$\eta_c(2S)$

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

OMITTED FROM SUMMARY TABLE

Needs confirmation. Quantum numbers are quark model predictions.

$\eta_c(2S)$ MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
3594±5	[1] EDWARDS	82C	CBAL	$e^+e^- \to \gamma X$

[1] Assuming mass of $\psi(2S) = 3686$ MeV.

$\eta_c(2S)$ WIDTH

VALUE (MeV)	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<8.0	95	EDWARDS	82C	CBAL	$e^+e^- \to \gamma X$

$\eta_c(2S)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	hadrons	seen
Γ_2	$p\overline{p}$	
Γ_3	$\gamma\gamma$	

$\eta_c(2S)$ Γ(i)$\Gamma(\gamma\gamma)/\Gamma^2$(total)

$\Gamma(p\overline{p}) \times \Gamma(\gamma\gamma)/\Gamma^2_{\text{total}}$ $\Gamma_2\Gamma_3/\Gamma^2$

VALUE (units 10^{-8})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 5.6	90	[2,3,4] AMBROGIANI	01	E835	$\overline{p}p \to \gamma\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 8.0	90	[2,3,5] AMBROGIANI	01	E835	$\overline{p}p \to \gamma\gamma$
<12.0	90	[3,5] AMBROGIANI	01	E835	$\overline{p}p \to \gamma\gamma$

[2] Including the measurements of of ARMSTRONG 95F in the AMBROGIANI 01 analysis.
[3] For a total width Γ=5 MeV.
[4] For the resonance mass region 3589–3599 MeV/c^2.
[5] For the resonance mass region 3575–3660 MeV/c^2.

$\eta_c(2S)$ BRANCHING RATIOS

$\Gamma(\text{hadrons})/\Gamma_{\text{total}}$ Γ_1/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	EDWARDS	82C	CBAL	$e^+e^- \to \gamma X$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	ABREU	98O	DLPH	$e^+e^- \to e^+e^-$ +hadrons

$\Gamma(\gamma\gamma)/\Gamma_{total}$ Γ_3/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.01	90	LEE	85 CBAL	$\psi' \rightarrow$ photons

$\eta_c(2S)$ REFERENCES

AMBROGIANI	01	PR D64 052003	M. Ambrogiani *et al.*	(FNAL E835 Collab.)
ABREU	98O	PL B441 479	P. Abreu *et al.*	(DELPHI Collab.)
ARMSTRONG	95F	PR D52 4839	T.A. Armstrong *et al.*	(FNAL, FERR, GENO+)
LEE	85	SLAC 282	R.A. Lee	(SLAC)
EDWARDS	82C	PRL 48 70	C. Edwards *et al.*	(CIT, HARV, PRIN+)

OTHER RELATED PAPERS

ACCIARRI	99T	PL B461 155	M. Acciarri *et al.*	(L3 Collab.)
OREGLIA	82	PR D25 2259	M.J. Oreglia *et al.*	(SLAC, CIT, HARV+)
PORTER	81	SLAC Summer Inst. 355	F.C. Porter *et al.*	(CIT, HARV, PRIN+)
BARTEL	78B	PL 79B 492	W. Bartel *et al.*	(DESY, HEIDP)