



$$I(J^P) = \frac{1}{2}(\frac{1}{2}^+) \text{ Status: } *$$

### OMITTED FROM SUMMARY TABLE

ABREU 95V observe an excess of same-sign  $\Xi^\mp \ell^\mp$  events in jets, which they interpret as  $\Xi_b \rightarrow \Xi^- \ell^- \bar{\nu}_\ell X$ . They find that the probability for these events to come from non- $b$ -baryon decays is less than  $5 \times 10^{-4}$  and that  $\Lambda_b$  decays can account for less than 10% of these events.

In the quark model,  $\Xi_b^0$  and  $\Xi_b^-$  are an isodoublet ( $usb, dsb$ ) state; the lowest  $\Xi_b^0$  and  $\Xi_b^-$  ought to have  $J^P = 1/2^+$ . None of  $I, J$ , or  $P$  have actually been measured.

### $\Xi_b$ MEAN LIFE

This is actually a measurement of the average lifetime of  $b$ -baryons that decay to a jet containing a same-sign  $\Xi^\mp \ell^\mp$  pair. Presumably the mix is mainly  $\Xi_b$ , with some  $\Lambda_b$ .

“OUR EVALUATION” is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFAG) and are described at <http://www.slac.stanford.edu/xorg/hfag/>. The averaging/rescaling procedure takes into account corrections between the measurements and asymmetric lifetime errors.

VALUE ( $10^{-12}$ s)	EVTS	DOCUMENT ID	TECN	COMMENT
<b><math>1.39^{+0.34}_{-0.28}</math></b>				<b>OUR EVALUATION</b>
$1.35^{+0.37+0.15}_{-0.28-0.17}$		BUSKULIC	96T ALEP	Excess $\Xi^- \ell^-$ , impact parameters
$1.5^{+0.7}_{-0.4} \pm 0.3$	8	ABREU	95V DLPH	Excess $\Xi^- \ell^-$ , decay lengths

### $\Xi_b$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\Xi^- \ell^- \bar{\nu}_\ell$ anything	seen

### $\Xi_b$ BRANCHING RATIOS

$\Gamma(\Xi^- \ell^- \bar{\nu}_\ell \text{ anything})/\Gamma_{\text{total}}$	$\Gamma_1/\Gamma$		
VALUE	DOCUMENT ID	TECN	COMMENT
seen	<sup>1</sup> BUSKULIC	96T ALEP	Excess $\Xi^- \ell^-$ over $\Xi^- \ell^+$
<b>seen</b>	ABREU	95V DLPH	Excess $\Xi^- \ell^-$ over $\Xi^- \ell^+$

<sup>1</sup> BUSKULIC 96T measures  $[B(b \rightarrow \Xi_b) \times B(\Xi_b \rightarrow \Xi^- \ell^- \bar{\nu}_\ell \text{ anything})] = (5.4 \pm 1.1 \pm 0.8) \times 10^{-4}$  per lepton species, averaged over  $e$  and  $\mu$ .

## $\Xi_b$ REFERENCES

BUSKULIC	96T	PL B384 449	D. Buskulic <i>et al.</i>	(ALEPH Collab.)
ABREU	95V	ZPHY C68 541	P. Abreu <i>et al.</i>	(DELPHI Collab.)

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