

# $h_b(1P)$

$$I^G(J^{PC}) = ??(1^{+-})$$

Quantum numbers are quark model predictions,  $C = -$  established by  $\eta_b \gamma$  decay.

## $h_b(1P)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>9899.3 ± 1.0 OUR AVERAGE</b>				
9899.1 ± 0.4 ± 1.0	70k	MIZUK	12 BELL	$e^+ e^- \rightarrow \pi^+ \pi^-$ hadrons
9902 ± 4 ± 2	10.8k	LEES	11K BABR	$\Upsilon(3S) \rightarrow \eta_b \gamma \pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
9898.2 <sup>+1.1+1.0</sup> <sub>-1.0-1.1</sub>	50.0k	<sup>1</sup> ADACHI	12 BELL	10.86 $e^+ e^- \rightarrow \pi^+ \pi^-$ MM
<sup>1</sup> Superseded by MIZUK 12.				

## $h_b(1P)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1 \quad \eta_b(1S)\gamma$	(49 <sup>+8</sup> <sub>-7</sub> ) %

## $h_b(1P)$ BRANCHING RATIOS

$\Gamma(\eta_b(1S)\gamma)/\Gamma_{\text{total}}$	EVTS	DOCUMENT ID	TECN	COMMENT	$\Gamma_1/\Gamma$
<b>49.2 ± 5.7<sup>+5.6</sup><sub>-3.3</sub></b>	24k	MIZUK	12 BELL	$e^+ e^- \rightarrow (\gamma)\pi^+ \pi^-$ hadrons	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
seen	10.8k	LEES	11K BABR	$\Upsilon(3S) \rightarrow \eta_b \gamma \pi^0$	

## $h_b(1P)$ REFERENCES

ADACHI	12	PRL 108 032001	I. Adachi <i>et al.</i>	(BELLE Collab.)
MIZUK	12	PRL 109 232002	R. Mizuk <i>et al.</i>	(BELLE Collab.)
LEES	11K	PR D84 091101	J.P. Lees <i>et al.</i>	(BABAR Collab.)