$\eta_b(1S)$

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

OMITTED FROM SUMMARY TABLE

Quantum numbers shown are quark-model predictions. Observed in radiative decay of the $\Upsilon(3S)$, therefore $C = +$.

$\eta_b(1S)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$9388.9^{+\ 3.1}_{-\ 2.3} \pm\ 2.7$	19 ± 3k	AUBERT	08V	BABR	$\Upsilon(3S) \to\ \gamma X$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
9300 ±20 ±20		HEISTER	02D	ALEP	181–209 e^+e^-

$m_{\Upsilon(1S)} - m_{\eta_b}$

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$71.4^{+2.3}_{-3.1} \pm 2.7$	19 ± 3k	AUBERT	08V	BABR	$\Upsilon(3S) \to\ \gamma X$

γ ENERGY IN $\Upsilon(3S)$ DECAY

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$921.2^{+2.1}_{-2.8} \pm 2.4$	19 ± 3k	AUBERT	08V	BABR	$\Upsilon(3S) \to\ \gamma X$

$\eta_b(1S)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$3h^+3h^-$	seen
Γ_2	$2h^+2h^-$	not seen
Γ_3	$4h^+4h^-$	
Γ_4	$\gamma\gamma$	seen

$\eta_b(1S)$ $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(3h^+3h^-) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\Gamma_1\Gamma_4/\Gamma$

VALUE (eV)	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<470	95	ABDALLAH	06	DLPH	161–209 e^+e^-
<132	95	HEISTER	02D	ALEP	181–209 e^+e^-

$\Gamma(2h^+2h^-) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\Gamma_2\Gamma_4/\Gamma$

VALUE (eV)	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<190	95	ABDALLAH	06	DLPH	161–209 e^+e^-
< 48	95	HEISTER	02D	ALEP	181–209 e^+e^-

$\Gamma(4h^+4h^-) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ **$\Gamma_3\Gamma_4/\Gamma$**

VALUE (eV)	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<660	95	ABDALLAH 06	DLPH	161–209 e^+e^-

$\eta_b(1S)$ REFERENCES

AUBERT	08V	PRL 101 071801	B. Aubert *et al.*	(BABAR Collab.)
ABDALLAH	06	PL B634 340	J.M. Abdallah *et al.*	(DELPHI Collab.)
HEISTER	02D	PL B530 56	A. Heister *et al.*	(ALEPH Collab.)