR FIT				
45.78 ± 0.35 OUR AVERAGE				
46.2 ± 0.3 ± 0.8		¹ ACKERSTAFF 97M	OPAL	$e^+e^- \rightarrow Z$
45.3 ± 0.35 ± 0.87	4227	¹ BUSKULIC 96D	ALEP	$E_{\text{cm}}^{ee} = 88\text{--}94$ GeV
45.5 ± 0.3 ± 0.8		¹ ABREU 95R	DLPH	$E_{\text{cm}}^{ee} = 88\text{--}94$ GeV
46.3 ± 1.9	1378	¹ ACCIARRI 95B	L3	$E_{\text{cm}}^{ee} = 88\text{--}94$ GeV
46.4 ± 0.3 ± 0.8		² AKERIB 91	CLE2	$e^+e^- \rightarrow \gamma X$
45.6 ± 0.8		² WU 91	CSB2	$e^+e^- \rightarrow \gamma X, \gamma \ell X$
45.4 ± 1.0		³ LEE-FRANZINI 90	CSB2	$e^+e^- \rightarrow \Upsilon(5S)$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
52 ± 2 ± 4	1400	⁴ HAN 85	CUSB	$e^+e^- \rightarrow \gamma e X$

¹ u, d, s flavor averaged.

² These papers report E_γ in the B^* center of mass. The $m_{B^*} - m_B$ is 0.2 MeV higher.

$E_{\text{cm}} = 10.61\text{--}10.7$ GeV. Admixture of B^0 and B^+ mesons, but not B_s .

³ LEE-FRANZINI 90 value is for an admixture of B^0 and B^+ . They measure $46.7 \pm 0.4 \pm 0.2$ MeV for an admixture of $B^0, B^+,$ and B_s , and use the shape of the photon line to separate the above value.

⁴ HAN 85 is for $E_{\text{cm}} = 10.6\text{--}11.2$ GeV, giving an admixture of $B^0, B^+,$ and B_s .

$m_{B^{*+}} - m_{B^+}$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
45.01 ± 0.30 ± 0.23	⁵ AAIJ 130	LHCB	pp at 7 TeV
⁵ Obtained the mass difference between $B^{*+} K^-$ and $B^+ K^-$ from $B_{s2}^{*0}(5840)^0$ decay.			

$$|(m_{B^{*+}} - m_{B^+}) - (m_{B^{*0}} - m_{B^0})|$$

VALUE (MeV)	CL%	DOCUMENT ID	TECN	COMMENT
< 6	95	ABREU 95R	DLPH	$E_{\text{cm}}^{ee} = 88\text{--}94$ GeV

B^* DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $B\gamma$	dominant

B^* REFERENCES

AAIJ 130 PRL 110 151803	R. Aaij <i>et al.</i>	(LHCb Collab.)
ACKERSTAFF 97M ZPHY C74 413	K. Ackerstaff <i>et al.</i>	(OPAL Collab.)
BUSKULIC 96D ZPHY C69 393	D. Buskulic <i>et al.</i>	(ALEPH Collab.)
ABREU 95R ZPHY C68 353	P. Abreu <i>et al.</i>	(DELPHI Collab.)
ACCIARRI 95B PL B345 589	M. Acciarri <i>et al.</i>	(L3 Collab.)
AKERIB 91 PRL 67 1692	D.S. Akerib <i>et al.</i>	(CLEO Collab.)
WU 91 PL B273 177	Q.W. Wu <i>et al.</i>	(CUSB II Collab.)
LEE-FRANZINI 90 PRL 65 2947	J. Lee-Franzini <i>et al.</i>	(CUSB II Collab.)
HAN 85 PRL 55 36	K. Han <i>et al.</i>	(COLU, LSU, MPIM, STON)