$h_b(1P)$

$$I^G(J^{PC}) = 0^-(1^{+-})$$

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

$h_b(1P)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
9899.3±0.8 OUR AVERAGE					
9899.3±0.4±1.0	112k	TAMPONI	15	BELL	$e^+e^- \to \gamma\eta+$ hadrons
9899.1±0.4±1.0	70k	MIZUK	12	BELL	$e^+e^- \to \pi^+\pi^-$ hadrons
9902 ±4 ±2	10.8k	LEES	11K	BABR	$\Upsilon(3S) \to \eta_b\gamma\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$9898.2^{+1.1+1.0}_{-1.0-1.1}$	50.0k	[1] ADACHI	12	BELL	10.86 $e^+e^- \to \pi^+\pi^-$ MM

[1] Superseded by MIZUK 12.

$h_b(1P)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\eta_b(1S)\gamma$	(52^{+6}_{-5}) %

$h_b(1P)$ BRANCHING RATIOS

$\Gamma(\eta_b(1S)\gamma)/\Gamma_{\text{total}}$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ Γ_1/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
52 $^{+6}_{-5}$ OUR AVERAGE					
56 ±8 ±4	33.1k	[1] TAMPONI	15	BELL	$e^+e^- \to \gamma\eta+$ hadrons
$49.2±5.7^{+5.6}_{-3.3}$	24k	MIZUK	12	BELL	$e^+e^- \to (\gamma)\pi^+\pi^-$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •					
seen	10.8k	LEES	11K	BABR	$\Upsilon(3S) \to \eta_b\gamma\pi^0$

[1] Using B($\eta \to 2\gamma$) = (39.41 ± 0.20)%.

$h_b(1P)$ REFERENCES

TAMPONI	15	PRL 115 142001	U. Tamponi et al.	(BELLE Collab.)
ADACHI	12	PRL 108 032001	I. Adachi et al.	(BELLE Collab.)
MIZUK	12	PRL 109 232002	R. Mizuk et al.	(BELLE Collab.)
LEES	11K	PR D84 091101	J.P. Lees et al.	(BABAR Collab.)