



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

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
5324.75 ± 0.20 OUR FIT	

$m_{B^*} - m_B$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
45.18 ± 0.20 OUR FIT				
45.42 ± 0.26 OUR AVERAGE		Includes data from the datablock that follows this one.		
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	$E_{cm}^{ee} = 88-94$ GeV
45.5 ± 0.3 ± 0.8		¹ ABREU 95R	DLPH	$E_{cm}^{ee} = 88-94$ GeV
46.3 ± 1.9	1378	¹ ACCIARRI 95B	L3	$E_{cm}^{ee} = 88-94$ 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	$e^+e^- \rightarrow \gamma eX$

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.

$E_{cm} = 10.61-10.7$ 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 $E_{cm} = 10.6-11.2$ GeV, giving an admixture of $B^0, B^+,$ and B_s .

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
The data in this block is included in the average printed for a previous datablock.			

45.34 ± 0.20 OUR FIT

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	$E_{cm}^{ee} = 88-94$ GeV

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$0.91 \pm 0.24 \pm 0.09$	⁶ SIRUNYAN	18DF CMS	pp at 8 TeV

⁶ Uses exclusively reconstructed final states containing a $J/\psi \rightarrow \mu^+ \mu^-$ decay.

 B^* DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad B\gamma$	seen

 B^* REFERENCES

SIRUNYAN	18DF EPJ C78 939	A.M. Sirunyan <i>et al.</i>	(CMS Collab.)
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)