



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

$I, J, P$  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)  
**5324.65 ± 0.25 OUR FIT**

DOCUMENT ID

### $m_{B^*} - m_B$

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>45.18 ± 0.23 OUR FIT</b>				
<b>45.42 ± 0.26 OUR AVERAGE</b>		Includes data from the datablock that follows this one.		
46.2 ± 0.3 ± 0.8		<sup>1</sup> ACKERSTAFF 97M	OPAL	$e^+e^- \rightarrow Z$
45.3 ± 0.35 ± 0.87	4227	<sup>1</sup> BUSKULIC 96D	ALEP	$E_{\text{cm}}^{\text{ee}} = 88\text{--}94$ GeV
45.5 ± 0.3 ± 0.8		<sup>1</sup> ABREU 95R	DLPH	$E_{\text{cm}}^{\text{ee}} = 88\text{--}94$ GeV
46.3 ± 1.9	1378	<sup>1</sup> ACCIARRI 95B	L3	$E_{\text{cm}}^{\text{ee}} = 88\text{--}94$ GeV
46.4 ± 0.3 ± 0.8		<sup>2</sup> AKERIB 91	CLE2	$e^+e^- \rightarrow \gamma X$
45.6 ± 0.8		<sup>2</sup> WU 91	CSB2	$e^+e^- \rightarrow \gamma X, \gamma \ell X$
45.4 ± 1.0		<sup>3</sup> 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	<sup>4</sup> HAN 85	CUSB	$e^+e^- \rightarrow \gamma e X$

<sup>1</sup>  $u, d, s$  flavor averaged.

<sup>2</sup> These papers report  $E_\gamma$  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  $B_s$ .

<sup>3</sup> 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.

<sup>4</sup> 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  
The data in this block is included in the average printed for a previous datablock.

**45.34 ± 0.23 OUR FIT**

**45.01 ± 0.30 ± 0.23**      <sup>5</sup> AAIJ      130 LHCb       $pp$  at 7 TeV

<sup>5</sup> Obtained the mass difference between  $B^{*+} K^-$  and  $B^+ K^-$  from  $B_{s2}^{*0}(5840)^0$  decay.

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

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

**$B^*$  DECAY MODES**

Mode		Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$	$B\gamma$	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)