



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

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	$E_{\text{cm}}^{\text{ee}} = 88\text{--}94$ GeV
45.5 ± 0.3 ± 0.8		¹ ABREU 95R	DLPH	$E_{\text{cm}}^{\text{ee}} = 88\text{--}94$ GeV
46.3 ± 1.9	1378	¹ ACCIARRI 95B	L3	$E_{\text{cm}}^{\text{ee}} = 88\text{--}94$ 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
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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	$E_{\text{cm}}^{\text{ee}} = 88\text{--}94$ GeV

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
0.91 ± 0.24 ± 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)
$\Gamma_1 B\gamma$	seen

NODE=S085

NODE=S085

NODE=S085M

NODE=S085M

NODE=S085M

NODE=S085DM

NODE=S085DM

NODE=S085DM;LINKAGE=F

NODE=S085DM;LINKAGE=1F

NODE=S085DM;LINKAGE=C

NODE=S085DM;LINKAGE=E

NODE=S085DM+

NODE=S085DM+

NODE=S085DM+;LINKAGE=AI

NODE=S085MD

NODE=S085MD

NODE=S085D0+

NODE=S085D0+

NODE=S085D0+;LINKAGE=A

NODE=S085215;NODE=S085

DESIG=1;OUR EST;→ UNCHECKED ←

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)

NODE=S085

REFID=59328
 REFID=54968
 REFID=45487
 REFID=44677
 REFID=44464
 REFID=44130
 REFID=41710
 REFID=42045
 REFID=41398
 REFID=22888