Meson Full Listings

$\psi(2S) = \psi(3685)$

$\Gamma(\pi^+\pi^- K^+ K^-)/\Gamma_{total}$ Γ_{13}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
16±4	[12] TANENBAUM	78	MRK1	e^+e^-

$\Gamma(\pi^+\pi^- p\bar{p})/\Gamma_{total}$ Γ_{14}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
8 ±2	[12] TANENBAUM	78	MRK1	e^+e^-

$\Gamma(K^+\overline{K}^*(892)^0\pi^- + \text{c.c.})/\Gamma_{total}$ Γ_{15}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
6.7±2.5	TANENBAUM	78	MRK1	e^+e^-

$\Gamma(2(\pi^+\pi^-))/\Gamma_{total}$ Γ_{16}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
4.5±1.0	TANENBAUM	78	MRK1	e^+e^-

$\Gamma(\rho^0\pi^+\pi^-)/\Gamma_{total}$ Γ_{17}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
4.2±1.5	TANENBAUM	78	MRK1	e^+e^-

$\Gamma(\bar{p}p)/\Gamma_{total}$ Γ_{18}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.9±0.5 OUR AVERAGE					
1.4±0.8	4	BRANDELIK	79C	DASP	e^+e^-
2.3±0.7		FELDMAN	77	MRK1	e^+e^-

$\Gamma(3(\pi^+\pi^-))/\Gamma_{total}$ Γ_{19}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
1.5±1.0	[12] TANENBAUM	78	MRK1	e^+e^-

$\Gamma(\bar{p}p\pi^0)/\Gamma_{total}$ Γ_{20}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.4±0.5	9	FRANKLIN	83	MRK2	e^+e^-

$\Gamma(K^+K^-)/\Gamma_{total}$ Γ_{21}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
1.0±0.7		BRANDELIK	79C	DASP	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.5	90	FELDMAN	77	MRK1	e^+e^-

$\Gamma(\pi^+\pi^-)/\Gamma_{total}$ Γ_{23}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
0.8±0.5		BRANDELIK	79C	DASP	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.5	90	FELDMAN	77	MRK1	e^+e^-

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{total}$ Γ_{22}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
0.85±0.46	4	FRANKLIN	83	MRK2	$e^+e^- \rightarrow$ hadrons

$\Gamma(\Lambda\overline{\Lambda})/\Gamma_{total}$ Γ_{24}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<4	90	FELDMAN	77	MRK1	e^+e^-

$\Gamma(\Xi^-\overline{\Xi}^+)/\Gamma_{total}$ Γ_{25}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<2	90	FELDMAN	77	MRK1	e^+e^-

$\Gamma(\rho\pi)/\Gamma_{total}$ Γ_{26}/Γ

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
< 0.83	90	1	FRANKLIN	83	MRK2	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<10	90		BARTEL	76	CNTR	e^+e^-
<10	90		[13] ABRAMS	75	MRK1	e^+e^-

$\Gamma(K^+K^-\pi^0)/\Gamma_{total}$ Γ_{27}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<2.96	90	1	FRANKLIN	83	MRK2	$e^+e^- \rightarrow$ hadrons

$\Gamma(K^+\overline{K}^*(892)^- + \text{c.c.})/\Gamma_{total}$ Γ_{28}/Γ

VALUE (units 10^{-5})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<1.79	90	0	FRANKLIN	83	MRK2	$e^+e^- \rightarrow$ hadrons

[12] Assuming entirely strong decay.
[13] Final state $\rho^0\pi^0$.

RADIATIVE DECAYS

$\Gamma(\gamma\chi_{c0}(1P))/\Gamma_{total}$ Γ_{29}/Γ

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
9.3±0.8 OUR AVERAGE				
9.9±0.5±0.8	[14] GAISER	86	CBAL	$e^+e^- \rightarrow \gamma X$
7.2±2.3	[14] BIDDICK	77	CNTR	$e^+e^- \rightarrow \gamma X$
7.5±2.6	[14] WHITAKER	76	MRK1	e^+e^-

$\Gamma(\gamma\chi_{c1}(1P))/\Gamma_{total}$ Γ_{30}/Γ

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
8.7±0.8 OUR FIT				
8.7±0.8 OUR AVERAGE				
9.0±0.5±0.7	[15] GAISER	86	CBAL	$e^+e^- \rightarrow \gamma X$
7.1±1.9	[16] BIDDICK	77	CNTR	$e^+e^- \rightarrow \gamma X$

$\Gamma(\gamma\chi_{c2}(1P))/\Gamma_{total}$ Γ_{31}/Γ

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
7.8±0.8 OUR FIT				
7.8±0.8 OUR AVERAGE				
8.0±0.5±0.7	[17] GAISER	86	CBAL	$e^+e^- \rightarrow \gamma X$
7.0±2.0	[16] BIDDICK	77	CNTR	$e^+e^- \rightarrow \gamma X$

$\Gamma(\gamma\eta_c(1S))/\Gamma_{total}$ Γ_{32}/Γ

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
0.28±0.06	GAISER	86	CBAL	$e^+e^- \rightarrow \gamma X$

$\Gamma(\gamma\eta_c(2S))/\Gamma_{total}$ Γ_{33}/Γ

VALUE (units 10^{-2})	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.2 to 1.3	95	EDWARDS	82C	CBAL	$e^+e^- \rightarrow \gamma X$

$\Gamma(\gamma\pi^0)/\Gamma_{total}$ Γ_{34}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
< 54	95	[18] LIBERMAN	75	SPEC	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<100	90	WIIK	75	DASP	e^+e^-

$\Gamma(\gamma\eta'(958))/\Gamma_{total}$ Γ_{35}/Γ

VALUE (units 10^{-2})	CL%	DOCUMENT ID		TECN	COMMENT
<0.11	90	[19] BARTEL	76	CNTR	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.6	90	[20] BRAUNSCH...	77	DASP	e^+e^-

$\Gamma(\gamma\eta)/\Gamma_{total}$ Γ_{36}/Γ

VALUE (units 10^{-2})	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.02	90	YAMADA	77	DASP	$e^+e^- \rightarrow 3\gamma$

$\Gamma(\gamma\eta(1440) \rightarrow \gamma K\overline{K}\pi)/\Gamma_{total}$ Γ_{38}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.12	90	[21] SCHARRE	80	MRK1	e^+e^-

[14] Angular distribution $(1+\cos^2\theta)$ assumed.
[15] Angular distribution $(1-0.189\ \cos^2\theta)$ assumed.
[16] Valid for isotropic distribution of the photon.
[17] Angular distribution $(1-0.052\ \cos^2\theta)$ assumed.
[18] Restated by us using $B(\psi(2S) \rightarrow \mu^+\mu^-) = 0.0077$.
[19] The value is normalized to the branching ratio for $\Gamma(J/\psi(1S)\eta)/\Gamma_{total}$.
[20] Restated by us using total decay width 228 keV.
[21] Includes unknown branching fraction $\eta(1440) \rightarrow K\overline{K}\pi$.

$\psi(2S)$ REFERENCES

ARMSTRONG	93B	PR D47 772	+Bettoni, Bharadwaj+	(FNAL E760 Collab.)
PDG	92	PR D45, 1 June, Part II	Hikasa, Barnett, Stone+	(KEK, LBL, BOST+)
ALEXANDER	89	NP B320 45	+Bonvicini, Drell, Frey, Luth	(LBL, MICH, SLAC)
GAISER	86	PR D34 711	+Bloom, Bulos, Godfrey+	(Crystal Ball Collab.)
FRANKLIN	83	PRL 51 963	+Franklin, Feldman, Abrams, Alam+	(LBL, SLAC)
EDWARDS	82C	PRL 48 70	+Partridge, Peck+	(CIT, HARV, PRIN, STAN, SLAC)
LEMOIGNE	82	PL 113B 509	+Barate, Astbury+	(SACL, LOIC, SHMP, IND)
HIMEL	80	PRL 44 920	+Abrams, Alam, Blocker+	(LBL, SLAC)
OREGLIA	80	PRL 45 959	+Partridge+	(SLAC, CIT, HARV, PRIN, STAN)
SCHARRE	80	PL 97B 329	+Trilling, Abrams, Alam, Blocker+	(SLAC, LBL)
ZHOLENTZ	80	PL 96B 214	+Kurdadze, Lelchuk, Mishnev+	(NOVO)
Also	81	SJNP 34 814 Translated from YAF 34 1471.	Zholentz, Kurdadze, Lelchuk+	(NOVO)
BRANDELIK	79B	NP B160 426	+Cords+	(DASP Collab.)
BRANDELIK	79C	ZPHY C1 233	+Cords+	(DASP Collab.)
BARTEL	78B	PL 79B 492	+Dittmann, Duinker, Olsson, O'Neill+	(DESY, HEIDP)
TANENBAUM	78	PR D17 1731	+Alam, Boyarski+	(SLAC, LBL)
BIDDICK	77	PRL 38 1324	+Burnett+	(UCSD, UMD, PAVI, PRIN, SLAC, STAN)
BRAUNSCH...	77	PL 67B 249	Braunschweig+	(DASP Collab.)
BURMESTER	77	PL 66B 395	+Criegee+	(DESY, HAMB, SIEG, WUPP)
FELDMAN	77	PRPL 33C 285	+Perl	(LBL, SLAC)
YAMADA	77	Hamburg Conf. 69		(DASP Collab.)
BARTEL	76	PL 64B 483	+Duinker, Olsson, Steffen, Heintze+	(DESY, HEIDP)
TANENBAUM	76	PRL 36 402	+Abrams, Boyarski, Bulos+	(SLAC, LBL) IG
WHITAKER	76	PRL 37 1596	+Tanenbaum, Abrams, Alam+	(SLAC, LBL)
ABRAMS	75	Stanford Symp. 25		(LBL)
ABRAMS	75B	PRL 34 1181	+Briggs, Chinowsky, Friedberg+	(LBL, SLAC)
BOYARSKI	75C	Palermo Conf. 54	+Breidenbach, Bulos, Abrams, Briggs+	(SLAC, LBL)
HILGER	75	PRL 35 625	+Beron, Ford, Hofstadter, Howell+	(STAN, PENN)
LIBERMAN	75	Stanford Symp. 55		(STAN)
LUTH	75	PRL 35 1124	+Boyarski, Lynch, Breidenbach+	(SLAC, LBL) JPC
WIIK	75	Stanford Symp. 69		(DESY)