



$I(J^P) = \frac{1}{2}(1^-)$
 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	$E_{\text{cm}}^{ee} = 88\text{--}94\text{ GeV}$
45.5 ±0.3 ±0.8		¹ ABREU 95R	DLPH	$E_{\text{cm}}^{ee} = 88\text{--}94\text{ GeV}$
46.3 ±1.9	1378	¹ ACCIARRI 95B	L3	$E_{\text{cm}}^{ee} = 88\text{--}94\text{ GeV}$
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.
 $E_{\text{cm}} = 10.61\text{--}10.7\text{ GeV}$. 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 $E_{\text{cm}} = 10.6\text{--}11.2\text{ GeV}$, 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 $B_{s2}^*(5840)^0$ decay.			

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

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

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

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	13O	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)