B^*

$I(J^P) = \frac{1}{2}(1^-)$
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	$e^+e^- \to Z$
45.3 ±0.35±0.87	4227	[1] BUSKULIC	96D	ALEP	$E_{\rm cm}^{ee}$= 88–94 GeV
45.5 ±0.3 ±0.8		[1] ABREU	95R	DLPH	$E_{\rm cm}^{ee}$= 88–94 GeV
46.3 ±1.9	1378	[1] ACCIARRI	95B	L3	$E_{\rm cm}^{ee}$= 88–94 GeV
46.4 ±0.3 ±0.8		[2] AKERIB	91	CLE2	$e^+e^- \to \gamma X$
45.6 ±0.8		[2] WU	91	CSB2	$e^+e^- \to \gamma X$, $\gamma \ell X$
45.4 ±1.0		[3] LEE-FRANZINI	90	CSB2	$e^+e^- \to \Upsilon(5S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
52 ±2 ±4	1400	[4] HAN	85	CUSB	$e^+e^- \to \gamma e X$

[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. $E_{\rm cm}$ = 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 ± 0.4 ± 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 $E_{\rm cm}$ = 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	13O	LHCB	pp at 7 TeV

[5] Obtained the mass difference between $B^{*+}K^-$ and B^+K^- from $B^*_{s2}(5840)^0$ decay.

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

VALUE (MeV)	CL%	DOCUMENT ID		TECN	COMMENT
<6	95	ABREU	95R	DLPH	$E_{\rm cm}^{ee}$= 88–94 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 $J/\psi \to \mu^+\mu^-$ decay.

*B** DECAY MODES

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

*B** REFERENCES

SIRUNYAN	18DF	EPJ C78 939	A.M. Sirunyan *et al.*	(CMS Collab.)
AAIJ	13O	PRL 110 151803	R. Aaij *et al.*	(LHCb Collab.)
ACKERSTAFF	97M	ZPHY C74 413	K. Ackerstaff *et al.*	(OPAL Collab.)
BUSKULIC	96D	ZPHY C69 393	D. Buskulic *et al.*	(ALEPH Collab.)
ABREU	95R	ZPHY C68 353	P. Abreu *et al.*	(DELPHI Collab.)
ACCIARRI	95B	PL B345 589	M. Acciarri *et al.*	(L3 Collab.)
AKERIB	91	PRL 67 1692	D.S. Akerib *et al.*	(CLEO Collab.)
WU	91	PL B273 177	Q.W. Wu *et al.*	(CUSB II Collab.)
LEE-FRANZINI	90	PRL 65 2947	J. Lee-Franzini *et al.*	(CUSB II Collab.)
HAN	85	PRL 55 36	K. Han *et al.*	(COLU, LSU, MPIM, STON)