



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

$I, J, P$  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  
**5324.83 ± 0.32 OUR FIT**    Error includes scale factor of 1.1.

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

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>45.38 ± 0.30 OUR FIT</b> Error includes scale factor of 1.1.				
<b>45.78 ± 0.35 OUR AVERAGE</b>				
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	$E_{cm}^{ee} = 88-94$ GeV
45.5 ± 0.3 ± 0.8		<sup>1</sup> ABREU 95R	DLPH	$E_{cm}^{ee} = 88-94$ GeV
46.3 ± 1.9	1378	<sup>1</sup> ACCIARRI 95B	L3	$E_{cm}^{ee} = 88-94$ 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.

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

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

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b>45.01 ± 0.30 ± 0.23</b>	<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	$E_{cm}^{ee} = 88-94$ 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)